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Connecticut Agricultural Experiment Station  
New Haven, Connecticut

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REPORT ON INSPECTION  
OF  
COMMERCIAL FERTILIZERS  
1928

**Connecticut Agricultural Experiment Station**  
New Haven, Connecticut

**Report on Inspection**  
of  
**Commercial Fertilizers for 1928**

E. M. BAILEY, *Chemist in Charge of the*  
*Analytical Laboratory.*

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# Report on Inspection of Commercial Fertilizers 1928

E. M. BAILEY,  
*Chemist in Charge, Analytical Laboratory.*

## THE FERTILIZER LAW.

The provisions of the Connecticut fertilizer law have been discussed in previous reports but for more ready reference its essential features may be noted here.

### SIGNIFICANCE OF THE TERM "COMMERCIAL FERTILIZERS."

Explaining what is meant by the term "commercial fertilizers" the law says:

"The term 'commercial fertilizers' shall be construed to mean any and every substance imported, manufactured, prepared or sold for fertilizing or manuring or soil amendment purposes, except barnyard manure and stable manure which have not been artificially treated or manipulated, marl and lime. Cottonseed meal, rapeseed meal, castor pomace and all other vegetable products used as fertilizers, including the ashes of cotton hulls and wood ashes, shall be included as fertilizers within the meaning of this act and separate analysis fees shall be paid on each different grade which is sold or offered for sale in the state. The person responsible for paying the fees above prescribed may deduct from the total tonnage sold such sales of cottonseed meal or other vegetable products as are made to anyone who gives a written certificate on a form supplied by the Connecticut Agricultural Experiment Station stating that the material bought by him was to be used exclusively for feed and not for fertilizer."

### CONCERNING COTTONSEED MEAL.

Cottonseed meal is a fertilizer within the meaning of the Statute but it is provided that when this product is sold for feeding purposes only, it shall be exempt from the tonnage tax. When sold as a feed, cottonseed meal is subject to registration under the terms of the feed law. By regulation, however, if it is sold exclusively as a fertilizer, or exclusively as a feed it may be registered but once, and under that law which applies.

The status of cottonseed meal under the fertilizer law has been clearly stated in bulletin<sup>1</sup> from this Station from which the following may be quoted:

*Registration and analysis fees.* "Each brand of cottonseed meal must be registered on forms provided by this Station and an analysis fee of ten dollars paid on it before it is sold, offered or exposed for sale, and on the first day of January annually thereafter."

<sup>1</sup>Bull. of Information No. 9, 1919.



"A distinctive name constitutes a distinct brand. If shipments have different guaranties of composition they are held to be different brands."

*Branding or tagging.* "Since nitrogen is the only fertilizer ingredient considered in the trade in cottonseed meal no guaranty of phosphoric acid or potash is required. If either is guaranteed by the manufacturer, however, an additional fee of ten dollars must be paid on each element. The statement of composition now legal for feeds may be used hereafter if the percentage of nitrogen is stated.

"Note that the law regarding feeding stuffs forbids the use of metal in attaching tags and requires that each package shall be branded or tagged with the statement required by law."

*Duties of shippers.* "It is assumed from correspondence with shippers outside the state that they will register the brands which they sell in Connecticut, will pay analysis fees as has been done in the past by manufacturers of commercial fertilizers, and will semi-annually thereafter pay the tonnage fees.

"They will report to this Station their total sales and if they wish, may report what part has been sold for feed exclusively. From the reports of dealers within the state it will be possible to determine quite closely the amounts of each brand actually used as feed.

"In the case the jobber outside the state neglects or refuses to register a brand, the dealer who sells it within the state is responsible under the law."

*Duties of dealers.* "Dealers are required to file with the director of the Station on July first of each year and semi-annually thereafter a sworn statement of their total sales of each brand of cottonseed meal and the amount of each sold exclusively for feed, during the preceding six months."

#### REQUIREMENTS TO BE COMPLIED WITH BY SELLERS OF COMMERCIAL FERTILIZERS.

The seller is responsible for the proper labeling of each package, for the registration at the Station of every brand sold by him an for the payment of the analysis fee, before offering for sale, and annually thereafter on January 1st.

The law specifies the information which shall be given on the label as follows:

1. *Weight of each package in pounds.*
2. *Brand name or trade mark.*
3. *Analysis:*
  - (a) *Available phosphoric acid, per cent.*
  - (b) *Total phosphoric acid, per cent.*
  - (c) *Nitrogen, per cent.*
  - (d) *Equivalent ammonia, per cent.*
  - (e) *Potash soluble in water, per cent.*
4. *Name and address of the manufacturer or of the person who is responsible for the statement of the guaranty.*

In the case of bone meal, tankage or other organic products, and in basic slag and mineral phosphates in which a large percentage of the phosphoric acid is not available by laboratory methods, the

phosphoric acid shall be claimed as total phosphoric acid unless it is desired to claim available phosphoric acid instead, in which case the guaranty shall take the form set forth above.

The label may be a tag attached to the package or a statement printed thereon. Percentages shall be minimum percentages only.

The presence of leather in its various forms, wool waste, hair, or any inert nitrogenous material shall be declared on the label unless, by processing, the activity of these materials has been rendered satisfactory as determined by official methods.

When potash is derived from sulphate or carbonate of potash it may be so claimed.

No claim or guaranty for less than 0.82 per cent of nitrogen or for less than 1 per cent of phosphoric acid, or for less than 1 per cent of potash shall be regarded in the registration or analysis of any commercial fertilizer.

The seller must also, on the 1st of January and July, report the tonnage of fertilizer sold within the preceding six months and pay to the director of the Station a tonnage fee of 6 cents per ton. On request, copies of the law and blanks for registration and for tonnage reports will be supplied by the Station.

*If, however, proper labeling, registration and payments have been provided for by the manufacturer of the brands or by another responsible person all sellers of such brands are released from the above mentioned requirements. The retailer, therefore, should assure himself that the requirements of the law have been met by the manufacturers of the brands which he handles, or himself be prepared to meet all these requirements.*

#### PRECAUTIONS TO BE OBSERVED IN DRAWING SAMPLES FOR ANALYSIS.

The analysis of a fertilizer is of no value unless the sample analyzed represents as nearly as possible the stock from which the sample was drawn. The law prescribes the procedure to be followed by authorized agents of this Station when taking official samples for analysis as follows:

“When samples are taken from fertilizers in bags, a tube shall be used, and it shall be inserted at one end of the bag and shall pass substantially the entire length of the bag, so as to take a core of the material being sampled from substantially the entire length of the bag. Samples thus taken from individual bags shall be thoroughly mixed, and the official samples shall be taken from the mixture so drawn by the method known as ‘quartering.’ Samples of fertilizers taken as herein provided shall be taken from at least five per centum of the separate original unopened packages in the lot, for the mixture from which the official samples shall be taken. If less than one hundred bags are in the lot, at least five bags shall be sampled; if less than five bags, all shall be sampled. Broken packages shall not be sampled.”

## GRATUITOUS ANALYSES.

Under the fertilizer law the Station is charged only with the analysis of samples drawn by its own agents. It does, however, each year analyze a considerable number of samples drawn by individuals, representing stock purchased by them for their own use. The object of the purchaser is to satisfy himself as to whether he has obtained goods of the grade represented and, perhaps, to obtain evidence upon which to base a claim for shortage should the materials not meet their guaranties. The Station assumes no responsibility for the sampling in case of such unofficial samples and can only vouch for the accuracy of the results obtained on the materials as submitted. Since a representative sample is as essential as an accurate analysis in judging the quality of a shipment of fertilizer, it is evident that a satisfactory adjustment will seldom be effected on the basis of an unofficial sample. Notwithstanding certain objections which may be raised to the practice of analyzing samples submitted by individuals, the Station is disposed to continue such work so long as there is evidence that it constitutes a useful service.

## REGISTRATIONS FOR 1928.

For 1928, 61 firms and individuals registered at this Station for sale in this State 433 brands of fertilizers. As required by Statute, the brands so registered are listed as follows:

**American Agricultural Chemical Company, New Haven Sales Dept.,  
New Haven, Conn.**

A.A.C. Acme Fertilizer  
 A.A.C. Aroostook Potato Manure  
 A.A.C. Castor Pomace  
 A.A.C. Complete General Fertilizer  
 A.A.C. Double Manure Salts  
 A.A.C. Double A Tobacco Fertilizer  
 A.A.C. Dry Ground Fish  
 A.A.C. Gladiator Fertilizer  
 A.A.C. Grass and Lawn Top Dressing  
 A.A.C. Ground Tankage  
 A.A.C. Hi-Grade Tobacco Manure  
 A.A.C. Monarch Fertilizer  
 A.A.C. Muriate of Potash  
 A.A.C. Nitrate of Soda  
 A.A.C. Old Hickory Fertilizer  
 A.A.C. Princess Fertilizer  
 A.A.C. Pulverized Sheep and Goat Manure  
 A.A.C. Special Ground Bone  
 A.A.C. Sulphate of Ammonia  
 A.A.C. Sulphate of Potash  
 A.A.C. 16% Superphosphate (Acid Phosphate)  
 A.A.C. Tobacco Ash Element  
 Agrico Fertilizer for Corn  
 Agrico Fertilizer for Potatoes  
 Agrico Fertilizer for Truck  
 Bowker's All Round Fertilizer  
 Bowker's Lawn and Garden Dressing  
 Bowker's Market Garden Fertilizer  
 Bowker's Potato and Vegetable Phosphate  
 Bowker's Stockbridge Early Crop Manure  
 Bowker's Stockbridge Hill and Drill Fertilizer  
 Bowker's Stockbridge Tobacco Manure  
 Bowker's Sure Crop Fertilizer  
 Bradley's Blood, Bone and Potash  
 Bradley's Complete Manure for Potatoes and Vegetables  
 Bradley's Complete Tobacco Manure  
 Bradley's Eclipse Fertilizer  
 Bradley's Northland Potato Grower  
 Bradley's Potato Fertilizer  
 Bradley's Potato Manure  
 Bradley's XL Superphosphate of Lime  
 Cottonseed Meal  
 National Aroostook Special Fertilizer  
 National Complete Tobacco Fertilizer  
 National Market Garden Fertilizer  
 National Pine Tree State Potato Fertilizer  
 National Premier Potato Manure  
 Sanderson's Atlantic Coast Mixture  
 Sanderson's Complete Tobacco Grower  
 Sanderson's Corn Superphosphate  
 Sanderson's Formula A  
 Sanderson's Formula B  
 Sanderson's Potato Manure

**American Cyanamid Company, 535 Fifth Ave., New York City.**  
Ammo-Phos

**Apothecaries Hall Company, Waterbury, Conn.**

Acid Phosphate  
Basic Slag Phosphate  
Bone Meal 3-22  
Bone Meal 4-20  
Bone and Meat Tankage  
Carbonate of Potash  
Castor Pomace  
Cotton Seed Meal  
Dry Ground Fish  
Liberty Corn and All Crops, 2-8-2  
Liberty Corn, Fruit and All Crops, 2-12-4  
Liberty Fish, Bone and Potash, 3-8-3  
Liberty High Grade Market Gardeners, 5-8-7  
Liberty High Grade Tobacco Manure, 7-3-7  
Liberty Home Vegetable Garden Fertilizer  
Liberty Lawn Fertilizer  
Liberty Onion Special (Potash as Sulphate), 4-8-7  
Liberty Potato and General Crops, 4-8-10  
Liberty Potato and Market Gardener's Special, 4-8-4  
Liberty Potato and Vegetable, 2-8-10  
Liberty Special Fertilizer for Fruit, 7-8-6  
Liberty Tobacco Special, 5-3-5  
Liberty Tobacco Starter  
Liberty Top Dresser for Grass and Grain, 10-3½-8  
Muriate of Potash  
Nitrate Soda  
Nitrate Soda and Potash  
Precipitated Bone  
Sheep Manure  
Sulphate Ammonia  
Sulphate Potash  
Sulphate Potash-Magnesia  
Tankage

**Armour Fertilizer Works, 50 Broad St., New York City.**

Armour's Big Crop Bone Meal 3-48  
Armour's Big Crop Fertilizer 2-12-4  
Armour's Big Crop Fertilizer 3-8-4  
Armour's Big Crop Fertilizer 4-8-4  
Armour's Big Crop Fertilizer 4-8-7  
Armour's Big Crop Fertilizer 4-6-10  
Armour's Big Crop Fertilizer 4-16-4  
Armour's Big Crop Fertilizer 5-8-7  
Armour's Big Crop Fertilizer 7-11-10  
Armour's Big Crop Fertilizer 7-12-7  
Armour's Big Crop Fertilizer 8-6-6  
Armour's Big Crop Super Phosphate (Acid Phosphate) 16%  
Armour's Big Crop Super Phosphate 20%  
Armour's Big Crop Tobacco Fertilizer 7-3-7  
Armour's Big Crop Tobacco Special 5-3-5  
Armour's Castor Pomace 5½%  
Armour's Cotton Seed Meal 8%  
Armour's Lawn and Garden Grower 6-8-6  
Armour's Ground Tankage 9%  
Armour's Muriate of Potash 48%



Armour's Nitrate of Soda 18%  
 Armour's Sheep and Goat Manure 1½-1-2  
 Armour's Sulphate of Ammonia 25%  
 Armour's Sulphate of Potash 48%

**Ashcraft-Wilkinson Co., Trust Co. of Georgia Bldg., Atlanta, Ga.**

"Helmet"  
 "Monarch"

**Atlantic Packing Company, New Haven, Conn.**

Atlantic 5-4-16  
 Atlantic 5-8-7  
 Atlantic Grain Fertilizer 2-10-2  
 Atlantic Special Vegetable 4-8-4

**The Baker Castor Oil Company, 120 Broadway, New York City.**

Castor Pomace

**Barrett Company, 40 Rector St., New York City.**

Arcadian Nitrate of Soda  
 Arcadian Sulphate of Ammonia  
 Sulphate of Ammonia

**F. A. Bartlett Tree Expert Co., Stamford, Conn.**

Bartlett's Green Tree Food

**The Berkshire Chemical Company, Bridgeport, Conn.**

Berkshire Castor Pomace  
 Berkshire Complete Tobacco  
 Berkshire Dry Ground Fish  
 Berkshire Economical Grass  
 Berkshire Fine Ground Bone  
 Berkshire Grass Special  
 Berkshire Ground Tankage  
 Berkshire Long Island Special  
 Berkshire Market Garden Fertilizer  
 Berkshire Potato and Vegetable Fertilizer  
 Berkshire Sheep Manure  
 Berkshire Super Phosphate (Acid Phosphate)  
 Berkshire Tobacco Special  
 Berkshire Tobacco Starter  
 Berkshire Truck Fertilizer  
 Carbonate of Potash  
 High Grade Sulphate Potash  
 Muriate Potash  
 Nitrate of Soda  
 Precipitated Bone Phosphate

**Amos D. Bridge's Sons, Incorporated, Hazardville, Conn.**

Corn, Onion, Potato and General Purpose  
 Special Tobacco Fertilizer

**F. W. Brode Corp., 119 Madison Ave., Memphis, Tenn.**

"Owl Brand," 36% Cotton Seed Meal

**A. H. Case & Company, Inc., 965 William St., Buffalo, N. Y.**

Par Plus Brand Pulverized Sheep Manure

**The E. D. Chittenden Company, Bridgeport, Conn.**

Chittenden's Basic Slag  
 Chittenden's Castor Pomace  
 Chittenden's Complete Grain  
 Chittenden's Dry Ground Fish  
 Chittenden's Fine Ground Bone  
 Chittenden's High Grade Potato  
 Chittenden's Potato Special 4% Potash  
 Chittenden's Special Top Dresser  
 Chittenden's Tobacco Special  
 Chittenden's Valley Wrapper Brand  
 Chittenden's Vegetable and Onion Grower  
 Special Mixture

**Everett B. Clark Seed Company, Milford, Conn., Succeeded by Associated Seed Growers, Inc., New Haven, Conn.**

Nitrate of Soda  
 16% Acid Phosphate  
 Special Mixture for General Use 4-8-4  
 Super Phosphate  
 Special Mixture with 6% Potash 4-8-6  
 Tip Top Brand

**The Conn. Fat Rendering & Fertilizer Corp., West Haven, Conn.**

Tankage

**Consolidated Rendering Company, 40 North Market St., Boston, Mass.**

Castor Pomace  
 Corenco Sheep Manure  
 Dry Ground Fish  
 Ground Bone  
 Muriate of Potash  
 Nitrate of Soda  
 Superphosphate (Acid Phosphate)  
 Sulphate of Ammonia  
 Sulphate of Potash  
 Tankage 6-30  
 Tankage 9-20

**C. & R. Sales Co., Worcester, Mass.**

C. & R. Lawn Shrub Fertilizer

**The Davey Tree Expert Company, Kent, Ohio.**

Davey Shredded Cattle Manure  
 Davey Tree Food

**Eastern States Farmers' Exchange, 38 Lyman St., Springfield, Mass.**

Buckland's Formula A 6-2-7 Special Tobacco Mixture  
 Eastern States Acid Phosphate  
 Eastern States Calcium Nitrate  
 Eastern States Dried Ground Fish  
 Eastern States Fine Bone Meal  
 Eastern States Ground Animal Tankage  
 Eastern States Muriate of Potash  
 Eastern States Nitrate of Potash  
 Eastern States Nitrate of Soda  
 Eastern States 0-16-8 Open Formula

Eastern States 3-12-3 Open Formula  
 Eastern States 4-8-10 Open Formula  
 Eastern States 4-16-4 Open Formula  
 Eastern States 5-8-7 Open Formula  
 Eastern States 5-10-5 Open Formula  
 Eastern States 8-6-6 Open Formula  
 Eastern States 8-16-8 Open Formula  
 Eastern States 8-16-20 Open Formula  
 Eastern States 10-16-14 Open Formula  
 Eastern States 10-16-14 (Potash from Sulphate) Open Formula  
 Eastern States Open Formula 9-3-7 Tobacco Fertilizer  
 Eastern States Open Formula 10-3-8 Tobacco Fertilizer  
 Eastern States Precipitated Bone  
 Eastern States Sulphate of Ammonia  
 Eastern States Sulphate of Potash  
 Eastern States Urea

**Edward Eggert, 208 State St., Hartford, Conn.**

Diamond E. E. Cotton Seed Hull Ashes

**Essex Fertilizer Company, 39 North Market St., Boston, Mass.**

Essex A1 Super 2-10-2  
 Essex Complete Manure 5-8-7  
 Essex Fish Fertilizer For All Crops 3-8-4  
 Essex Market Garden 4-8-4  
 Essex Peerless Potato Manure 4-6-10  
 Essex Tobacco Manure 5-3-5  
 Essex Top Dressing 7-6-5

**Ford Motor Company, Detroit, Michigan.**

Ford Ammonium Sulphate

**Four Seasons Fertilizer Co., Inc., 135 West 29th St., New York City.**

Four Seasons Fertilizer

**The L. T. Frisbie Company, New Haven, Conn.**

Frisbie's 5-8-7  
 Frisbie's Corn and Grain Fertilizer 2-10-2  
 Frisbie's Fine Bone Meal 4-22  
 Frisbie's Market Garden 4-8-7  
 Frisbie's Special 3-8-4  
 Frisbie's Tobacco Grower 5-3-5  
 Frisbie's Top Dresser  
 Frisbie's Special Vegetable and Potato Grower 4-8-4

**Gash-Stull Company, Chester, Pa.**

Young's Formula (8-7-6)

**The Grasselli Chemical Company, Cleveland, Ohio.**

Grasselli Odorless Plant Food

**Humphreys-Godwin Company, Memphis, Tenn.**

Bull Brand Cottonseed Meal  
 Danish Brand Cottonseed Feed  
 Dixie Brand Cottonseed Meal

**International Agricultural Corporation, 38 Chauncy St., Boston, Mass.**

Cottonseed Hull Ashes  
 41% Cottonseed Meal  
 Cottonseed Meal 43%  
 I. A. C. Basic Slag  
 Nitrate of Lime  
 Tobacco Special 7-6-5  
 Vuelta Abajo 7-9-8

**John Joynt, Lucknow, Ontario, Canada.**

Canada Wood Ashes

**Spencer Kellogg & Sons, Inc., Buffalo, N. Y.**

Castor Pomace

**Lowell Fertilizer Company, 40 North Market St., Boston, Mass.**

Lowell 5-10-5  
 Lowell Animal Brand A High Grade Manure For All Crops 3-8-4  
 Lowell Bone Fertilizer 2-10-2  
 Lowell Corn and Vegetable 4-8-4  
 Lowell Market Garden Manure 5-8-7  
 Lowell Potato Grower 4-6-10  
 Lowell Tobacco Manure 5-3-5  
 Lowell Top Dressing 7-6-5

**L. B. Lovitt & Company, Memphis, Tenn.**

"Lovit Brand" 43% Cottonseed Meal.

**The Mapes Formula & Peruvian Guano Co., 270 Madison Ave., New York City.**

The Mapes Connecticut Valley Special  
 The Mapes Corn Manure  
 The Mapes General Tobacco Manure  
 The Mapes General Truck Manure  
 The Mapes General Use Manure  
 The Mapes Onion Manure  
 The Mapes Potato Manure  
 The Mapes Special Trucker  
 The Mapes Special Trucker "S. P."  
 The Mapes Tobacco Ash Constituents  
 The Mapes Tobacco Ash and Starter  
 The Mapes Tobacco Manure, Wrapper Brand  
 The Mapes Tobacco Starter Improved  
 The Mapes Top Dresser  
 Nitrate of Soda  
 Pure Fine Ground Bone  
 Sulphate of Potash

**A. G. Markham & Company, Springfield, Mass.**

4-8-4  
 4-6-10  
 5-8-7

**Meech & Stoddard, Inc., Middletown, Conn.**

Sheep Manure

**Natural Guano Company, Aurora, Illinois.**

"Sheep's Head" Pulverized Sheep Manure

**New England Fertilizer Company, 40A North Market St., Boston, Mass.**

New England Complete Manure 4-6-10  
 New England Corn Phosphate 2-10-2  
 New England Market Garden Manure 5-8-7  
 New England Potato and Vegetable Manure 4-8-4  
 New England Super, A High Grade Fertilizer For All Crops 3-8-4  
 New England Tobacco 7-3-7  
 New England Tobacco Manure 5-3-5

**Olds & Whipple, Inc., Hartford, Conn.**

Favorite Brand Sheep Manure  
 High Grade Carbonate of Potash 96/98  
 High Grade Sulphate of Potash  
 O. & W. Acid Phosphate  
 O. & W. Blue Label Tobacco Fertilizer  
 O. & W. Castor Pomace  
 O. & W. Complete Market Garden  
 O. & W. Complete Tobacco Fertilizer  
 O. & W. Dry Ground Fish  
 O. & W. Grain and General Crop Fertilizer  
 O. & W. Grass Fertilizer  
 O. & W. High Grade Starter and Potash  
 O. & W. High Grade Tobacco Starter  
 O. & W. High Grade Vegetable & Potato  
 O. & W. Nitrate of Potash 90%  
 O. & W. Nitrate of Soda  
 O. & W. Precipitated Bone Meal  
 O. & W. Pure Bone Meal  
 O. & W. Sulphate of Ammonia

**Pacific Manure & Fertilizer Co., 429 Davis St., San Francisco, California.**

Groz-It Brand (Pulverized Sheep Manure)

**Parmenter & Polsey Fertilizer Company, 41 North Market St., Boston, Mass.**

"P & P" "AA" Brand 5-8-7  
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 Harvest Brand 3-8-4  
 Harvest Brand 4-6-10  
 Harvest Brand 4-8-4  
 Harvest Brand 5-8-7  
 Nitrate Soda

**Frank S. Platt Co., 450 State St., New Haven, Conn.**

Platt's Concentrated Lawn Fertilizer  
 Platco Special 5-8-7

**Premier Poultry Manure Company, 431 So. Dearborn St., Chicago, Illinois.**

Premier Brand Poultry Manure  
 Premier Brand Sheep Manure



**The Pulverized Manure Co., 828 Exchange Ave., Union Stock Yard, Chicago, Illinois.**

Wizard Brand Cattle Manure  
Wizard Brand Pulverized Sheep Manure

**Rackliffe Bros. Co., Inc., New Britain, Conn.**

Acid Phosphate 16%  
Nitrate of Soda  
Rackliffe Brand Corn Fertilizer 4-8-4  
Rackliffe Brand Potato & Special Vegetable 5-8-7

**The Rogers & Hubbard Company, Portland, Conn.**

4-8-4  
5-8-7  
Acid Phosphate  
Garden Fertilizer  
Hubbard's "Bone Base" Fertilizer for Seeding Down  
Hubbard's "Bone Base" Oats and Top Dressing  
Hubbard's Pure Raw Knuckle Bone Flour  
Hubbard's "Bone Base" Soluble Corn and General Crops Manure  
Hubbard's "Bone Base" Soluble Potato Manure  
Hubbard's "Bone Base" Soluble Tobacco Manure  
Hubbard's Strictly Pure Fine Bone  
Muriate of Potash  
Nitrate of Soda  
Rogers & Hubbard's All Soils-All Crops Fertilizer  
Rogers & Hubbard's Climax Tobacco Brand  
Rogers & Hubbard's Corn and Grain Fertilizer  
Rogers & Hubbard's High Potash Fertilizer  
Rogers & Hubbard's Potato Fertilizer  
Rogers & Hubbard's Tobacco Grower-Vegetable Formula  
Sheep Manure

**F. S. Royster Guano Company, 602 Citizens National Bank Bldg., Baltimore, Md.**

Cotton Seed Meal  
Royster's Comet Guano  
Royster's Connecticut Tobacco Guano  
Royster's Fine Ground Bone Meal  
Royster's 5% Truck Guano  
Royster's Gem Guano  
Royster's Nitrate of Soda  
Royster's Quality Trucker  
Royster's Sheep and Goat Manure  
Royster's 16% Acid Phosphate  
Royster's Top Dresser  
Royster's Trucker's Delight  
Royster's Valley Tobacco Guano  
Royster's Wrapper Brand

**M. L. Shoemaker and Co., Inc., Delaware Ave. and Venango St., Philadelphia, Pa.**

Bone Meal  
Potato Special  
"Swift-Sure" Tobacco Starter 4-10-0  
"Swift-Sure" 4-8-5 Special Tobacco Formula  
Tobacco and General Use

**Springfield Rendering Company, Springfield, Mass.**

Springfield 3-8-4  
 Springfield 4-8-4  
 Springfield 4-8-7  
 Springfield 5-8-7  
 Springfield Tobacco Special 5-3-5

**Swift & Company Fertilizer Works, Baltimore, Maryland.**

Vigoro

**Synthetic Nitrogen Products Corp., 285 Madison Ave., New York City.**

Calcium Nitrate Basf (Nitrate of Lime)  
 Calurea  
 Nitrophoska  
 Urea Basf (Floramid)

**Tennessee Copper & Chemical Corp., Lockland, Cincinnati, Ohio.**

Loma

**I. P. Thomas & Son Company, 1000 Drexel Building, Philadelphia, Pa.**

Castor Pomace  
 Dairymen's Special 0-10-10  
 Economy Fertilizer 3-12-3  
 High Grade Potato Manure 4-8-10  
 I. P. Thomas 5-8-7  
 Long Island Special 4-8-7  
 Muriate of Potash  
 Nitrate of Soda  
 Pure Ground Bone  
 7% Guano 7-6-5  
 Sheep & Goat Manure  
 16% Acid Phosphate  
 Tankage—sold on analysis  
 Thomas Tobacco Grower 5-4-5  
 Tip Top Superphosphate 3-10-6  
 Truckers High Grade Guano 4-8-4  
 Victor Potash Fertilizer 2-8-5

**Triton Oil and Fertilizer Company, 101 Beekman St., New York City.**

Triton 4-8-4 Fertilizer  
 Triton 4-8-7 Fertilizer  
 Triton 5-8-5 Fertilizer  
 Triton 5-8-7 Fertilizer

**United States Guano Co., care Standard Wholesale Phosphate & Acid Works, Baltimore, Md.**

Standard United States Accomac Peninsula King  
 Standard United States Bone Meal 4-40  
 Standard United States 3 x 50 Bone Meal  
 Standard United States 4½ x 45 Bone Meal Raw  
 Standard United States Evergreen Fish Guano  
 Standard United States Fish Bone and Potash  
 Standard United States General Use Guano  
 Standard United States Grain Grower  
 Standard United States High Grade Phosphate and Potash

Standard United States Jersey Special  
 Standard United States Mammoth Potato Grower  
 Standard United States Muriate of Potash  
 Standard United States Nitrate of Soda  
 Standard United States Old Fertility  
 Standard United States Royal Potato Grower  
 Standard United States 16% Acid Phosphate  
 Standard United States Special Potato Grower  
 Standard United States Star Brand  
 Standard United States Sulphate of Ammonia  
 Standard United States Sure Growth  
 Standard United States 6 x 30 Tankage  
 Standard United States 9 x 20 Tankage  
 Standard United States 10% Fish  
 Standard United States Truckers Fish Guano  
 Standard United States 5 x 10 x 5  
 Standard United States 8 x 6 x 6

**Virginia-Carolina Chemical Corp., 120 Broadway, New York City.**

Bloomaid  
 V-C Aroostook Potato Grower  
 V-C Fish and Potash Compound  
 V-C Phospho-Tobacco  
 V-C 16% Acid Phosphate  
 V-C 20% Acid Phosphate  
 V-C XXXX Fish and Potash

**Wessel, Duval & Co., 1 Broadway, New York City.**

Nitrate of Soda

**The Wilcox Fertilizer Company, Mystic, Conn.**

Acid Phosphate  
 Ground Steamed Bone  
 Muriate of Potash  
 Nitrate of Soda  
 Wilcox Corn Special 3-10-4  
 Wilcox Dry Ground Fish  
 Wilcox H. G. Fish and Potash 4-8-4  
 Wilcox Potato and Vegetable Phosphate 5-8-7  
 Wilcox 7-6-5 Top Dresser

**S. D. Woodruff & Sons, Orange, Conn.**

Woodruff's Home Mixed Fertilizer

**Worcester Rendering Co., Auburn, Mass.**

Prosperity Brand Complete Dressing  
 Prosperity Brand Corn and Grain Fertilizer  
 Prosperity Brand Market Garden Fertilizer  
 Prosperity Brand Potato and Vegetable Fertilizer

## INSPECTION OF 1928.

During the past season the Station agent has visited 101 towns and villages in the State and has taken 536 official samples of fertilizers, including all of the registered brands which could be found. These, together with samples submitted by purchasers, and others interested, are classified as follows:

## CLASSIFICATION OF FERTILIZERS ANALYZED IN 1928.

	No. of Samples	Page
<i>I. Containing Nitrogen as the chief active ingredient:</i>		
Nitrate of Soda.....	33	18
Calcium Nitrate (Nitrate of Lime).....	4	18
Calurea.....	5	18
Urea.....	3	19
Sulphate of Ammonia.....	12	19
Castor Pomace.....	55	19
Cottonseed Meal.....	123	20
Linseed Meal.....	11	20
<i>II. Containing Phosphoric Acid as the chief active ingredient:</i>		
Precipitated Bone Phosphate.....	7	33
Superphosphate (Acid Phosphate).....	18	33
Basic Slag.....	2	37
<i>III. Containing Potash as the chief ingredient:</i>		
Carbonate of Potash.....	16	37
Muriate of Potash.....	12	37
Sulphate of Potash.....	18	37
Sulphate of Potash-Magnesia.....	2	38
Cotton Hull Ashes.....	28	38
Wood Ashes.....	7	38
<i>IV. Containing Nitrogen and Potash:</i>		
Nitrate of Potash and Soda.....	2	45
Nitrate of Potash.....	5	45
<i>V. Containing Nitrogen and Phosphoric Acid:</i>		
Dry Ground Fish.....	39	46
Tankage.....	12	51
Ground Bone, etc.....	52	53
<i>VI. Mixed Fertilizer:</i>		
Containing Nitrogen and Phosphoric Acid.....	6	58
Containing Phosphoric Acid and Potash.....	4	58
Containing Nitrogen, Phosphoric Acid and Potash.....	265	59
Special and Home Mixtures.....	50	84
<i>VII. Miscellaneous fertilizers, amendments, waste products, etc.:</i>		
Sheep Manure, etc.....	26	84
Lime, etc.....	7	84
Other miscellaneous materials.....	35	84
Collaborative check meals and fertilizers.....	45	84
Total.....	904	

## I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN.

### NITRATE OF SODA.

This raw material as used for fertilizer contains from 91 to 97 per cent of sodium nitrate which is equivalent to 15 to 16 per cent of nitrogen or 18.2 to 19.5 per cent of ammonia. The impurities in it are potassium and magnesium chlorides, sodium sulphate and sodium iodide of which there is, collectively, 2 to 3 per cent.

Nitrate of soda is obtained from the west coast of South America, chiefly from Chili. Until recently it has been practically the sole source of this form of agricultural nitrogen but it now encounters competition from synthetic nitrogen products. However, natural deposits of nitrate are not likely to be exhausted for many years to come and improved methods of production will no doubt enable this natural raw material to maintain an important place in the fertilizer trade.

Guaranties have ranged from 14.7 to 15.2 per cent. All samples, excepting **9557**, have exceeded guaranties by substantial margins, the average nitrogen content being 15.55 per cent. At the prices quoted nitrogen from this source has cost 22.5 cents per pound. Ton prices ranged from \$63.00 to \$90.00 there being only one quotation at the high figure.

Analyses are given in Table I.

### CALCIUM NITRATE.

This is one of the artificial nitrates produced in large quantities where air nitrogen is converted into nitric acid and the nitric acid then treated with lime or limestone to form nitrate of lime. Because it absorbs moisture rapidly it is shipped in drums or in paper lined bags.

The four samples examined were all guaranteed to contain 15 per cent of nitrogen and this figure was met excepting sample **9611** which was 0.2% low. The average retail price is about \$65.00 per ton which makes the cost of nitrogen per pound 21.7 cents.

Analyses are given in Table I.

### CALUREA.

Calurea is one of the synthetic ammoniates and is a combination of calcium nitrate and urea. About 1/5 of the nitrogen is derived from nitrate and the remainder is in organic form from urea.

Five samples were examined, all guaranteed to contain 34 per cent of nitrogen or 41.3 per cent of ammonia. One sample, **9652**, was considerably deficient and two others were slightly under the guaranty.

The price quoted is about \$110.00 per ton which, on the basis of 34 per cent nitrogen, makes the cost of nitrogen per pound 16.2 cents.

Analyses are given in Table I.



## UREA.

This synthetic product is made in large quantities in Europe and is obtained by combining synthetic ammonia with pure carbon dioxide. The commercial article offered for fertilizer is generally guaranteed to contain 46 per cent of nitrogen which is equivalent to 55.5 per cent of ammonia. This form of nitrogen is soluble in water and is classed as organic.

Three samples were examined two of which were slightly under guaranties. At \$165.00 per ton which is the retail price quoted to us the cost of nitrogen per pound is 17.9 cents.

Analyses are given in Table I.

## SULPHATE OF AMMONIA.

This raw material is made almost entirely in this country from sulphuric acid and by-product ammonia, that is, ammonia obtained in the production of coke and illuminating gas. It may be made, and is made on a large scale in Europe, from synthetic ammonia, gypsum and carbon dioxide.

"Arcadian" sulphate of ammonia is specially treated, dried, and screened to remove lumps and to insure good mechanical condition.

This product is generally guaranteed to contain 20.5 per cent of nitrogen which is equivalent to 25 per cent of ammonia. The twelve samples examined equalled or exceeded their guaranties excepting four cases where slight deficiencies were noted. The average nitrogen found was 20.71 per cent. At \$60.00 per ton the average price quoted, the cost of nitrogen per pound is 14.5 cents.

Analyses are given in Table II.

## CASTOR POMACE.

This raw material is the ground residue left after the removal of oil from the castor bean. Caution should be used in storing it as it is very poisonous to farm animals. It is chiefly valuable for its nitrogen although it contains small amounts of phosphoric acid and potash.

Fifty-five samples were examined and only six failed to equal guaranties. The deficiencies were in most cases negligible, however, only two being in excess of 0.1 per cent and none were in excess of 0.2 per cent.

The average nitrogen found was 4.97 per cent and the average of quoted prices was about \$30.00. Nitrogen from this source has cost about 30 cents per pound as compared with 24 cents last year.

Analyses are given in Table III.

## COTTONSEED MEAL.

One hundred and twenty-three samples of cottonseed meal, most of them submitted by purchasers, were examined. The average of all for which guaranties were given, and exclusive of three sold under odd guaranties, is 6.56 per cent of nitrogen which is a 41% protein grade.

The classification of samples this year in comparison with similar data for several years past is given in the following summary:

Grade	No. of samples	Average nitrogen per cent	Average nitrogen per cent in		
			1927	1926	1925
36 per cent protein (5.76 N).....	15	5.75	5.78	5.84	5.79
41 per cent protein (6.58 N).....	71	6.58	6.56	6.60	6.76
43 per cent protein (6.88 N).....	30	6.88	7.05	6.78	7.02
No guaranty or odd guaranty.....	9	...	...	...	...
Total.....	123	6.56	6.61	6.57	6.63

So far as prices are available the range has been from \$48.00 to \$70.00 per ton and the average \$54.00. On this basis nitrogen from this source has cost about 41 cents per pound during the past year.

One hundred and two substantially met or exceeded their guaranties and twenty-one did not.

Analyses are given in Table IV.

## LINSEED MEAL.

Eleven samples of linseed meal were analyzed and all were of good quality. The average nitrogen content was 5.65 per cent. Prices quoted ranged from \$49.00 to \$57.50 and averaged slightly under \$55.00 at which figure the cost of nitrogen per pound was about 48 cents.

Analyses are given in Table IV.

TABLE I. ANALYSES OF NITRATE OF SODA, ETC.

Station No.	Manufacturer or Jobber,	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
<b>Nitrate of Soda</b>				
8869	American Agricultural Chemical Co., New York.....	Station agent. Stock of Bristol Grain & Supply, Bristol.....	15.66	15.22
9530	American Agricultural Chemical Co., New York.....	Station agent. Stock of E. N. Austin, Suffield.....	15.56	15.22
8988	Apothecaries Hall Co., Waterbury, Conn.....	Station agent. Stock of J. A. Glasnap, West Cheshire. . .	15.52	14.80
8923	Apothecaries Hall Co., Waterbury, Conn.....	Edwards & Brewer, West Suffield.....	15.68	14.80
8331	Apothecaries Hall Co., Waterbury, Conn.....	Hatheway & Steane, Inc., Hartford.....	15.56	14.80
8657	Apothecaries Hall Co., Waterbury, Conn.....	Hatheway & Steane, Inc., Hartford.....	15.90	14.80
8835	Apothecaries Hall Co., Waterbury, Conn.....	Hatheway & Steane, Inc., Hartford.....	15.58	14.80
8941	Apothecaries Hall Co., Waterbury, Conn.....	Hatheway & Steane, Inc., Hartford.....	15.64	14.80
9330	Apothecaries Hall Co., Waterbury, Conn.....	A. N. Shepard & Son, Hartford. Station agent. Stock of J. D. Kelsey, Madison.....	15.48	14.80
8996	Armour Fertilizer Works, New York.....	Station agent. Stock of Knowles Lombard, Guilford.....	15.76	14.81
9549	Berkshire Chemical Co., Bridgeport, Conn.....	Station agent. Stock of Knowles Lombard, Guilford.....	15.56	15.00
9557	Everett B. Clark Seed Co., Milford, Conn.....	Station agent at factory.....	14.40	15.00
8889	Consolidated Rendering Co., Boston, Mass.....	C. R. Burr & Co., Inc., Manchester.....	15.66	15.22
9121	Consolidated Rendering Co., Boston, Mass.....	Walter T. Clark, Norwich.....	15.38	15.22
8882	Consolidated Rendering Co., Boston, Mass.....	Station agent. Stock of Laden Bros., Wallingford.....	15.74	15.22
9154	Eastern States Farmers' Exchange, Springfield, Mass..	Station agent. Stock of Ridge-wood Farm, No. Haven.....	15.60	14.80
8303	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield.....	15.58	.....
8169	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield.....	15.16	.....
8170	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield.....	15.80	.....
8171	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield.....	15.88	.....
8172	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield.....	15.76	.....
8914	Mapes Formula & Peruvian Guano Co., New York. . .	Station agent. Stock of Mapes Branch, Hartford.....	15.52	14.81
8911	Olds & Whipple Inc., Hartford, Conn.....	Station agent at factory.....	15.76	15.00
9482	Piedmont Mt. Airy Guano Co., Baltimore, Md.....	Station agent. Stock of C. A. Cowles, Plantsville.....	15.80	15.00

TABLE I. ANALYSES OF NITRATE OF SODA, ETC.—*Concluded.*

Station No.	Manufacturer or Jobber,	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
<b>Nitrate of Soda.</b>				
9501	Rackliffe Bros. Co. Inc., New Britain, Conn.....	Station agent at factory.....	15.68	.....
9291	The Rogers & Hubbard Co., Portland, Conn.....	Station agent. Stock of W. L. Richmond, New Milford....	15.56	14.80
9497	F. S. Royster Guano Co., Baltimore, Md.....	Station agent. Stock of F. B. Newton, Plainville.....	15.68	15.00
9587	I. P. Thomas & Son, Philadelphia, Pa.....	Station agent. Stock of L. M. Benham, Highwood.....	15.66	15.00
9060	U. S. Guano Co., Baltimore, Md.....	J. A. Barrasso, Andover.....	15.38	14.80
8849	U. S. Guano Co., Baltimore, Md.....	Station agent. Stock of Frank Libner & Son, Norwalk.....	15.24	14.80
9341	Wessel Duval & Co., New York.....	Station agent. Stock of F. H. Woodruff & Son, Milford, Ct.	15.66	14.87
9122	Wilcox Fertilizer Co., Mystic, Conn.....	Walter T. Clark, Norwich....	15.52	14.72
9353	Wilcox Fertilizer Co., Mystic, Conn.....	Station agent at factory.....	14.92	14.72
<b>Calcium Nitrate (Nitrate of Lime)</b>				
9561	International Agricultural Corp., Woburn, Mass.....	Station agent. Stock of Lyman Farm, Middlefield.....	15.04	15.00
8899	Synthetic Nitrogen Products Corp., New York.....	The Allied Tobacco Co., Hartford.....	15.22	15.00
9039	Synthetic Nitrogen Products Corp., New York.....	Station agent. Stock of J. A. Glasnap, West Cheshire....	15.06	15.00
9611	Synthetic Nitrogen Products Corp., New York.....	Station agent. Stock of Tobacco Station, Windsor.....	14.80	15.00
<b>Calurea.</b>				
9652	Synthetic Nitrogen Products Corp., New York.....	J. E. Phelps, Suffield.....	32.38	34.00
9038	Synthetic Nitrogen Products Corp., New York.....	Station agent. Stock of Olds & Whipple, Inc., Hartford....	34.54	34.00
9116	Synthetic Nitrogen Products Corp., New York.....	Station agent. Stock of Tobacco Station, Windsor.....	34.40	34.00
9331	Synthetic Nitrogen Products Corp., New York.....	A. N. Shepard & Son, Hartford	33.78	34.00
9392	Synthetic Nitrogen Products Corp., New York.....	Eastern States Farmers' Exchange, Springfield, Mass....	33.80	34.00
<b>Urea.</b>				
9456	Eastern States Farmers' Exchange, Springfield, Mass..	Station agent. Stock of Chester Beeman, Granby.....	45.40	45.24
9037	Synthetic Nitrogen Products Corp., New York.....	Station agent. Stock of Olds & Whipple, Inc., Hartford....	45.80	46.00
9115	Synthetic Nitrogen Products Corp., New York.....	Station agent. Stock of Tobacco Station, Windsor.....	45.84	46.00

TABLE II. ANALYSES OF SULPHATE OF AMMONIA.

Station No.	Manufacturer or Jobber,	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
8954	American Agricultural Chemical Co., New York.....	Station agent at factory, West Haven.....	20.76	20.56
9532	American Agricultural Chemical Co., New York.....	Station agent. Stock of E. N. Austin, Suffield.....	20.42	20.56
8992	Apothecaries Hall Co., Waterbury, Conn.....	Station agent at factory.....	21.00	20.58
9030	Armour Fertilizer Works, New York.....	Station agent. Stock of F. A. Bartlett Tree Expert Co., Stamford.....	21.00	20.56
9546	The Barrett Co., New York..	Station agent. Stock of Berkshire Chemical Co., Bridgeport.....	21.00	20.75
9547	The Barrett Co., New York..	Station agent. Stock of Berkshire Chemical Co., Bridgeport.....	20.70	20.50
8957	Consolidated Rendering Co., Boston, Mass.....	Station agent. Stock of L. T. Frisbie Co., New Haven.....	20.68	20.50
9157	Eastern States Farmers' Exchange, Springfield, Mass..	Station agent. Stock of J. A. Sherwood, Bridgeport.....	20.56	20.55
9059	Olds & Whipple Inc., Hartford, Conn.....	J. A. Barrasso, Andover.....	20.50	20.60
9566	Olds & Whipple Inc., Hartford, Conn.....	Station agent at factory.....	20.54	20.60
8853	U. S. Guano Co., Baltimore, Md.....	Station agent. Stock of H. P. Beers, Southport.....	20.48	20.56
9057	U. S. Guano Co., Baltimore, Md.....	J. A. Barrasso, Andover.....	20.92	20.56



TABLE III. ANALYSES OF CASTOR POMACE.

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>The American Agricultural Chemical Co., New York City.</b>			
8953	.....	Station agent from factory.....	4.78	4.53
9318	Car N. Y. C. 247062.....	Spencer Bros., Inc., Suffield.....	4.67	4.53
	<b>Apothecaries Hall Co., Waterbury, Conn.</b>			
8982	.....	Station agent from factory.....	4.75	4.52
9610	.....	Station agent. Stock of Tobacco Station, Windsor.....	4.48	4.52
8897	Car No. 17816.....	The Allied Tobacco Co., Hart- ford.....	5.20	4.52
8922	.....	Edwards & Brewer, West Suf- field.....	4.94	4.52
8353	Car No. 10777.....	Hatheway & Steane, Inc., Hart- ford.....	4.86	4.52
8361	Car No. 11712.....	Hatheway & Steane, Inc., Hart- ford.....	5.56	4.52
8362	Car No. 12075.....	Hatheway & Steane, Inc., Hart- ford.....	5.54	4.52
8387	Car No. 20404.....	Hatheway & Steane, Inc., Hart- ford.....	4.72	4.52
8388	Car No. 13462.....	Hatheway & Steane, Inc., Hart- ford.....	4.34	4.52
8389	Car No. 12952.....	Hatheway & Steane, Inc., Hart- ford.....	4.78	4.52
8390	Car No. 20415.....	Hatheway & Steane, Inc., Hart- ford.....	4.58	4.52
8391	Car No. 10919.....	Hatheway & Steane, Inc., Hart- ford.....	4.37	4.52
8392	Car No. 17915.....	Hatheway & Steane, Inc., Hart- ford.....	5.26	4.52
8393	Car No. 11624.....	Hatheway & Steane, Inc., Hart- ford.....	5.16	4.52
8451	Car No. 17229.....	Hatheway & Steane, Inc., Hart- ford.....	5.65	4.52
8656	Car No. 30368.....	Hatheway & Steane, Inc., Hart- ford.....	4.80	4.52
8688	Car No. 20448.....	Hatheway & Steane, Inc., Hart- ford.....	5.34	4.52
8689	Car No. 11172.....	Hatheway & Steane, Inc., Hart- ford.....	5.42	4.52
8824	Car No. 11104.....	Hatheway & Steane, Inc., Hart- ford.....	4.76	4.52
8825	Car No. 10720.....	Hatheway & Steane, Inc., Hart- ford.....	5.16	4.52

TABLE III. ANALYSES OF CASTOR POMACE—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>Apothecaries Hall Co., Waterbury, Conn.</b>			
8826	Car No. 11815.....	Hatheway & Steane, Inc., Hart- ford.....	5.56	4.52
8827	Car No. 13081.....	Hatheway & Steane, Inc., Hart- ford.....	5.36	4.52
8832	Car No. 10432.....	Hatheway & Steane, Inc., Hart- ford.....	4.32	4.52
8937	Car No. 97143.....	Hatheway & Steane, Inc., Hart- ford.....	4.65	4.52
9329	.....	A. N. Shepard & Son, Hartford.	4.92	4.52
9336	.....	A. N. Shepard & Son, Hartford.	5.43	4.52
	<b>Armour Fertilizer Works, New York City.</b>			
9441	.....	Station agent. Stock of A. R. Jones, Wallingford.....	4.58	4.52
	<b>Baker Castor Oil Co., New York City.</b>			
8251	Car No. 17093.....	American Sumatra Tobacco Co., Bloomfield.....	4.69	4.50
8252	Car No. 17018.....	American Sumatra Tobacco Co., Bloomfield.....	4.85	4.50
9145	.....	Station agent. Stock of Olds & Whipple, Inc., Hartford.....	4.92	4.50
	<b>Berkshire Chemical Co., Bridgeport, Conn.</b>			
8960	.....	Station agent. Stock of Ira Waters, Brookfield.....	5.12	4.52
9531	.....	Station agent. Stock of E. M. Austin, Suffield.....	4.96	4.52
8371	Car No. 226820.....	Cullman Bros., Hartford.....	5.00	4.52
8512	Car No. 252384.....	Cullman Bros., Hartford.....	5.24	4.52
8513	Car No. 252384.....	Cullman Bros., Hartford.....	5.18	4.52
8514	Car No. 252384.....	Cullman Bros., Hartford.....	4.95	4.52
8517	Car No. 240356.....	Cullman Bros., Hartford.....	4.91	4.52
8518	Car No. 240356.....	Cullman Bros., Hartford.....	4.88	4.52
8524	Car No. 245910.....	Cullman Bros., Hartford.....	5.22	4.52
8525	Car No. 213402.....	Cullman Bros., Hartford.....	4.97	4.52
9366	Car No. M. C. 91825.....	Spencer Bros., Suffield.....	4.64	4.52
9067	Car No. G. N. 33540.....	Spencer Bros., Suffield.....	4.82	4.52
9068	Car No. P. R. R. 517613.....	Spencer Bros., Suffield.....	4.90	4.52
9069	Car No. P. R. R. 43189.....	Spencer Bros., Suffield.....	4.81	4.52
9651	.....	J. E. Phelps, Suffield.....	4.45	4.52

TABLE III. ANALYSES OF CASTOR POMACE—*Concluded.*

Station No.	Manufacturer or Jobber, Cat No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
9600	<b>E. D. Chittenden Co., Bridgeport, Conn.</b>	Station agent. Stock of J. P. Norton, Broad Brook.....	4.61	4.50
9161	<b>Consolidated Rendering Co., Boston, Mass.</b>	Station agent. Stock of L. T. Frisbie Co., New Haven.....	5.72	4.52
9233	<b>Spencer Kellogg &amp; Sons, Buffalo, N. Y.</b>	Station agent. Stock of H. H. McKnight, Ellington.....	4.65	4.52
9485	<b>Olds &amp; Whipple Inc., Hartford, Conn.</b>	Station agent. Stock of H. E. Wells, East Windsor Hill...	4.94	5.00
9393	No. 1.....	H. E. Wells, Warehouse Point..	5.26	5.00
9394	No. 2.....	H. E. Wells, Warehouse Point..	5.33	5.00
9098	Car C. N. J. 36426.....	L. Wetstone & Sons, Inc., Hart- ford.....	5.19	4.75
9099	Car C. N. W. 91660.....	L. Wetstone & Sons, Inc., Hart- ford.....	4.98	4.75

TABLE IV. ANALYSES OF COTTONSEED AND LINSEED MEALS.

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>American Agricultural Chemical Co., New York City</b>	<b>Cottonseed Meal.</b>		
9519	.....	Station agent at factory.....	5.88	5.76
	<b>Apothecaries Hall Co., Waterbury, Conn.</b>			
8986	.....	Station agent at factory.....	6.46	6.58
9201	Car No. S. O. U. 155736.....	The Allied Tobacco Co., Hart- ford.....	6.34	6.56
9202	Car No. S. O. U. 130013.....	The Allied Tobacco Co., Hart- ford.....	6.88	6.56
8328	Car No. 57701.....	Hatheway & Steane, Inc., Hart- ford.....	6.83	....
8329	Car No. 409501.....	Hatheway & Steane, Inc., Hart- ford.....	6.71	....
8347	Car No. 26782.....	Hatheway & Steane, Inc., Hart- ford.....	6.87	6.58
8348	Car No. 55896.....	Hatheway & Steane, Inc., Hart- ford.....	6.71	6.58
8349	Car No. 330185.....	Hatheway & Steane, Inc., Hart- ford.....	6.62	6.58
8350	Car No. 1048.....	Hatheway & Steane, Inc., Hart- ford.....	6.58	6.58
8351	Car No. 172008.....	Hatheway & Steane, Inc., Hart- ford.....	6.39	6.58
8352	Car No. 154294.....	Hatheway & Steane, Inc., Hart- ford.....	6.71	6.58
8357	Car No. 159218.....	Hatheway & Steane, Inc., Hart- ford.....	6.60	6.58
8358	Car No. 50232.....	Hatheway & Steane, Inc., Hart- ford.....	6.61	6.58
8359	Car No. 55303.....	Hatheway & Steane, Inc., Hart- ford.....	5.92	6.58
8360	Car No. 27478.....	Hatheway & Steane, Inc., Hart- ford.....	6.60	6.58
8394	Car No. 7052.....	Hatheway & Steane, Inc., Hart- ford.....	6.64	....
8447	Car No. 10234.....	Hatheway & Steane, Inc., Hart- ford.....	6.10	6.58
8448	Car No. 47475.....	Hatheway & Steane, Inc., Hart- ford.....	5.94	6.58
8449	Car No. 55923.....	Hatheway & Steane, Inc., Hart- ford.....	6.48	6.58
8450	Car No. 37052.....	Hatheway & Steane, Inc., Hart- ford.....	6.79	6.58
8655	Car No. 163453.....	Hatheway & Steane, Inc., Hart- ford.....	6.74	6.58

TABLE IV. ANALYSES OF COTTONSEED AND LINSEED MEALS.—*Continued.*

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>Apothecaries Hall Co., Waterbury, Conn.</b>	<b>Cottonseed Meal.</b>		
8684	Car No. 19120.....	Hatheway & Steane, Inc., Hart- ford.....	6.79	6.58
8685	Car No. 51268.....	Hatheway & Steane, Inc., Hart- ford.....	6.43	6.58
8686	Car No. 57978.....	Hatheway & Steane, Inc., Hart- ford.....	6.99	6.58
8687	Car No. 145866.....	Hatheway & Steane, Inc., Hart- ford.....	6.47	6.58
8943	Car No. 34009.....	Hatheway & Steane, Inc., Hart- ford.....	6.81	6.58
	<b>Ashcraft-Wilkinson Co., Atlanta, Ga.</b>			
9598	Helmet.....	Station agent. Stock of E. A. Root, East Granby.....	6.54	6.58
9597	Monarch.....	Station agent. Stock of W. E. Bostwick, New Milford.....	6.75	6.88
8876	Car A. C. L. 29646.....	Spencer Bros., Inc., Suffield....	7.00	6.88
9014	Car N. Y. 66632.....	Spencer Bros., Inc., Suffield....	6.44	6.56
9017	Car N. Y. 72370 and P. R. R. 37854.....	Spencer Bros. Inc., Suffield....	6.47	6.56
	<b>F. W. Brode Corp., Memphis, Tenn.</b>			
8270	Cold Press Cottonseed Meal.	Ed. Eggert, Hartford.....	4.58	....
9595	Owl Brand 41%.....	Station agent. Stock of Tobacco Station, Windsor.....	6.56	6.56
9650	Owl Brand 36%.....	J. E. Phelps, Suffield.....	6.58	5.76
	<b>Humphreys-Godwin Co., Memphis, Tenn.</b>			
8896	Dixie, Car No. 515977.....	The Allied Tobacco Co., Hart- ford.....	6.28	6.58
9010	Dixie, Car No. 193844.....	The Allied Tobacco Co., Hart- ford.....	6.50	6.58
9147	Dixie, Car No. B. & O. 193844	The Allied Tobacco Co., Hart- ford.....	6.66	6.58
9148	Dixie, Car No. B. & O. 176849	The Allied Tobacco Co., Hart- ford.....	6.52	6.58
9149	Dixie, Car L. & N. No. 49693	The Allied Tobacco Co., Hart- ford.....	6.57	6.58
8944	Dixie, Car No. 41347.....	Hatheway & Steane, Inc., Hart- ford.....	6.51	6.58
9232	Danish.....	Station agent. Stock of Amos D. Bridge's Sons, Hazardville....	5.67	5.75



TABLE IV. ANALYSES OF COTTONSEED AND LINSEED MEALS.—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>Humphreys-Godwin Co., Memphis, Tenn.</b>	<b>Cottonseed Meal.</b>		
8079	Dixie, Car Sou. No. 253049 (Off Color).....	A. A. Clark, Windsor.....	6.56	6.58
8080	Dixie, Car C. & A., No. 36732 (Off Color).....	A. A. Clark, Windsor.....	6.56	6.58
8364	Bull, Car No. 256123.....	Cullman Bros., Inc., Hartford..	6.74	6.88
8365	Bull, Car No. 131981.....	Cullman Bros., Inc., Hartford..	6.84	6.88
8366	Bull, Car No. 99263.....	Cullman Bros., Inc., Hartford..	6.65	6.88
8515	Bull, Car No. 57752.....	Cullman Bros., Inc., Hartford..	7.02	6.88
8516	Bull, Car No. 23062.....	Cullman Bros., Inc., Hartford..	6.52	6.88
8519	Bull, Car No. 101022.....	Cullman Bros., Inc., Hartford..	6.79	6.88
8520	Bull, Car No. 305291.....	Cullman Bros., Inc., Hartford..	6.80	6.88
8521	Bull, Car No. 330868.....	Cullman Bros., Inc., Hartford..	6.77	6.88
8522	Bull, Car No. 341282.....	Cullman Bros., Inc., Hartford..	6.88	6.88
8523	Bull, Car No. 165243.....	Cullman Bros., Inc., Hartford..	6.66	6.88
8526	Bull, Car No. 150145.....	Cullman Bros., Inc., Hartford..	6.89	6.88
8527	Bull, Car No. 409874.....	Cullman Bros., Inc., Hartford..	6.82	6.88
8528	Bull, Car No. 165472.....	Cullman Bros., Inc., Hartford..	7.02	6.88
8600	Bull, Car I. E. No. 342963..	Cullman Bros., Inc., Hartford..	6.96	6.88
8602	Bull, Car No. 166272.....	Cullman Bros., Inc., Hartford..	6.76	6.88
8604	Bull, Car No. 60522.....	Cullman Bros., Inc., Hartford..	6.84	6.88
8605	Bull, Car No. 166496.....	Cullman Bros., Inc., Hartford..	7.07	6.88
8606	Bull, Car No. 169463.....	Cullman Bros., Inc., Hartford..	6.97	6.88
8607	Bull, Car No. 166290.....	Cullman Bros., Inc., Hartford..	6.89	6.88
9090	Bull, Car No. 30226.....	Cullman Bros., Inc., Hartford..	6.84	6.88
8269	Dixie, Car No. 55071.....	L. B. Haas & Co., Inc., Hartford	6.74	6.58
8305	Dixie, Car No. 60296.....	L. B. Haas & Co., Inc., Hartford	6.84	6.58
8442	Dixie, Car No. 135449.....	L. B. Haas & Co., Inc., Hartford	6.70	6.58
8443	Dixie, Car No. 409299.....	L. B. Haas & Co., Inc., Hartford	6.76	6.58
8382	Dixie, Car Sou., No. 304709..	Huntington Bros., Windsor....	6.66	6.58
8383	Dixie, Car C. of G., No. 57786	Huntington Bros., Windsor....	6.66	6.58
8384	Dixie, Car Sou., No. 121643..	Huntington Bros., Windsor....	6.56	6.58
9093	Dixie.....	H. C. Nelson, West Suffield....	6.66	6.58
9754	Bull.....	G. A. Peckham, Suffield.....	6.56	6.88
9231	Dixie.....	E. H. Rollins, Granby.....	6.55	6.58
8377	Dixie, Car No. 7435.....	A. N. Shepard & Son, Hartford	6.27	6.58
8378	Dixie, Car No. 8054.....	A. N. Shepard & Son, Hartford	6.42	6.58
8379	Danish, Car No. 42746.....	A. N. Shepard & Son, Hartford	5.81	5.75
9126	Danish, Car A. C. L., No. 43846.....	A. N. Shepard & Son, Hartford.	5.60	5.75
9015	Dixie, Car C. & F., No. 7064.	Spencer Bros., Inc., Suffield....	6.72	6.58
9070	Bull, Car N. Y., No. 164622 and S. P. 28675.....	Spencer Bros., Inc., Suffield....	7.31	6.88
9072	Danish, Car A. C. L. No. 40349.....	Spencer Bros., Inc., Suffield....	5.80	5.76

TABLE IV. ANALYSES OF COTTONSEED AND LINSEED MEALS.—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>Humphreys-Godwin Co., Memphis, Tenn.</b>	<b>Cottonseed Meal.</b>		
9314	Danish, Car A. C. L. No. 41604.....	Spencer Bros., Inc., Suffield....	5.67	5.75
9315	Dixie, Car M. & St. L. No. 20578.....	Spencer Bros., Inc., Suffield....	6.62	6.58
9316	Bull, Car C. N., No. 307465 and S. A. 39754.....	Spencer Bros., Inc., Suffield....	7.00	6.88
9317	Dixie, Car N. Y., No. 168144 and C. Ga. 51071.....	Spencer Bros., Inc., Suffield....	6.74	6.58
9469	Danish, C. Ga. No. 57589....	Spencer Bros., Inc., Suffield....	5.62	5.75
9470	Danish, Car B. & O., No. 268990.....	Spencer Bros., Inc., Suffield....	6.13	5.75
9471	Danish, Car C. & K. W., 141906.....	Spencer Bros., Inc., Suffield....	5.69	5.75
9472	Danish, Car A. C. L. No. 50373.....	Spencer Bros., Inc., Suffield....	5.74	5.75
9473	Danish, Car C. N. J., No. 17672.....	Spencer Bros., Inc., Suffield....	5.70	5.75
9474	Danish, Car S. A. L. No. 12611.....	Spencer Bros., Inc., Suffield....	5.70	5.75
9309	Dixie, Car No. 166221, No. 7.	L. Wetstone & Sons, Inc., Hart- ford.....	6.58	6.58
9310	Dixie, Car No. 82911, No. 8.	L. Wetstone & Sons, Inc., Hart- ford.....	6.48	6.58
9311	Dixie, Car No. 165007, No. 9.	L. Wetstone & Sons, Inc., Hart- ford.....	6.63	6.58
9094	Dixie, Car B.-O., No. 267964, No. 1.....	L. Wetstone & Sons, Inc., Hart- ford.....	6.49	6.58
9095	Dixie, Car C.R.G., No.57674, No. 2.....	L. Wetstone & Sons, Inc., Hart- ford.....	6.49	6.58
	<b>International Agricultural Corporation, Boston, Mass.</b>			
8440	Car No. C. Ga. 56996.....	L. B. Haas & Co., Inc., Hartford	6.61	6.56
8441	Car No. C. G. 55396.....	L. B. Haas & Co., Inc., Hartford	6.57	6.56
9011	Car No. 66246.....	The Allied Tobacco Co., Hart- ford.....	6.91	6.88
	<b>L. B. Lovitt &amp; Co., Memphis, Tenn.</b>			
9016	"Lovit", Car No. M. & O. 24402.....	Spencer Bros., Inc., Suffield....	7.00	6.88
9071	"Lovit", Car No. M. & O. 24299.....	Spencer Bros., Inc., Suffield....	7.18	6.88

TABLE IV. ANALYSES OF COTTONSEED AND LINSEED MEALS.—*Continued.*

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>L. B. Lovitt &amp; Co., Memphis, Tenn.</b>	<b>Cottonseed Meal.</b>		
9073	"Lovit", Car M. & O. No. 23951.....	Spencer Bros., Inc., Suffield....	6.90	6.88
8367	"Lovit", Car No. 15242.....	Cullman Bros., Inc., Hartford.	6.54	6.56
8368	"Lovit", Car No. 15296.....	Cullman Bros., Inc., Hartford..	6.30	6.56
8369	"Lovit", Car. No. 37091.....	Cullman Bros., Inc., Hartford..	6.47	6.56
8370	"Lovit", Car No. 37100.....	Cullman Bros., Inc., Hartford..	6.63	6.56
	<b>Memphis Cottonseed Products Co., Memphis, Tenn.</b>			
8237	Car M. P. No. 22172.....	Steane, Hartman & Co., Hart- ford.....	6.81	6.58
8238	Car C. M. No. 83294.....	Steane, Hartman & Co., Hart- ford.....	6.53	6.58
8239	Car M. P. No. 6575.....	Steane, Hartman & Co., Hart- ford.....	7.00	6.58
8240	Car M. P. No. 120094.....	Steane, Hartman & Co., Hart- ford.....	6.72	6.58
8241	Car M. P. No. 8696.....	Steane, Hartman & Co., Hart- ford.....	6.89	6.58
8242	Car N. Y. C. No. 96115.....	Steane, Hartman & Co., Hart- ford.....	6.45	6.58
8306	Car N. H. No. 71455.....	Steane, Hartman & Co., Hart- ford.....	6.75	6.58
8307	Car M. P. No. 120845.....	Steane, Hartman & Co., Hart- ford.....	6.84	6.58
8308	Car Sou. No. 155029.....	Steane, Hartman & Co., Hart- ford.....	6.71	6.58
8309	Car Ga. No. 19135.....	Steane, Hartman & Co., Hart- ford.....	6.76	6.58
	<b>Olds &amp; Whipple, Inc., Hartford, Conn.</b>			
8217	Car No. 56539.....	L. B. Haas & Co., Hartford....	6.74	6.58
	<b>F. S. Royster Guano Co., Baltimore, Md.</b>			
9568	.....	Station agent. Stock of Chas. Handel, Glastonbury.....	6.81	6.88
	<b>Simpson, Hendee &amp; Co., Inc., New York</b>			
8712	.....	W. L. Richmond & Son, New Milford.....	3.40	3.20

TABLE IV. ANALYSES OF COTTONSEED AND LINSEED MEALS.—*Concluded.*

Station No.	Manufacturer or Jobber, Car No. or Mark	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>Manufacturer Unknown</b>	<b>Cottonseed Meal.</b>		
9130	Car A. C. L. No. 35998.....	James W. Shea, Feeding Hills..	5.85	....
9129	Car M. P. No. 120565.....	James W. Shea, Feeding Hills..	5.70	....
9128	Car A. C. L. No. 32569.....	James W. Shea, Feeding Hills..	5.63	....
9493	.....	E. N. & C. C. Austin, Suffield..	6.71	....
	<b>Apothecaries Hall Co., Waterbury, Conn.</b>	<b>Linseed Meal</b>		
8354	Car No. 8459.....	Hatheway & Steane, Inc., Hart- ford.....	5.64	....
8452	Car No. 60259.....	Hatheway & Steane, Inc., Hart- ford.....	5.79	....
	<b>Archer-Daniels-Midland Co., Buffalo, N. Y.</b>			
8395	Car No. 60493.....	Hatheway & Steane, Inc., Hart- ford.....	5.65	....
8453	Car No. 9312.....	Hatheway & Steane, Inc., Hart- ford.....	5.64	....
8895	Car LV, No. 60011.....	The Allied Tobacco Co., Hart- ford.....	5.53	5.44
8945	Car No. 76685.....	Hatheway & Steane, Inc., Hart- ford.....	5.65	....
8946	Car No. 114485.....	Hatheway & Steane, Inc., Hart- ford.....	5.75	....
9327	(Suffield).....	A. N. Shepard & Son, Hartford.	5.64	....
9335	(Pelton).....	A. N. Shepard & Son, Hartford.	5.50	....
	<b>Olds &amp; Whipple, Inc., Hartford, Conn.</b>			
8216	Car No. 60427.....	L. B. Haas & Co., Hartford....	5.62	....
9096	Car N. H. No. 162502(No. 3)	L. Wetstone & Sons, Inc.....	5.69	5.35

II. RAW MATERIALS CHIEFLY VALUABLE FOR  
PHOSPHORIC ACID.

## PRECIPITATED BONE.

This raw material is a by-product obtained in the manufacture of gelatin and glue stock from bone. Bones are treated with hydrochloric acid and the acid solution then treated with lime or limestone to precipitate the phosphates.

Seven samples were examined all of which exceeded their guaranties in available phosphoric acid. The average was 38 per cent. Only one price quotation was obtained and this affords no very satisfactory basis for calculating the cost of available phosphoric acid in this material. At \$56.00 per ton available phosphoric acid cost the purchaser 7.3 cents per pound.

Analyses are given in Table V.

## SUPERPHOSPHATE (ACID PHOSPHATE).

This important raw material was formerly called acid phosphate but control officials, agronomists and the fertilizer industry are agreed that the term "acid phosphate" is not properly descriptive and otherwise undesirable and that it should be discontinued. The product is made by treating phosphate rock with sulphuric acid which results in mixture of mono-calcium phosphate and gypsum. The phosphoric acid is in available form and usually present in the proportion of 16 pounds in 100 or 16 per cent.

Eighteen samples were analyzed all of which met or exceeded guaranties. The average for available phosphoric acid found is 17.11 per cent and the average of prices quoted is \$22.40 per ton. Available phosphoric acid from this source has, therefore, cost 6.5 cents per pound.

Analyses are given in Table VI.

Sample **8877**, Virginia-Carolina Phospho Tobacco drawn from stock of Stanley-Svea Grain Co., New Britain, was guaranteed to contain 13 per cent of total phosphoric acid. The available found was 12.90 per cent.



TABLE V. ANALYSES OF PRECIPITATED BONE PHOSPHATE.

Station No.	Manufacturer or Wholesale Dealer.	Place of Sampling.	Phosphoric Acid.			
			Citrate-insoluble.	Total.	Found.	Guaranteed.
			%	%	%	%
	<i>Sampled by Station.</i>					
8979	Apothecaries Hall Co., Waterbury.	At factory.	1.68	39.20	37.52	36.00
9609	Apothecaries Hall Co., Waterbury.	Tobacco Station, Windsor.	1.35	39.50	38.15	36.00
9405	Berkshire Chemical Co., Bridgeport.	At factory.	2.25	40.60	38.35	38.00
9212	Eastern States Farmers' Exchange, Springfield, Mass.	H. H. McKnight, Ellington.	1.10	39.30	38.20	38.00
8908	Olds & Whipple, Inc., Hartford.	At factory.	1.88	40.20	38.32	38.00
	<i>Sampled by Purchaser.</i>					
8455	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Inc., Hartford.	0.69	37.50	36.81	36.00
9326	Apothecaries Hall Co., Waterbury.	A. N. Shepard & Son, Hartford.	0.75	39.35	38.60	36.00

TABLE VI. ANALYSES OF SUPERPHOSPHATE (ACID PHOSPHATE).

Station No.	Manufacturer or Wholesale Dealer.	Dealer or purchaser.	Phosphoric Acid.				Station No.
			Citrate Insoluble.	Total.	"Available".		
					Found.	Guaranteed.	
			%	%	%	%	
	<i>Sampled by Station.</i>						
8866	American Agricultural Chemical Co., New York.....	Bristol: Bristol Grain & Supply Co. . .	0.68	19.75	19.07	16.00	
8981	Apothecaries Hall Co., Waterbury	Sampled at factory, East Windsor. . .	1.68	17.75	16.07	16.00	
9542	Armour Fertilz. Works, New York	Seymour: Seymour Grain & Coal Co. .	0.40	16.50	16.10	16.00	
9548	Berkshire Chemical Co., Bridgeport.....	Sampled at factory.....	0.20	18.65	18.45	16.00	
9451	E. B. Clark Seed Co., Milford.....	Sampled at factory.....	0.40	17.05	16.65	16.00	
8883	Consolidated Rendering Co., Boston, Mass.....	Wallingford: Laden Bros.....	1.70	18.15	16.45	16.00	
9152	Eastern States Farmers' Exchange, Springfield, Mass.....	North Haven: Ridgewood Farm.....	1.13	17.30	16.17	16.00	
8907	Olds & Whipple, Inc., Hartford..	Sampled at factory.....	1.70	17.55	15.85	16.00	
9499	Rackliffe Bros. Co., Inc., New Britain.....	Sampled at factory.....	0.23	16.90	16.67	16.00	
9036	The Rogers & Hubbard Co., Portland.....	Sampled at factory.....	0.15	17.93	17.78	16.00	
9298	F. S. Royster Guano Co., Baltimore, Md.....	Madison: J. D. Kelsey.....	1.35	17.40	16.05	16.00	
9582	I. P. Thomas & Son, Philadelphia, Pa.....	Hamden: Ira W. Beers.....	0.86	18.35	17.49	16.00	
8855	U. S. Guano Co., Baltimore, Md.	Westport: Rippe Bros.....	0.30	16.55	16.25	16.00	

TABLE VI. ANALYSES OF SUPERPHOSPHATE (ACID PHOSPHATE)—Concluded.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser	Citrate Insoluble. %	Phosphoric Acid.			Station No.
				Total. %	Found. %	"Available". Guaranteed. %	
<b>8878</b>	<i>Sampled by Station.</i> Virginia-Carolina Chemical Co., New York..... Virginia-Carolina Chemical Co., New York..... Wilcox Fertilizer Co., Mystic...	New Britain: Stanley Svea Grain Co. New Britain: Stanley Svea Grain Co. Woodstock: H. F. Joy.....	0.33	20.30	19.97	20.00	<b>8878</b>
<b>8879</b>			0.83	17.85	17.02	16.00	<b>8879</b>
<b>9613</b>			0.63	17.85	17.22	16.00	<b>9613</b>
<b>9649</b> <b>9061</b>	<i>Sampled by Purchaser.</i> Olds & Whipple, Inc., Hartford. U. S. Guano Co., Baltimore, Md.	Suffield: J. E. Phelps..... Andover: J. A. Barrasso.....	1.80 0.35	18.20 18.50	16.40 18.15	16.00 16.00	<b>9649</b> <b>9061</b>

## BASIC SLAG.

Basic slag is a by-product in the manufacture of steel from phosphatic iron ores. According to the A.O.A.C.<sup>1</sup> definition and standard it shall contain not less than 12 per cent of total phosphoric acid of which not less than 80 per cent shall be "available" by the Wagner method.

Two samples were examined.

Sample **8985** was from stock of Apothecaries Hall Co., drawn at the factory. It was guaranteed 15 available and 17 total phosphoric acid; 16.93 per cent and 18.85 per cent respectively were found.

Sample **9458**, sold by E. D. Chittenden Bridgeport, drawn from stock of Elijah Rogers, Southington, was guaranteed 18 per cent total phosphoric acid and 17.46 per cent was found. No guaranty for available was made but 15.20 per cent was found.

## III. RAW MATERIALS CHIEFLY VALUABLE FOR POTASH.

## CARBONATE OF POTASH.

In the pure, dry state this salt contains 68.2 per cent of actual potash ( $K_2O$ ), but commercial grades generally contain from 60 to 65 per cent.

Sixteen samples were analyzed of which only one, **8938**, was notably deficient. The average potash content was 64.8 per cent and at \$140.00 per ton potash from this source has cost 10.8 cents per pound.

Analyses are given in Table VII.

## MURIATE OF POTASH.

The grades of this salt which we used for fertilizer contain from 48 to 50 per cent of actual potash ( $K_2O$ ), the potash being largely in the form of chloride.

Twelve samples were examined all of which exceeded 48 per cent of potash and all exceeded guaranties except in case of **9159** which was about 0.5 per cent low. The average potash content was 51.6 per cent and the average ton price quoted was \$41.00. Potash from this source cost about 4 cents per pound.

Analyses are given in Table VII.

## SULPHATE OF POTASH.

This potash salt contains not less than 48 per cent of potash ( $K_2O$ ), and not over 2.5 per cent of chlorine according to the tentative definition and standard adopted by the Association of Official Agricultural Chemists.

<sup>1</sup> Assoc. Official Agr. Chemists, Proc. of October, 1925.

Eighteen samples were examined. The average potash content found was 49.1 per cent. No considerable deficiencies were found, the greatest being 0.4 per cent. At \$63.00 per ton, the prevailing price quoted, potash from this source cost 6.4 cents per pound.

Analyses given in Table VII.

#### SULPHATE OF POTASH-MAGNESIA.

Two samples of this material were examined both of which exceeded guaranties by good margins. This salt is generally sold on a guaranty of 26 per cent potash.

Analyses are given in Table VII.

#### COTTONHULL ASHES.

This raw material is so extremely variable in composition that there is a great deal of difficulty in arriving at a fair settlement between buyer and seller on the basis of chemical analysis. In the same shipment we have found bags which analyzed about 30 per cent potash and others which tested only about  $\frac{1}{2}$  as much. Bulk goods arriving in car lots have been in such coarse and lumpy condition in some cases that it was impossible to obtain any adequate sample until the whole lot was ground and mixed.

Twenty-eight samples were examined with the results as shown in Table VII.

#### WOOD ASHES.

Seven samples of wood ashes have been analyzed and all were of good grade except **8381** which was very inferior, due to leaching.

Analyses are given in Table VII.



TABLE VII. ANALYSES OF POTASH SALTS, ETC.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Pound.	Guaranteed.	
	<b>Carbonate of Potash.</b> <i>Sampled by Station.</i>				
9194	Apothecaries Hall Co., Waterbury.....	Sampled at factory.....	% 67.52	% 60.00	9194
9439	Berkshire Chemical Co., Bridgeport.....	Sampled at factory.....	66.37	63.00	9439
8812	Olds & Whipple, Inc., Hartford.....	Sampled at factory.....	64.98	65.00	8912
	<i>Sampled by Purchaser.</i>				
8927	Apothecaries Hall Co., Waterbury, Conn.....	Edwards & Brewer, West Suffield.....	66.62	60.00	8927
8840	Apothecaries Hall Co., Waterbury, Conn., Car No. 137142.....	Hatheway & Steane, Inc., Hartford....	61.80	60.00	8840
8841	Apothecaries Hall Co., Waterbury, Conn., Car No. 9510.....	Hatheway & Steane, Inc., Hartford....	64.60	60.00	8841
8938	Apothecaries Hall Co., Waterbury, Conn., Car No. 76685.....	Hatheway & Steane, Inc., Hartford....	56.54 <sup>1</sup>	60.00	8938
8940	Apothecaries Hall Co., Waterbury, Conn., Car No. 80671.....	Hatheway & Steane, Inc., Hartford....	63.24	60.00	8940
9324	Apothecaries Hall Co., Waterbury.....	A. N. Shepard & Son, Hartford.....	65.08	60.00	9324
9333	Apothecaries Hall Co., Waterbury.....	A. N. Shepard & Son, Hartford.....	65.43	60.00	9333
8445	Berkshire Chemical Co., Bridgeport.....	L. B. Haas & Co., Hartford.....	62.64	63.00	8445
8258	A. Klipstein, New York.....	American Sumatra Tobacco Co., Bloom- field.....	66.97	.....	8258
8259	A. Klipstein, New York.....	American Sumatra Tobacco Co., Bloom- field.....	67.23	.....	8259

<sup>1</sup> Moisture, 15.70%.

TABLE VII. ANALYSES OF POTASH SALTS, ETC.—Continued.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
			%	%	
	<b>Carbonate of Potash.</b>				
	<i>Sampled by Purchaser.</i>				
9313	Olds & Whipple, Inc., Hartford.....	L. Wetstone & Sons, Inc., Hartford.....	66.66	65.00	9313
9012	Manufacturer unknown.....	The Allied Tobacco Co., Hartford.....	66.14	.....	9012
9653	Manufacturer unknown.....	J. E. Phelps, Suffield.....	64.85	.....	9653
	<b>Muriate of Potash.</b>				
	<i>Sampled by Station.</i>				
8955	American Agricultural Chemical Co., New York	Sampled at factory, West Haven.....	51.19	50.00	8955
9529	American Agricultural Chemical Co., New York	E. N. Austin, Suffield.....	51.50	50.00	9529
8980	Apothecaries Hall Co., Waterbury.....	Sampled at factory.....	50.85	50.00	8980
9029	Armour Pertz. Works, New York.....	F. A. Bartlett Tree Expert Co., Stamford	51.31	48.00	9029
9544	Berkshire Chemical Co., Bridgeport.....	Sampled at factory.....	51.40	50.00	9544
8887	Consolidated Rendeing Co., Boston, Mass.....	Cheshire Reformatory, Cheshire.....	52.30	50.00	8887
9159	Eastern States Farmers' Exchange, Springfield, Mass.....	H. H. McKnight, Ellington.....	49.46	50.00	9159
9091	The Rogers & Hubbard Co., Portland.....	Lyman Farm, Middlefield.....	60.43	50.00	9091
8852	U. S. Guano Co., Baltimore, Md.....	H. P. Beers, Southport.....	48.44	48.00	8852
8856	U. S. Guano Co., Baltimore, Md.....	Rippe Bros., Westport.....	48.67	48.00	8856
9590	Wilcox Fertilizer Co., Mystic.....	Sampled at factory.....	54.34	50.50	9590
	<i>Sampled by Purchaser.</i>				
9054	U. S. Guano Co., Baltimore, Md.....	J. A. Barrasso, Andover.....	49.78	48.00	9054

TABLE VII. ANALYSES OF POTASH SALTS, ETC.—Continued.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
			%	%	
8951	<b>Sulphate of Potash.</b>		50.30	48.00	8951
9533	<i>Sampled by Station.</i>		49.22	48.00	9533
8994	American Agricultural Chemical Co., New York	Sampled at factory, West Haven.....	49.28	48.00	8994
9447	Apothecaries Hall Co., Waterbury.....	E. N. Austin, Suffield.....	48.94	48.00	9447
9543	Armour Fertilz. Works, New York.....	Sampled at factory.....	48.83	48.00	9543
8961	Berkshire Chemical Co., Bridgeport.....	John Sestakanskas, Granby.....	48.82	48.00	8961
8906	Consolidated Rendering Co., Boston, Mass.....	L. T. Frisbie Co., New Haven.....	48.45	48.65	8906
9618	Olds & Whipple, Inc., Hartford.....	Sampled at factory.....	50.76	48.65	9618
8925	<i>Sampled by Purchaser.</i>		49.05	48.00	8925
8837	Apothecaries Hall Co., Waterbury.....	Edwards & Brewer, West Suffield.....	50.01	48.00	8837
8838	Apothecaries Hall Co., Waterbury, Car No. 10432	Hatheway & Steane, Inc., Hartford....	47.60	48.00	8838
8839	Apothecaries Hall Co., Waterbury, Car No. 86709	Hatheway & Steane, Inc., Hartford....	49.72	48.00	8839
8939	Apothecaries Hall Co., Waterbury, Car No. 180284	Hatheway & Steane, Inc., Hartford....	49.58	48.00	8939
9325	Apothecaries Hall Co., Waterbury, Car No. 76685	A. N. Shepard & Son, Hartford.....	48.57	48.00	9325
9332	Apothecaries Hall Co., Waterbury (Pelton)...	A. N. Shepard & Son, Hartford.....	47.86	48.00	9332
8065	Hollingshurst Co., New York, Car No. 566200.	American Sumatra Tobacco Co., Bloom- field.....	48.59	.....	8065
8066	Hollingshurst Co., New York, Car No. 3255....	American Sumatra Tobacco Co., Bloom- field.....	48.21	.....	8066

TABLE VII. ANALYSES OF POTASH SALTS, ETC.—Continued.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
7900	Olds & Whipple, Inc., Hartford.....	American Sumatra Tobacco Co., Bloomfield.....	% 49.07	% 48.65	7900
8952	<b>Sulphate of Potash.</b> <i>Sampled by Purchaser.</i>				
8995	American Agricultural Chemical Co., N. Y..... Apothecaries Hall Co., Waterbury.....	Sampled at factory, West Haven..... Sampled at factory.....	31.74 27.96	26.00 26.00	8952 8995
8573	<b>Cotton Hull Ashes.</b> <i>Sampled by Station.</i>				
8699	Ed Eggert, Hartford, Car No. R. I. 61821..... Ed. Eggert, Hartford.....	American Agricultural Chemical Co., West Haven..... American Agricultural Chemical Co., West Haven.....	26.81 30.41	..... .....	8573 8699
8773	Ed. Eggert, Hartford, Car R. I. No. 261016... Ed. Eggert, Hartford, Car R. I. No. 261016... Ed. Eggert, Hartford, Car R. I. No. 261016...	American Agricultural Chemical Co., West Haven..... American Agricultural Chemical Co., West Haven..... American Agricultural Chemical Co., West Haven.....	34.52	.....	8773
8164	Ed. Eggert, Hartford.....	American Agricultural Chemical Co., West Haven.....	35.57	.....	8774
9221	International Agricultural Corp., Boston, Mass.	L. B. Haas & Co., Hartford.....	16.03	.....	8164
9113	International Agricultural Corp., Boston, Mass.	L. B. Haas & Co., Hartford..... J. E. Shepard, So. Windsor.....	18.46 18.19	..... .....	9221 9113

TABLE VII. ANALYSES OF POTASH SALTS, ETC.—Continued.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
	<b>Cotton Hull Ashes.</b> <i>Sampled by Station.</i>				
9220	International Agricultural Corp., Boston, Mass.	J. E. Shepard, So. Windsor	%	%	9220
9114	International Agricultural Corp., Boston, Mass.	Spencer Bros., Suffield	12.36 <sup>1</sup> 21.92	.....	9114
	<i>Sampled by Purchaser.</i>				
9643	F. W. Brode Co., Memphis, Tenn.	J. B. Stewart, Windsor	21.69	.....	9643
9707	F. W. Brode Co., Memphis, Tenn.	J. B. Stewart, Windsor	23.38	.....	9707
8398	Ed. Eggert, Hartford	The Allied Tobacco Co., Hartford	16.92	.....	8398
8921	Ed. Eggert, Hartford, Car No. 156355	Edwards & Brewer, West Suffield	28.61	.....	8921
9365	Ed. Eggert, Hartford, Car SL&SF No. 129344	P. J. Anderson, Windsor	31.98	.....	9365
9366	Ed. Eggert, Hartford, Car R. I. No. 350135	P. J. Anderson, Windsor	29.16	.....	9366
9367	Ed. Eggert, Hartford, Car K.C.M.&O., No. 6299	P. J. Anderson, Windsor	39.27	.....	9367
9634	Ed. Eggert, Hartford	Amos D. Bridge's Sons, Hazardville	32.48	.....	9634
8199	Ed. Eggert, Hartford	Ed. Eggert, Hartford	25.86	.....	8199
7761	Ed. Eggert, Hartford	L. B. Haas & Co., Inc., Hartford	25.70	.....	7761
7765	Ed. Eggert, Hartford	L. B. Haas & Co., Inc., Hartford	22.04	.....	7765
8165	Ed. Eggert, Hartford (Light Gray)	L. B. Haas & Co., Inc., Hartford	11.45	.....	8165
8166	Ed. Eggert, Hartford (Dark Gray)	L. B. Haas & Co., Inc., Hartford	11.78	.....	8166
8167	Ed. Eggert, Hartford (Brown)	L. B. Haas & Co., Inc., Hartford	28.97	.....	8167
9127	Ed. Eggert, Hartford	Will Hayes, Tariffville	16.89	.....	9127
9319	Ed. Eggert, Hartford	Spencer Bros., Inc., Suffield	32.25	.....	9319
9690	Olds & Whipple, Inc., Hartford	The Otee Tobacco Corp., Windsor	27.85	.....	9690

<sup>1</sup> Contained 21.5% moisture.



TABLE VII. ANALYSES OF POTASH SALTS, ETC.—*Concluded.*

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
			Found.	Guaranteed.	
			%	%	
9628			21.41	.....	9623
9723			31.28	.....	9728
	<b>Cotton Hull Ashes.</b>				
	<i>Sampled by Purchaser.</i>				
	Olds & Whipple, Inc., Hartford, Car 40438. ....	J. B. Stewart, Windsor. ....			
	Olds & Whipple, Inc., Hartford, Car 252942. ...	J. B. Stewart, Windsor. ....			
	<b>Wood Ashes.</b>				
	<i>Sampled by Purchaser.</i>				
8385	John Joynt, Lucknow, Canada, Car No. 124904	Hatheway & Steane, Inc., Hartford. ....	5.82	3.00	8385
8386	John Joynt, Lucknow, Canada, Car No. 93276.	Hatheway & Steane, Inc., Hartford. ....	5.03	3.00	8386
8651	John Joynt, Lucknow, Canada, Car No. 209938	Hatheway & Steane, Inc., Hartford. ....	5.30	3.00	8651
8345	John Joynt, Lucknow, Canada. ....	John B. Stewart, Windsor. ....	5.17	3.00	8345
9312	John Joynt, Lucknow, Canada. ....	L. W. Wetstone & Sons, Hartford. ....	7.50	3.00	9312
8918	Manufacturer unknown. ....	Benj. Fenn, Milford. ....	7.26	.....	8918
8381	Manufacturer unknown. ....	Henry Lanz, Ellington. ....	1.08 <sup>1</sup>	.....	8381

<sup>1</sup> Dry basis. Contained 20.35% moisture as received.

#### IV. RAW MATERIALS CONTAINING NITROGEN AND POTASH.

Seven samples of this group of materials have been examined, four taken by the Station agent and three sent by purchasers.

**9504.** Nitrate of Soda and Potash. Apothecaries Hall Co., Waterbury. Sampled by Station agent, stock of Barnes & Co., Wallingford.

**9769.** Nitrate of Soda and Potash. Wilcox Fertilizer Co., Mystic, Conn. Sampled by Station agent at factory.

**8910.** O & W Nitrate of Potash 90%. Olds & Whipple, Inc., Hartford, Conn. Sampled by Station agent at factory.

**9117.** Nitrate of Potash (for experiment). Synthetic Nitrogen Products Co., New York. Sampled by Station agent from stock of Tobacco Station, Windsor.

**8444.** Nitrate of Potash. W. R. Grace & Co., N. Y. Submitted by L. B. Haas & Co., Inc., Hartford.

**9089.** Nitrate of Potash. Manufacturer unknown. Submitted by Cullman Bros., Hartford.

**9648.** Nitrate of Potash. Olds & Whipple, Inc., Hartford. Submitted by J. E. Phelps, Suffield.

TABLE VIII. ANALYSES OF NITRATE OF SODA AND POTASH, ETC.

Station No.	9504	9769	9117	8444	9089	9648	8910
	%	%	%	%	%	%	%
Nitrogen:							
found.....	14.84	14.63	13.28	15.00	13.44	12.08	12.04
guaranteed...	14.80	14.72	....	....	....	12.00	12.00
Equivalent to ammonia:							
found.....	18.04	17.79	16.15	18.24	16.34	14.69	14.64
guaranteed...	18.00	17.90	....	....	....	14.50	14.50
Potash:							
found.....	14.08	11.70 <sup>1</sup>	45.34	15.29	46.76	41.19	41.00
guaranteed...	10.00	11.80	....	....	....	41.00	41.00

<sup>1</sup> Chlorine 0.46%.

## V. RAW MATERIALS CONTAINING NITROGEN AND PHOSPHORIC ACID.

### DRY GROUND FISH.

This raw material is made from non-edible fish and from the offal from fish canneries. Oil is removed by steaming and pressing and the residue then dried and ground.

Thirty-nine samples were examined, in most cases samples being submitted by purchasers.

This material is usually sold on a guaranty of 8.20 per cent of nitrogen and 5 or 6 per cent. of phosphoric acid. The average nitrogen content of all samples was 8.6 per cent and the average phosphoric acid found was about 5 per cent.

The proportion of nitrogen in the form of ammonia salts was suspiciously high in a number of these samples and microscopic examinations confirmed the conclusion that ammonium sulphate was present. While the purchaser has received the total amount of nitrogenous plant food guaranteed to him he has not received it in the form in which he contracted to purchase it. Nitrogen in the form of ammonium sulphate has been bought this year for about 14.5 cents per pound whereas organic nitrogen in dry ground fish, making due allowance for the phosphoric acid present, has cost the purchaser about 44 cents per pound. *The sale of a mixture of ammonium sulphate and dry ground fish, as and for dry ground fish, constitutes the sale of an adulterated article.*

There should be no occasion to reinforce high grade dry ground fish which normally contains from 8 to 10 per cent of nitrogen. The increasing demand for fish, bone and tankage for animal and poultry feeding, for which purposes these materials are said to command better prices than for fertilizer purposes, suggests a possible reason for "stretching" the supply of high grade fish as much as possible or for using inferior materials reinforced with inorganic ammoniates to make a mixture appear high grade. However, since our investigation indicates that all of the samples of adulterated fish which we have found this year came from one source, there is no good reason to believe that the sale of spurious fish fertilizer is at all general.

Dry ground fish will ordinarily contain small amounts of ammonia nitrogen. Thus 115 samples examined over a period of three years showed an average ammonia nitrogen content of 0.30 per cent and rarely exceeded 1 per cent in any case. The average total nitrogen content for the series was 8.6 per cent. In general it may be expected that animal proteins will yield ammonia nitrogen to the extent of from 6 to 10 per cent of the total nitrogen content when completely hydrolyzed by laboratory methods. Fish protein according to analyses by Osborne and Hyle<sup>1</sup> yielded 1.09

<sup>1</sup> Am. Jour. Physiol., 23, 81, 1908.

per cent of such nitrogen which was 5.85 per cent of the total nitrogen present. The acidulation of fish in commercial practice however, is not at all likely to produce the extent of hydrolysis obtained in laboratory procedure.

In the series of commercial samples examined this year 20 showed substantial or large amounts of ammonium sulphate and in 19 there was no evidence of excessive ammonia nitrogen and no ammonium sulphate could be detected by microscopic examination. Of the 20 samples showing ammonium sulphate the average proportion of ammonia nitrogen was 43 per cent of the total nitrogen and the maximum proportion was 52 per cent. Of the samples presumed to be genuine the average proportion of ammonia nitrogen was 2.6 per cent of the total and the maximum was a little over 10 per cent.

We have no information as to whether or not the fish examined this year was acidulated but in any case the data just given are pertinent to the issue involved.<sup>1</sup>

Of the samples listed in Table IX, 8155 to 8250 inclusive represented sales by J. W. Wilcox of Mystic, the fish being supplied, according to our information, by the Smith-Douglas Co. of Norfolk, Va. Other samples representing goods obtained through the above named jobber or directly from the Norfolk concern were 9550, E. D. Chittenden Co.; 8898, 9328, 9337, Apothecaries Hall Co.; and 8267, 8268, 8601 and 8603, Berkshire Chemical Co. These samples contained ammonium sulphate sufficient to supply from 10 to 40 per cent of the total nitrogen making due allowance for the ammonia nitrogen ordinarily found in fish fertilizer.

We have no evidence to warrant the conclusion that local dealers were aware of the spurious character of these goods and it is only fair to add that as soon as they were advised of our findings they took immediate steps to make adjustments with their purchasers by means of suitable rebates to cover the difference in cost between inorganic and organic ammoniates.

<sup>1</sup> The following experiment serves to give some idea of the extent to which nitrogen transformation may occur when fish is acidulated commercially.

Fish containing 9.5 per cent of total nitrogen and .08 per cent of ammonia nitrogen was moistened thoroughly with 50 per cent sulphuric acid and allowed to stand at room temperature for one week. Ammonia nitrogen determined at that time was found to be 0.33 per cent. This experiment represents more vigorous treatment than obtains in commercial practice because the entire sample came into intimate contact with the acid.

TABLE IX. ANALYSES OF DRY GROUND FISH.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Station No.
			Total found.	Total Guaranteed.		Total found.	Total Guaranteed.	
			%	%	%	%	%	
<b>9379</b>	<i>Sampled by Station.</i>		8.72	8.23	10.60	8.50	6.00	<b>9379</b>
<b>9528</b>	American Agricultural Chemical Co., New York.....	Spencer Bros., Suffield.....	8.92	8.23	10.84	8.52	6.00	<b>9528</b>
<b>8983</b>	American Agricultural Chemical Co., New York.....	E. N. Austin, Suffield.....	9.83	8.20	11.95	6.55	5.00	<b>8983</b>
<b>9545</b>	Apothecaries Hall Co., Waterbury....	Sampled at factory.....	8.26	8.22	10.04	5.99	6.00	<b>9545</b>
<b>9550</b>	Berkshire Chemical Co., Bridgeport....	Sampled at factory.....	8.07	8.00	9.81	3.08	6.00	<b>9550</b>
<b>9452</b>	E. D. Chittenden Co., Bridgeport.....	J. P. Norton, Broad Brook.....	8.31	8.22	10.10	8.03	6.40	<b>9452</b>
<b>9022</b>	Consolidated Rendering Co., Boston, Mass.....	John P. Mason, Warehouse Point..	9.48	8.23	11.53	7.48	5.00	<b>9022</b>
<b>8857</b>	Olds & Whipple, Inc., Hartford.....	Sampled at factory.....	8.01	8.22	9.74	6.28	6.00	<b>8857</b>
<b>9354</b>	U. S. Guano Co., Baltimore, Md.....	H. D. Peters, Highwood.....	8.21	8.24	9.98	6.08	6.00	<b>9354</b>
		Sampled at factory.....						
	<i>Sampled by Purchaser.</i>		8.02	8.20	9.75	3.83	5.00	<b>8898</b>
<b>8926</b>	Apothecaries Hall Co., Waterbury....	The Allied Tobacco Co., Hartford..	8.48	8.20	10.31	4.53	5.00	<b>8926</b>
<b>8330</b>	Apothecaries Hall Co., Waterbury....	Edwards & Brewer, West Suffield..	8.36	8.20	10.16	4.22	5.00	<b>8330</b>
<b>8396</b>	Apothecaries Hall Co., Waterbury....	Hatheway & Steane, Inc., Hartford	7.92	8.20	9.63	4.58	5.00	<b>8396</b>
<b>8454</b>	Apothecaries Hall Co., Waterbury....	Hatheway & Steane, Inc., Hartford	8.26	8.20	10.04	4.59	5.00	<b>8454</b>
<b>8690</b>	Apothecaries Hall Co., Waterbury....	Hatheway & Steane, Inc., Hartford	7.80	8.20	9.48	4.25	5.00	<b>8690</b>



TABLE IX. ANALYSES OF DRY GROUND FISH.—Continued.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Station No.
			Total Found.	Total Guaranteed.		Total Found.	Total Guaranteed.	
	<i>Sampled by Purchaser.</i>							
8817	Apothecaries Hall Co., Waterbury . . .	Hatheway & Steane, Inc., Hartford	8.41	8.20	10.22	4.10	5.00	8817
8818	Apothecaries Hall Co., Waterbury . . .	Hatheway & Steane, Inc., Hartford	8.23	8.20	10.01	3.60	5.00	8818
8834	Apothecaries Hall Co., Waterbury . . .	Hatheway & Steane, Inc., Hartford	8.56	8.20	10.41	3.85	5.00	8834
8936	Apothecaries Hall Co., Waterbury . . .	Hatheway & Steane, Inc., Hartford	7.96	8.20	9.68	3.63	5.00	8936
9328	Apothecaries Hall Co., Waterbury . . .	A. N. Shepard & Son, Hartford . . .	8.26	8.20	10.04	5.00	5.00	9328
9337	Apothecaries Hall Co., Waterbury . . .	A. N. Shepard & Son, Hartford . . .	8.77	8.20	10.66	4.30	5.00	9337
9526	The Berkshire Chemical Co., Bridgeport . . .	E. N. & C. C. Austin, Suffield . . .	7.90	8.22	9.60	5.85	6.00	9526
8267	The Berkshire Chemical Co., Bridgeport . . .	L. B. Haas & Co., Inc., Hartford . .	9.74	8.22	11.84	6.84	6.00	8267
8268	The Berkshire Chemical Co., Bridgeport . . .	L. B. Haas & Co., Inc., Hartford . .	9.75	8.22	11.85	7.37	6.00	8268
9097	Olds & Whipple, Inc., Hartford . . . .	L. W. Wetstone & Sons, Inc., Hartford . . . .	9.11	8.23	11.08	8.70	5.00	9097
8155	J. Waterman Wilcox, Mystic . . . . .	American Sumatra Tobacco Co., Bloomfield . . . . .	8.72	....	10.60	3.05	....	8155
8156	J. Waterman Wilcox, Mystic . . . . .	American Sumatra Tobacco Co., Bloomfield . . . . .	8.30	....	10.09	3.71	....	8156
8157	J. Waterman Wilcox, Mystic . . . . .	American Sumatra Tobacco Co., Bloomfield . . . . .	8.08	....	10.55	3.83	....	8157



TABLE IX. ANALYSES OF DRY GROUND FISH.—*Concluded.*

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Station No.
			Total found.	Total Guaranteed.		Total found.	Total Guaranteed.	
8158	<i>Sampled by Purchaser.</i> J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.58	....	%	%	....	8158
8159	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.36	....	10.43	3.32	....	8159
8160	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.36	....	10.16	3.51	....	8160
8245	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.52	....	10.16	3.48	....	8245
8246	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.22	....	10.36	2.96	....	8246
8247	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.91	....	9.99	3.05	....	8247
8248	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.82	....	10.83	2.82	....	8248
8249	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.02	....	10.72	2.70	....	8249
8250	J. Waterman Wilcox, Mystic.....	American Sumatra Tobacco Co., Bloomfield.....	8.64	....	9.75	3.52	....	8250
8601	Car No. 34983.....	Bloomfield.....	10.18	....	10.50	3.05	....	8601
8603	Car No. P. A. 533730.....	Cullman Bros., Hartford..... Cullman Bros., Hartford.....	9.78	....	12.38	7.18	....	8603
				....	11.89	7.48	....	

## TANKAGE.

This raw material is derived from refuse meat and bone. The refuse is treated with steam and then pressed to remove fat after which it is dried and ground. The composition depends upon the proportions of meat and of bone which are present; high nitrogen and low phosphoric acid indicates a preponderance of meat while the reverse is true if bone predominates. High grade tankage contains 8 to 10 per cent of nitrogen and 5 to 10 per cent of phosphoric acid.

Garbage tankage is less valuable as a fertilizer and generally contains not over 3.5 per cent. of nitrogen and not over 5 per cent of phosphoric acid.

Twelve samples were analyzed. All met nitrogen guaranties excepting **8683**, **8858** and **9606** which were from 0.3 to 0.4 per cent low. Phosphoric acid guaranties were met or exceeded excepting **9135** which was considerably low.

Microscopic examinations were made to discover inorganic ammoniates and mineral phosphates if present. In two or three samples both of those substances were found but the amounts did not appear to be sufficient to materially enhance either the nitrogen or the phosphoric acid.

Analyses are found in Table X.

TABLE X. ANALYSES OF TANKAGE.

Station No.	Manufacturer	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.		Phosphoric Acid.		Mechanical Analysis.		Station No.
			Total found.	Total guaranteed.	%	%	Total found.	Total guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.	
<i>Sampled by Station.</i>											
8956	American Agricultural Chemical Co., New York.....		7.78	7.40	9.46	10.53	9.15	42.0	58.0	8956	
8987	Apothecaries Hall Co., Waterbury..	Sampled at factory.....	4.03	3.29	4.90	20.25	20.00	36.0	64.0	8987	
8993	Apothecaries Hall Co., Waterbury..	Sampled at factory.....	8.38	7.40	10.19	9.25	3.00	51.5	48.5	8993	
9612	Armour Fertilizer Works, New York	Geo. R. Davidson, So. Meriden..	7.47	7.40	9.08	11.13	6.87	50.5	49.5	9612	
9438	Berkshire Chemical Co., Bridgeport.	Sampled at factory.....	7.34	7.40	8.92	8.78	6.86	35.0	65.0	9438	
9135	Connecticut Fat Rendering & Fertilizer Co., New Haven.....	Sampled at factory.....	3.99	3.29	4.85	21.10	25.00	40.0	60.0	9135	
8962	Consolidated Rendering Co., Boston, Mass.....	L. T. Frisbie Co., New Haven....	7.81	7.41	9.50	10.83	9.15	33.0	67.0	8962	
8963	Consolidated Rendering Co., Boston, Mass.....	L. T. Frisbie Co., New Haven....	5.17	4.92	6.29	14.55	14.00	24.0	76.0	8963	
8683	U. S. Guano Co., Baltimore, Md....	Geo. S. Jennings, Southport.....	7.02	7.40	8.53	10.15	9.15	38.0	62.0	8683	
8858	U. S. Guano Co., Baltimore, Md....	H. D. Peters, Highwood.....	7.03	7.40	8.55	9.48	9.15	42.0	58.0	8858	
9606	U. S. Guano Co., Baltimore, Md....	J. B. Lewis, Southington, Conn..	7.10	7.40	8.63	10.65	9.15	43.0	57.0	9606	
<i>Sampled by Purchaser.</i>											
8890	L. T. Frisbie Co., New Haven.....	C. R. Burr & Co., Inc., Manchester.....	5.16	.....	6.27	14.00	.....	26.0	74.0	8890	

## BONE MEAL.

Raw Bone Meal or Raw Ground Bone is the product made by drying and grinding animal bones which have not been previously steamed under pressure.

Steamed Bone Meal or Steamed Ground Bone is the product made by steaming bones under pressure after which they are dried and ground.

Steamed bone contains about one-half as much nitrogen as raw bone.

Fifty-two samples were examined, twenty-four of which were official samples drawn by the station agent. There were only three deficiencies found in nitrogen and four in total phosphoric acid.

There has been a scarcity of domestic bone during the past year and manufacturers have in some cases been obliged to fill their needs from foreign markets.

Although guaranties in nearly all cases were met or exceeded it was easy to see that some of the samples were not pure bone. This led us to examine microscopically all of the official samples, and many of those submitted by purchasers. All of the samples from stock sold by the U. S. Guano Company contained inorganic ammoniates or mineral phosphates or both. As in the case of dry ground fish, purchasers of this "bone" have received the amounts of nitrogen and of phosphoric acid which were guaranteed to them but it was not in the form in which they expected to obtain it. A mixture of ground bone, ammonium sulphate and mineral phosphate is not ground bone, but a mixed fertilizer containing *A mixture of ground bone, ammonium sulphate and mineral phosphate is not ground bone, but a mixed fertilizer containing nitrogen and phosphoric acid.* Moreover, there is a wide difference in price between nitrogen in ammonium sulphate and the organic nitrogen in bone.

**8958.** This sample was drawn from stock of the Eldredge Hardware Co. and sold by the Berkshire Chemical Co. A small amount of mineral phosphate and of ammonium sulphate was found. Information furnished by the manufacturer was to the effect that this was a small lot of bone mixture in which, however, no mineral phosphate or ammonium sulphate had been used. Samples of the ingredients used were submitted and the presence of these foreign materials in one of them was found, due, no doubt, to accidental contamination in the storage bins.

Analyses are found in Table XI.

TABLE XI. ANALYSES OF GROUND BONE.

Station No.	Manufacturer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.		Phosphoric Acid.		Mechanical Analysis.		Station No.
			Total found.	Total Guaranteed.	%	%	Total Found.	Total Guaranteed.	Finer than 1-50 Inca.	Coarser than 1-50 Inca.	
	<i>Sampled by Station.</i>										
8864	American Agricultural Chemical Co., New York.		2.58	2.06	3.14	24.40	22.88	41.0	59.0		8864
8984	Apothecaries Hall Co., Waterbury.		4.00	3.29	4.86	23.10	20.00	48.5	51.5		8984
9190	Apothecaries Hall Co., Waterbury.		2.61	2.46	3.17	23.65	22.00	62.0	38.0		9190
9000	Armour Fertilizer Works, New York	Silliman Hardware Co., New Canaan.	2.40	2.47	2.92	24.60	22.00	64.0	36.0		9000
9404	Berkshire Chemical Co., Bridgeport.		2.32	2.47	2.82	24.00	20.00	...	...		9404
9564	E. D. Chittenden Co., Bridgeport.		2.66	2.47	3.23	24.60	22.00	66.0	34.0		9564
8965	Consolidated Rendering Co., Boston, Mass.	J. E. Stoddard, Abington.	3.86	2.46	4.69	24.05	22.90	28.0	72.0		8965
9162	Eastern States Farmers' Exchange, Springfield, Mass.	Lightbourn & Pond, New Haven.	2.72	2.46	3.31	25.20	23.00	62.0	38.0		9162
8964	L. T. Frisbie Co., New Haven.	H. H. McKnight, Ellington.	4.37	3.28	5.31	24.45	22.00	46.0	54.0		8964
8913	Mapes Formula & Peruvian Guano Co., New York.	Mapes at factory.	4.16	3.29	5.06	21.40	20.00	32.0	68.0		8913
8909	Olds & Whipple, Inc., Hartford.	Mapes Branch, Hartford.	2.15	2.50	2.61	26.15	22.00	61.5	38.5		8909
9619	Olds & Whipple, Inc., Hartford.	Sampled at factory.	2.50	2.50	3.04	25.70	22.00	64.5	35.5		9619
9019	The Rogers & Hubbard Co., Portland	Cadwell & Jones, Hartford.	3.52	3.29	4.28	20.94	20.50	59.0	41.0		9019
9020	The Rogers & Hubbard Co., Portland	Cadwell & Jones, Hartford.	3.60	3.82	4.38	25.70	24.70	73.0	27.0		9020
9503	F. S. Royster Guano Co., Baltimore, Md.	F. B. Newton, Plainville.	2.83	2.47	3.44	23.05	22.90	66.0	34.0		9503



TABLE XI. ANALYSES OF GROUND BONE—Continued.

Station No.	Manufacturer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Mechanical Analysis.		Station No.		
			Total found.	Total guaranteed.		Total found.	Total guaranteed.	Finer than 1-50 Inch.	Coarser than 1-50 Inch.			
9589	<i>Sampled by Station.</i> M. L. Shoemaker & Co., Philadelphia, Pa. I. P. Thomas & Son, Philadelphia, Pa. U. S. Guano Co., Baltimore, Md. U. S. Guano Co., Baltimore, Md. U. S. Guano Co., Baltimore, Md. U. S. Guano Co., Baltimore, Md. U. S. Guano Co., Baltimore, Md. U. S. Guano Co., Baltimore, Md. Wilcox Fertilizer Co., Mystic	Geo. T. Soule, New Milford. Ira W. Beers, Hamden. Frank Libner & Son, Norwalk. H. P. Beers, Southport. Rippe Bros., Westport. E. O. Chapman, North Haven. J. B. Lewis, Southington. Jordan Hardware Co., Willimantic.	4.19	3.69	5.09	22.20	22.88	37.0	63.0	9589		
9580			2.81	2.45	3.42	24.40	23.00	64.0	36.0	9580		
8949			2.43	2.47	2.95	18.25	22.00	41.0	59.0	8949		
8950			2.62	2.47	3.19	21.45	22.00	32.0	68.0	8950		
8854			2.69	2.47	3.27	22.20	22.00	37.0	63.0	8854		
9343			4.05	3.70	4.92	19.50	22.00	38.0	62.0	9343		
9607			3.68	3.80	4.47	20.87	18.30	41.0	59.0	9607		
9360			3.11	2.46	3.78	22.17	22.00	46.0	54.0	9360		
8924			<i>Sampled by Purchaser.</i> Apothecaries Hall Co., Waterbury. Apothecaries Hall Co., Waterbury. Apothecaries Hall Co., Waterbury. Apothecaries Hall Co., Waterbury. Apothecaries Hall Co., Waterbury. Car No. 71092. Apothecaries Hall Co., Waterbury. Car No. 92570.	Edwards & Brewer, West Suffield Hatheway & Steane, Inc., Hartford. Hatheway & Steane, Inc., Hartford. Hatheway & Steane, Inc., Hartford. Hatheway & Steane, Inc., Hartford. Hatheway & Steane, Inc., Hartford. Hatheway & Steane, Inc., Hartford.	2.46	2.46	2.99	23.70	22.00	.....	.....	8924
8456					3.97	2.46	4.83	22.50	22.00	.....	.....	8456
8457	4.20	3.29			5.11	22.59	20.00	38.0	62.0	8457		
8652	5.50	3.29			6.69	19.30	20.00	34.0	66.0	8652		
8653	3.83	3.29			4.66	23.83	20.00	47.0	53.0	8653		



TABLE XI. ANALYSES OF GROUND BONE—Continued.

Station No.	Manufacturer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.		Phosphoric Acid.		Mechanical Analysis.		Station No.
			Total found.	Total guaranteed.	%	%	Found.	Guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.	
8654	<i>Sampled by Purchaser.</i> Apothecaries Hall Co., Waterbury, Car No. 92666.	Hatheway & Steane, Inc., Hart- ford.	4.19	3.29	5.09	23.48	20.00	56.0	44.0	8654	
8691	Apothecaries Hall Co., Waterbury, Car No. 10627.	Hatheway & Steane, Inc., Hart- ford.	4.74	3.29	5.76	20.40	20.00	43.0	57.0	8691	
8819	Apothecaries Hall Co., Waterbury, Car No. 150058.	Hatheway & Steane, Inc., Hart- ford.	4.06	3.29	4.94	23.45	20.00	50.0	50.0	8819	
8821	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Inc., Hart- ford.	3.55	3.29	4.32	24.60	20.00	62.0	38.0	8821	
8836	Apothecaries Hall Co., Waterbury, Car No. 10432.	Hatheway & Steane, Inc., Hart- ford.	4.35	3.29	5.29	19.60	20.00	41.0	59.0	8836	
8942	Apothecaries Hall Co., Waterbury, Car No. 76685.	Hatheway & Steane, Inc., Hart- ford.	3.85	3.29	4.68	23.50	20.00	49.0	51.0	8942	
9334	Apothecaries Hall Co., Waterbury.	A. N. Shepard & Son, Hartford.	2.48	.....	3.02	27.95	.....	65.0	35.0	9334	
8152	Armour Fertilizer Works, New York, Car No. 49435.	American Sumatra Tobacco Co., Bloomfield.	2.81	2.47	3.42	23.99	22.00	39.0	61.0	8152	
8153	Armour Fertilizer Works, New York, Car No. 50832.	American Sumatra Tobacco Co., Bloomfield.	2.54	2.47	3.09	24.25	22.00	48.5	51.5	8153	
8154	Armour Fertilizer Works, New York, Car No. 60953.	American Sumatra Tobacco Co., Bloomfield.	2.60	2.47	3.16	23.80	22.00	50.0	50.0	8154	
8173	Armour Fertilizer Works, New York, Car No. 81780.	American Sumatra Tobacco Co., Bloomfield.	2.88	2.47	3.50	23.51	22.00	48.0	52.0	8173	



## VI. MIXED FERTILIZERS.

MIXTURES CONTAINING ONLY NITROGEN AND  
PHOSPHORIC ACID.

Six samples of this group of materials were analyzed.

**9195.** Ammo-Phos. American Cyanamid Co., New York. Sampled by Station agent from stock of Olds & Whipple, Inc., Hartford, Conn.

**9191.** Liberty Lawn Fertilizer. Apothecaries Hall Co., Waterbury. Sampled by the Station agent at factory.

**9502.** Liberty Tobacco Starter. Apothecaries Hall Co., Waterbury. Sampled by the Station agent at factory.

**9266.** O & W High Grade Tobacco Starter. Olds & Whipple, Inc., Hartford, Conn. Sampled by the Station agent from stock of E. O. Gates, New Hartford, Conn.

**9511.** "Swift-Sure" Tobacco Starter 4-10-0. M. L. Shoemaker & Co., Philadelphia, Pa. Sampled by the Station agent from stock of Olds & Whipple, Inc., Hartford, Conn.

**9118.** Diamonphos (for experiment). Synthetic Nitrogen Products Co., New York. Sampled by the Station agent from stock of the Tobacco Station, Windsor, Conn.

	9195	9191	9502	9266	9511	9118 <sup>1</sup>
	%	%	%	%	%	%
Nitrogen, found.....	16.22	4.26	3.80	13.79	3.36	20.66
guaranteed.....	16.00	3.29	3.29	8.23	3.25	....
Ammonia equivalent to nitrogen	19.72	5.18	4.62	16.77	4.09	25.12
Phosphoric acid, total.....	19.75	12.68	11.20	2.78	11.98	53.70
available found.....	19.24	7.60	10.02	2.43	10.73	....
guaranteed	19.00	4.00	10.00	3.00	10.00	....

MIXTURES CONTAINING ONLY PHOSPHORIC ACID  
AND POTASH.

This group is represented by four samples examined.

**9386.** Tobacco Ash Elements. American Agricultural Chemical Co. sampled from stock of Spencer Bros., Suffield.

**9727.** Tobacco Ash Elements. This was a second sample of the above but drawn from another source, stock of Howard Bariesford, West Suffield.

**9155.** Eastern States Open Formula 0-16-8. Sampled from stock of J. A. Sherwood, Bridgeport.

**9514.** Dairymen's Special, 0-10-10. I. P. Thomas and Son, Philadelphia, sampled from stock of Hubert Smith, Milford.

<sup>1</sup> Chlorine none.

	9386	9727	9155	9514
	%	%	%	%
Available phosphoric acid, found.....	5.30	....	16.23	10.95
guaranteed.....	5.00	....	16.00	10.00
Potash found.....	14.00	15.05	8.21	10.95
guaranteed.....	15.00	15.00	8.00	10.00
Chlorine.....	1.05	....	....	7.15

Samples **9386** and **9727** require particular comment. These samples gave a great deal of trouble in the determination of potash. In spite of great pains taken to insure a uniform mixture very discordant results were obtained. Exchanges of samples with the manufacturers did not clarify the matter, they too having difficulty in securing satisfactory checks, although their guaranty was based upon factory tests which showed uniformly over 15 per cent according to advices received from them.

The second sample drawn by our agent analyzed slightly over the guaranty but in this case also the accepted figure is an average of several results which are not in as good agreement as could be desired.

#### MIXED FERTILIZERS CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH.

In this group of fertilizers 250 official samples have been analyzed in the past season. Analyses of these, and of samples submitted by purchasers, 265 in all, are given in Table XII. The following tabulated statement summarizes the results of the inspection.

Total number of official samples analyzed.....		250	
Samples considerably deficient in			
one item.....	58		
two items.....	15		
three items.....	0		
total samples deficient.....			73
Total items of plant food guaranteed (250 x 3).....			750
Total items found deficient:			
ammonia.....	27		
available P <sub>2</sub> O <sub>5</sub> .....	23		
potash.....	38		88
Total guaranties substantially met.....			662
Per cent of guaranties substantially met or exceeded			88
Commercial deficiencies exceeding \$1.00 per ton.....			13

#### DEFICIENT SAMPLES.

The number of samples which were found considerably deficient in one or more items of plant food is nearly 30 per cent of the total number examined, but the money values of such deficiencies have exceeded \$1.00 per ton in only about 5 per cent of the samples. Nearly 90 per cent of the total guaranties made have been substantially met or exceeded.

The distribution of deficiencies and the percentage of guaranties met is shown in the following summary, Table XIII:

TABLE XIII. SUMMARY OF DEFICIENCIES.

Manufacturer.	Number Samples.	Number Guaranties.	Number deficiencies in		Per cent of guaranties met.
			Ammonia.	Avail. P <sub>2</sub> O <sub>5</sub> .	
American Agricultural Chemical Co.	42	126	6	3	90
Apothecaries Hall Co.	13	39	1	0	92
Armour Fertilizer Works.	13	39	2	1	80
Atlantic Packing Co.	3	9	0	0	100
Bartlett Tree Expert Co.	1	3	0	1	67
Berkshire Chemical Co.	9	27	0	0	96
A. D. Bridge's Sons, Inc.	2	6	0	0	100
E. D. Chittenden Co.	7	21	1	0	86
E. B. Clark Seed Co.	5	15	1	0	73
C. & R. Sales Co.	1	3	0	0	67
Davey Tree Expert Co.	1	3	0	0	100
Eastern States Farmers' Exchange.	16	48	2	4	79
Essex Fertilizer Co.	7	21	2	1	81
L. T. Frisbie Co.	7	21	0	0	100
Gash-Stull Co.	1	3	1	0	33
Grasselli Chemical Co.	1	3	0	0	100
International Agricultural Corp.	2	6	1	0	67
Lowell Fertilizer Co.	11	33	0	3	91
Mapes Formula and Peruvian Guano Co.	14	42	0	0	98
A. G. Markham & Co.	3	9	0	1	100
New England Fertilizer Co.	7	21	0	0	95
Olds & Whipple, Inc.	7	21	0	0	100
Parmenter & Polsey Fertilizer Co.	3	9	1	0	78
Piedmont-Mt. Airy Guano Co.	2	6	0	0	83
Frank S. Platt Co.	2	6	0	0	100
Rackliffe Bros. Co., Inc.	2	6	0	1	83
The Rogers & Hubbard Co.	16	48	1	2	92
F. S. Royster Guano Co.	9	27	0	1	96
M. L. Shoemaker & Co.	3	9	0	2	67
Springfield Rendering Co.	3	9	0	0	100
Swift & Co.	1	3	0	0	100
Synthetic Nitrogen Products Co.	1	3	0	0	100
I. P. Thomas & Sons	8	24	1	0	83
Triton Oil and Fertilizer Co.	4	12	2	0	92
U. S. Guano Co.	8	24	2	1	75
Virginia-Carolina Chemical Co.	4	12	0	1	83
Wilcox Fertilizer Co.	4	12	2	1	75
Worcester Rendering Co.	7	21	1	2	83
Totals	250	750	27	23	88



## COMMERCIAL DEFICIENCIES.

Deficiencies in money value in excess of \$1.00 per ton have been shown in thirteen samples this year. This is an approximate value arrived at by balancing shortages against overages and reckoning ammonia at 20 cents, available phosphoric acid at 5½ cents, and potash at 5 cents per pound.

TABLE XIV. SAMPLES SHOWING COMMERCIAL DEFICIENCIES.

Sta. No.	Brand.	Approximate deficiency in money value per ton.
9200	Bradley's Complete Manure for Potatoes and Vegetables.....	\$1.50 <sup>1</sup>
9079	National Aroostook Special Fertilizer.....	1.64 <sup>1</sup>
8997	Armour's Big Crop 8-6-6.....	1.94 <sup>1</sup>
9146	Chittenden's Special Top Dresser.....	4.96
9592	E. B. Clark Tip Top Brand 5-10-5.....	1.99
9160	Eastern States 8-16-20.....	1.25
9622	Eastern States 8-16-20.....	2.07
9454	Eastern States 10-3-8, Open Formula.....	1.13
9210	Eastern States 10-16-14, Open Formula.....	1.99 <sup>1</sup>
9565	Essex Top Dressing 7-6-5.....	1.85
9374	I. A. C. Tobacco Special 7-6-5.....	1.53
8884	Lowell Corn and Vegetable 4-8-4.....	1.51 <sup>2</sup>
9356	Worcester Rendering Co., Prosperity Brand Complete Dressing.....	1.63 <sup>1</sup>

<sup>1</sup> Second sample not deficient.

<sup>2</sup> Two other samples not deficient.

In a system of inspection where many brands are represented by single analyses the products of the several manufacturers may not be fairly evaluated in any one year. Although it is our purpose to examine at least two samples of any brand showing considerable deficiencies, a second sample is not always obtainable. Comparisons are more informing, therefore, if made upon data covering a period of years. A number of different bases might be chosen for such comparisons, but since it has been our practice for many years to cite brands in which commercial deficiencies amount to one dollar or more per ton, these data have been compiled for the 8-year period 1921-1928, and are tabulated in Table XV. No manufacturer is included unless ten or more samples have been analyzed in the period covered. The compilation shows that of a total of over 1,800 samples analyzed less than 10 per cent have fallen short of guaranties to any considerable extent in commercial value. Or, in other words, purchasers have received commercial values represented by the guaranties in over 90 per cent of purchases made.



TABLE XV. COMMERCIAL DEFICIENCIES FOR THE PERIOD 1921-1928.

Manufacturer.	Total number of samples.	Number equaling or exceeding guaranties in money value.	Per cent for 8 yr. period.	No. of samples for 1928.	Per cent for 1928.
American Agricultural Chemical Co.....	347	333	96	42	95
Apothecaries Hall Co.....	74	74	100	13	100
Armour Fertilizer Works...	86	67	78	13	92
Atlantic Packing Co.....	51	47	92	3	100
Berkshire Chemical Co.....	69	69	100	9	100
Bridge's, A. D. & Sons, Co.	17	17	100	2	100
Chittenden, E. D. Co.....	52	47	90	7	86
Clark, E. B. Seed Co.....	37	34	92	5	80
Eastern States Farmers' Exchange.....	81	66	81	16	75
Essex Fertilizer Co.....	53	51	96	7	86
Frisbie, L. T. Co.....	81	71	88	7	100
International Agricultural Corp.....	61	55	90	2	50
Lowell Fertilizer Co.....	84	75	89	11	91
Mapes Formula and Peruvian Guano Co.....	104	103	99	14	100
New England Fertilizer Co.	62	59	95	7	100
Olds and Whipple, Inc....	51	51	100	7	100
Parmenter & Polsey Fertilizer Co.....	28	27	96	3	100
Piedmont-Mt. Airy Guano Co.....	31	22	71	2	100
Rogers & Hubbard Co., The	113	110	97	16	100
Royster, F. S. Guano Co...	63	50	79	9	100
Shoemaker, M. L. & Co...	22	22	100	3	100
Springfield Rendering Co..	32	30	94	3	100
Thomas, I. P. & Sons.....	32	32	100	8	100
United States Guano Co...	24	23	96	8	100
Virginia-Carolina Chemical Co.....	57	53	93	4	100
Wilcox Fertilizer Co.....	60	56	93	4	100
Worcester Rendering Co...	32	28	88	7	88
Totals.....	1804	1672	93	232	95

## QUALITY OF THE INSOLUBLE ORGANIC NITROGEN.

In the absence of vegetation tests the character of the nitrogenous material which is insoluble in water is judged by chemical methods. Such methods do not show "availability" of nitrogen but they do distinguish between the better and the poorer sources of water-insoluble nitrogenous material.

Both of the accepted methods for judging the quality of insoluble organic nitrogen depend upon the behavior of such nitrogen when treated with permanganate solutions. When less than 50 per cent of the water-insoluble organic nitrogen is found to be "active" as determined by the alkaline permanganate method, and less than

80 per cent active by the neutral permanganate method, the quality of the insoluble nitrogen is rated as inferior. Both methods are applied before such nitrogen is classed as inferior.

By these methods inferior ammoniates have been indicated in eleven samples; but in some cases the amounts of insoluble organic nitrogen have been so small that they were without practical significance and in others the more active forms of nitrogen practically equalled the guaranties. The samples were, therefore, passed without question.

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i> <b>American Agricultural Chemical Co., New York.</b>			
9357	A. A. C. Acme Fertilizer.....	1-9-4	Woodbury.....
9358	A. A. C. Aroostook Potato Manure.....	5-8-7	North Haven.....
9362	A. A. C. Double A Tobacco Fertilizer.....	5-3-5	Gaylordsville.....
8865	A. A. C. Gladiator Fertilizer.....	4-8-7	New Britain.....
8850	A. A. C. Grass & Lawn Top Dressing.....	6-6-4	New Britain.....
8863	A. A. C. Monarch Fertilizer.....	4-8-4	New Britain.....
9520	A. A. C. Old Hickory Fertilizer.....	2-8-10	Rockville.....
9363	A. A. C. Princess Fertilizer.....	5-10-5	Gaylordsville.....
9105	Agrico Fertilizer for Corn.....	3-10-6	Danbury.....
9106	Agrico Fertilizer for Potatoes.....	4-8-6	Bethel.....
9107	Agrico Fertilizer for Truck.....	5-10-5	Bethel.....
9361	Complete General Fertilizer.....	3-8-4	West Haven.....
9380	Hi Grade Tobacco.....	7-3-7	Glastonbury.....
9082	Bowker's All Round Fertilizer.....	3-8-4	New Milford.....
8867	Bowker's Stockbridge Hill & Drill Fertilizer...	4-8-7	Bristol.....
9382	Bowker's Lawn & Garden Dressing.....	5-8-7	West Haven.....
9085	Bowker's Market Garden Fertilizer.....	4-8-4	Collinsville.....
9081	Bowker's Potato and Vegetable Phosphate....	2-9-3	New Milford.....
9084	Bowker's Stockbridge Early Crop Manure....	5-8-7	Collinsville.....
9086	Bowker's Stockbridge Tobacco Manure.....	5-3-5	Thompsonville....
9381	Bowker's Sure Crop Fertilizer.....	1-9-4	Willimantic.....
9111	Bradley's Blood Bone and Potash.....	5-8-7	Simsbury.....
9200	Bradley's Complete Manure for Potatoes and Vegetables.....	4-8-7	East River.....
9623	Bradley's Complete Manure for Potatoes and Vegetables.....	4-8-7	West Haven.....
9196	Bradley's Complete Tobacco Manure.....	5-3-5	Glastonbury.....
9076	Bradley's Eclipse Fertilizer.....	1-9-4	Meriden.....
9080	Bradley's Northland Potato Grower.....	4-8-4	Colchester.....
8978	Bradley's Potato Fertilizer.....	2-9-3	Meriden.....
9077	Bradley's Potato Manure.....	3-8-4	Suffield.....
8868	Bradley's XL Superphosphate of Lime.....	3-10-4	Bristol.....
9079	National Aroostook Special Fertilizer.....	5-8-7	Middletown.....
9518	National Aroostook Special Fertilizer.....	5-8-7	Wallingford.....
9390	National Complete Tobacco Fertilizer.....	5-3-5	Simsbury.....
9078	National Market Garden Fertilizer.....	3-8-4	Middletown.....
9512	National Pine Tree State Potato Fertilizer...	4-8-4	Middletown.....
9083	National Premier Potato Manure.....	4-8-7	Danbury.....
9087	Sanderson's Atlantic Coast Mixture.....	3-10-4	West Cheshire....
9198	Sanderson's Complete Tobacco Grower.....	5-3-5	Glastonbury.....
9593	Sanderson's Formula A.....	4-8-4	Guilford.....
9197	Sanderson's Formula B.....	4-8-7	Glastonbury.....

## MIXED FERTILIZERS

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CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.06	0.31	0.39	0.27	1.03	1.25	0.68	9.48	8.80	4.14	4.14	9357
0.04	3.11	0.33	0.43	3.91	4.75	0.50	8.75	8.25	7.04	7.04	9358
0.88	1.32	0.04	2.07	4.31	5.24	0.25	3.18	2.93	0.38	5.29	9362
0.42	2.00	0.46	0.47	3.35	4.07	0.55	8.63	8.08	7.18	7.18	8865
0.54	3.79	0.34	0.52	5.19	6.31	0.35	6.53	6.18	3.90	3.90	8850
0.38	2.01	0.49	0.52	3.40	4.13	0.65	8.65	8.00	4.04	4.04	8863
0.06	1.02	0.52	0.30	1.90	2.31	0.60	8.74	8.14	10.17	10.17	9520
0.50	2.56	0.52	0.52	4.10	4.98	0.65	10.55	9.90	5.25	5.25	9363
0.30	1.33	0.49	0.44	2.56	3.11	0.70	10.85	10.15	5.93	5.93	9105
0.44	1.68	0.66	0.52	3.30	4.01	0.70	8.78	8.08	5.71	5.71	9106
0.38	2.63	0.61	0.50	4.12	5.01	0.68	10.68	10.00	5.19	5.19	9107
0.02	1.60	0.45	0.63	2.70	3.28	0.75	8.79	8.04	3.95	3.95	9361
0.65	1.29	0.21	3.69	5.84	7.10	0.96	4.38	3.42	0.16	8.01	9380
0.08	1.58	0.31	0.30	2.27	2.76	0.55	8.90	8.35	3.92	3.92	9082
0.40	1.94	0.42	0.41	3.17	3.85	0.53	8.90	8.37	6.78	6.78	8867
0.58	2.92	0.07	0.54	4.11	5.00	0.68	9.00	8.32	6.31	7.15	9382
0.38	2.00	0.47	0.44	3.29	4.00	0.68	8.68	8.00	3.98	3.98	9085
0.08	0.95	0.47	0.29	1.79	2.18	0.78	9.43	8.65	3.03	3.03	9081
0.42	2.69	0.61	0.46	4.18	5.08	0.53	8.58	8.05	6.85	6.85	9084
0.74	1.22	0.02	2.18	4.16	5.06	0.38	4.20	3.82	1.73	5.11	9086
0.00	0.29	0.46	0.24	0.99	1.20	0.68	9.80	9.12	4.58	4.58	9381
0.97	2.16	0.41	0.52	4.06	4.94	0.60	8.78	8.18	7.04	7.04	9111
0.21	1.77	0.42	0.45	2.85	3.46	0.30	7.85	7.55	8.16	8.16	9200
0.31	2.03	0.53	0.46	3.33	4.05	0.38	8.95	8.57	7.40	7.40	9623
0.64	0.91	1.03	2.28	4.86	5.91	0.27	4.00	3.73	0.36	6.73	9196
0.03	0.28	0.41	0.28	1.00	1.22	0.60	9.48	8.88	4.52	4.52	9076
0.36	1.99	0.47	0.51	3.33	4.05	0.75	8.73	7.98	3.86	3.86	9080
0.07	0.86	0.43	0.42	1.78	2.16	0.80	9.43	8.63	2.94	2.94	8978
0.00	1.64	0.40	0.38	2.42	2.94	0.75	8.85	8.10	4.06	4.06	9077
0.22	1.46	0.24	0.59	2.51	3.05	0.90	10.70	9.80	4.06	4.06	8868
0.41	2.40	0.53	0.48	3.82	4.64	0.43	8.45	8.02	6.78	6.78	9079
0.42	2.52	0.56	0.44	3.94	4.79	0.48	8.43	7.95	7.26	7.26	9518
0.73	1.16	0.10	2.23	4.22	5.13	0.30	3.55	3.25	0.09	4.57	9390
0.05	1.60	0.51	0.40	2.56	3.11	0.65	8.93	8.28	4.01	4.01	9078
0.21	2.04	0.59	0.45	3.29	4.00	0.50	8.53	8.03	3.95	3.95	9512
0.33	1.98	0.51	0.48	3.30	4.01	0.50	8.98	8.48	7.07	7.07	9083
0.05	1.63	0.41	0.35	2.44	2.97	0.73	11.11	10.38	4.24	4.24	9087
0.39	1.22	0.40	2.49	4.50	5.47	0.30	3.35	3.05	0.39	5.22	9198
0.35	1.97	0.53	0.47	3.32	4.04	0.65	8.75	8.10	4.00	4.00	9593
0.77	1.11	0.26	1.30	3.44	4.18	0.09	8.43	8.34	0.78	7.36	9197

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
<b>American Agricultural Chemical Co., New York.</b>			
9384	Sanderson's Corn Superphosphate.....	2-9-3	Clintonville.....
9383	Sanderson's Potato Manure.....	3-8-4	Derby.....
<b>Apothecaries Hall Co., Waterbury, Conn.</b>			
9102	Liberty Corn and All Crops.....	2-8-2	Greenville.....
9103	Liberty Corn, Fruit and All Crops 2-12-4.....	2-12-4	Greenville.....
9110	Liberty Fish, Bone and Potash 3-8-3.....	3-8-3	Waterbury.....
9101	Liberty H. G. Market Gardeners 5-8-7.....	5-8-7	West Cheshire.....
9387	Liberty H. G. Tobacco Manure 7-3-7.....	7-3-7	East Windsor.....
9385	Liberty Home Vegetable Garden Fertilizer....	4-2-5	Waterbury.....
9100	Liberty Onion Special (Potash as Sulphate) 4-8-7.....	4-8-7	East Windsor.....
9193	Liberty Potato and General Crop 4-8-10.....	4-8-10	East Windsor.....
9541	Liberty Potato and Market Garden Special 4-8-4.....	4-8-4	Cheshire.....
9109	Liberty Potato and Vegetable 2-8-10.....	2-8-10	Waterbury.....
9104	Liberty Top Dresser for Grass and Grain 10-3 1/2-8.....	10-3 1/2-8	New London.....
9108	Liberty Special Fertilizer for Fruit 7-8-6.....	7-8-6	Waterbury.....
9551	Liberty Tobacco Special 5-3-5.....	5-3-5	New Milford.....
<b>Armour Fertilizer Works, New York.</b>			
9443	Armour's Big Crop Fertilizer 2-12-4.....	2-12-4	Wethersfield.....
9002	Armour's Big Crop Fertilizer 3-8-4.....	3-8-4	Danbury.....
9446	Armour's Big Crop Fertilizer 4-6-10.....	4-6-10	Granby.....
8888	Armour's Big Crop 4-8-4.....	4-8-4	Plainville.....
9442	Armour's Big Crop Fertilizer 4-8-7.....	4-8-7	So. Glastonbury...
9389	Armour's Big Crop Fertilizer 4-16-4.....	4-16-4	So. Meriden.....
9448	Armour's Big Crop Tobacco Special 5-3-5.....	5-3-5	Thompsonville....
9137	Armour's Big Crop Fertilizer 5-8-7.....	5-8-7	Milford.....
9144	Armour's Big Crop Fertilizer 7-11-10.....	7-11-10	Wethersfield.....
9388	Armour's Big Crop 7-12-7.....	7-12-7	Wallingford.....
8997	Armour's Big Crop 8-6-6.....	8-6-6	Madison.....
9621	Armour's Big Crop 8-6-6.....	8-6-6	Seymour.....
9445	Armour's Big Crop Tobacco Fertilizer.....	7-3-7	Granby.....
<b>Atlantic Packing Co., New Haven, Conn.</b>			
9443	Atlantic 5-8-7.....	5-8-7	So. Windsor.....
9602	Atlantic 5-4-16.....	5-4-16	Silver Lane.....



## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In Ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.08	0.90	0.50	0.43	1.91	<b>2.32</b>	0.80	9.88	<b>9.08</b>	3.17	<b>3.17</b>	<b>9384</b>
0.08	1.48	0.40	0.51	2.47	<b>3.00</b>	0.95	9.23	<b>8.28</b>	3.98	<b>3.98</b>	<b>9383</b>
0.02	1.28	0.22	0.54	2.06	<b>2.50</b>	1.10	9.00	<b>7.90</b>	2.64	<b>2.64</b>	<b>9102</b>
0.05	1.75	0.28	0.16	2.24	<b>2.72</b>	1.20	12.40	<b>11.20</b>	5.61	<b>5.61</b>	<b>9103</b>
0.05	1.33	0.30	1.40	3.08	<b>3.74</b>	1.05	9.05	<b>8.00</b>	3.73	<b>3.73</b>	<b>9110</b>
0.22	3.58	0.26	0.34	4.40	<b>5.35</b>	0.80	8.70	<b>7.90</b>	7.22	<b>7.22</b>	<b>9101</b>
0.00	2.43	0.54	2.88	5.85	<b>7.11</b>	0.66	6.33	<b>5.67</b>	0.20	<b>7.77</b>	<b>9387</b>
0.17	0.07	0.72	2.94	3.90	<b>4.74</b>	5.68	10.50	<b>4.82</b>	6.05	<b>6.05</b>	<b>9385</b>
0.34	2.00	0.57	0.88	3.79	<b>4.61</b>	3.65	14.68	<b>11.03</b>	0.61	<b>5.86</b>	<b>9100</b>
1.11	2.02	0.19	0.13	3.45	<b>4.19</b>	0.85	8.90	<b>8.05</b>	10.03	<b>10.03</b>	<b>9193</b>
0.04	2.10	0.44	0.94	3.52	<b>4.28</b>	0.85	9.30	<b>8.45</b>	4.49	<b>4.49</b>	<b>9541</b>
0.73	1.21	0.24	0.34	2.52	<b>3.06</b>	0.58	9.18	<b>8.60</b>	8.64	<b>8.64</b>	<b>9109</b>
2.22	5.50	0.10	0.08	7.90	<b>9.60</b>	0.28	4.28	<b>4.00</b>	8.53	<b>8.53</b>	<b>9104</b>
1.01	3.91	0.56	0.36	5.84	<b>7.10</b>	1.88	10.73	<b>8.85</b>	6.52	<b>6.52</b>	<b>9108</b>
0.10	1.50	0.26	2.34	4.20	<b>5.11</b>	0.36	5.50	<b>5.14</b>	0.77	<b>6.27</b>	<b>9551</b>
0.32	1.50	0.05	0.12	1.99	<b>2.42</b>	0.58	12.00	<b>11.42</b>	5.09	<b>5.09</b>	<b>9143</b>
0.21	2.55	0.01	0.18	2.95	<b>3.59</b>	0.73	8.73	<b>8.00</b>	4.58	<b>4.58</b>	<b>9002</b>
0.07	2.26	0.83	0.08	3.24	<b>3.94</b>	0.50	6.70	<b>6.20</b>	10.56	<b>10.56</b>	<b>9446</b>
0.81	2.54	0.00	0.15	3.50	<b>4.26</b>	0.60	8.65	<b>8.05</b>	3.81	<b>3.81</b>	<b>8888</b>
0.57	2.41	0.12	0.15	3.25	<b>3.95</b>	0.58	8.85	<b>8.27</b>	6.76	<b>6.76</b>	<b>9442</b>
0.45	2.91	0.04	0.10	3.50	<b>4.26</b>	0.58	17.00	<b>16.42</b>	3.84	<b>4.17</b>	<b>9389</b>
1.33	0.13	0.30	2.32	4.08	<b>4.96</b>	0.18	3.65	<b>3.47</b>	0.21	<b>4.84</b>	<b>9448</b>
0.70	2.91	0.15	0.21	3.97	<b>4.83</b>	0.40	8.63	<b>8.23</b>	6.77	<b>6.77</b>	<b>9137</b>
1.09	4.55	0.13	0.10	5.87	<b>7.14</b>	0.80	12.02	<b>11.22</b>	9.65	<b>9.65</b>	<b>9144</b>
0.99	4.48	0.26	0.11	5.84	<b>7.10</b>	0.35	12.48	<b>12.13</b>	6.02	<b>6.92</b>	<b>9388</b>
1.21	4.61	0.33	0.06	6.21	<b>7.55</b>	1.13	7.55	<b>6.42</b>	5.40	<b>5.40</b>	<b>8997</b>
1.14	5.00	0.38	0.04	6.56	<b>7.98</b>	1.00	7.04	<b>6.04</b>	5.84	<b>5.84</b>	<b>9621</b>
1.88	0.18	0.05	3.66	5.77	<b>7.02</b>	0.20	3.33	<b>3.13</b>	0.07	<b>5.98</b>	<b>9445</b>
2.65	0.07	0.54	0.97	4.23	<b>5.14</b>	1.29	9.40	<b>8.11</b>	0.36	<b>7.25</b>	<b>9443</b>
1.82	1.06	0.84	1.06	4.78	<b>5.81</b>	0.55	7.15	<b>6.60</b>	0.33	<b>18.24</b>	<b>9602</b>

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i> <b>Atlantic Packing Co., New Haven, Conn.</b>			
9437	Atlantic Special Vegetable 4-8-4 .....	4-8-4	Waterbury.....
<b>F. A. Bartlett Tree Expert Co., Stamford, Conn.</b>			
9136	Bartlett's Green Tree Food .....	6-8-4	Stamford.....
<b>Berkshire Chemical Co., Bridgeport, Conn.</b>			
9440	Berkshire Complete Tobacco.....	5-3-5	Suffield.....
9444	Berkshire Economical Grass Fertilizer.....	10-3-8	Broad Brook.....
9138	Berkshire Grass Special.....	7-6-5	Waterbury.....
9003	Berkshire Long Island Special.....	5-8-7	Brookfield.....
9139	Berkshire Market Garden Fertilizer.....	4-8-4	Torrington.....
9001	Berkshire Potato and Vegetable Fertilizer.....	2-9-3	New Canaan.....
9376	Berkshire Tobacco Special.....	7-3-7	Hockanum.....
9142	Berkshire Tobacco Starter.....	5-8-10	Ellington.....
9141	Berkshire Truck Fertilizer.....	5-8-5	Ellington.....
<b>Amos D. Bridges' Sons, Inc., Hazardville, Conn.</b>			
9140	Corn, Onion, Potato and General Purpose Fertilizer.....	4-8-4	Hazardville.....
9461	Special Tobacco Fertilizer.....	5-3-5	Hazardville.....
<b>E. D. Chittenden Co., Bridgeport, Conn.</b>			
9211	Chittenden's Complete Grain.....	2-9-3	Bloomfield.....
9199	Chittenden's High Grade Potato.....	5-8-7	Tolland.....
9192	Chittenden's Potato Special 4% Potash.....	4-8-4	Bloomfield.....
9505	Chittenden's Tobacco Special.....	5-4-5	Wapping.....
9146	Chittenden's Special Top Dresser.....	8-6-6	Tolland.....
9459	Chittenden's Valley Wrapper Brand.....	6-3-5	Addison.....
9214	Chittenden's Vegetable and Onion Grower.....	3-8-4	Tolland.....
<b>E. B. Clark Seed Co., Milford, Conn.</b>			
9205	Special Mixture for General Use.....	4-8-4	Branford.....
9207	Special Mixture with 6% Potash.....	4-8-6	Branford.....
9206	Super Phosphate.....	5-8-7	Branford.....

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.41	2.12	0.44	0.53	3.50	4.26	1.32	9.45	8.13	3.97	3.97	9437
0.00	4.10	0.18	1.19	5.47	6.65	3.36	10.96	7.60	4.33	4.33	9136
1.09	0.07	0.46	2.86	4.48	5.45	0.56	3.63	3.07	0.52	5.68	9440
6.98	0.04	0.60	0.80	8.42	10.24	3.90	9.68	5.78	2.07	8.37	9444
2.19	1.42	1.97	0.70	6.28	7.64	1.49	7.55	6.06	6.59	6.59	9138
0.87	2.51	0.29	0.76	4.43	5.39	0.45	8.78	8.33	7.60	7.60	9003
0.55	1.94	0.18	0.83	3.50	4.26	0.18	8.87	8.69	4.55	4.55	9139
0.06	1.54	0.17	0.14	1.91	2.32	0.53	10.23	9.70	4.79	4.79	9001
2.20	0.10	0.51	3.30	6.11	7.43	0.15	3.80	3.65	0.70	6.88	9376
1.56	2.37	0.22	0.63	4.78	5.81	0.93	10.25	9.32	0.82	8.77	9142
0.09	3.12	0.32	1.00	4.53	5.51	0.45	8.70	8.25	5.94	5.94	9141
0.80	1.75	0.12	0.80	3.47	4.22	0.68	9.38	8.70	4.28	4.28	9140
1.19	0.07	0.44	2.96	4.66	5.67	0.45	4.60	4.15	0.09	5.45	9461
0.07	1.44	0.13	0.29	1.93	2.35	0.53	10.05	9.52	2.74	2.74	9211
0.08	3.64	0.12	0.30	4.14	5.03	0.18	8.40	8.22	7.09	7.09	9199
0.00	2.68	0.23	0.35	3.26	3.96	0.53	8.66	8.13	4.02	4.02	9192
0.00	2.48	0.28	1.64	4.40	5.35	0.20	5.20	5.00	1.06	5.75	9505
0.00	4.47	0.53	0.32	5.32	6.47	0.23	7.88	7.65	5.34	5.34	9146
0.00	2.19	0.22	2.65	5.06	6.15	0.56	4.96	4.40	0.32	5.19	9459
0.07	2.29	0.23	0.30	2.89	3.51	0.23	8.88	8.65	3.69	4.19	9214
0.00	2.27	0.44	0.73	3.44	4.18	0.55	8.65	8.10	4.44	4.44	9205
0.05	2.38	0.37	0.80	3.60	4.38	0.61	9.08	8.47	6.45	6.45	9207
0.14	3.46	0.18	0.44	4.22	5.13	0.45	8.68	8.23	6.31	6.31	9206

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i> <b>E. B. Clark Seed Co., Milford, Conn.</b>		
9725	Super Phosphate.....	5-8-7	Milford.....
9592	Tip Top Brand.....	5-10-5	Milford.....
	<b>C. &amp; R. Sales Co., Worcester, Mass.</b>		
9562	C. & R. Lawn and Shrub Fertilizer.....	5-6-5	Norwich.....
	<b>Davey Tree Expert Co., Kent, Ohio</b>		
8998	Davey Tree Food.....	7-8-3	Sound Beach.....
	<b>Eastern States Farmers' Exchange, Springfield, Mass.</b>		
9457	Buckland's Formula A 6-2-7 Special Tobacco Mixture.....	6-2-7	So. Manchester....
9209	Eastern States 3-12-3 Open Formula.....	3-12-3	Bridgeport.....
9208	Eastern States 4-8-10 Open Formula.....	4-8-10	Bridgeport.....
9151	Eastern States 4-16-4 Open Formula.....	4-16-4	North Haven.....
9153	Eastern States 5-8-7 Open Formula.....	5-8-7	North Haven.....
9158	Eastern States 5-10-5 Open Formula.....	5-10-5	Ellington.....
9156	Eastern States 8-6-6 Open Formula.....	8-6-6	Bridgeport.....
9213	Eastern States 8-16-8 Open Formula.....	8-16-8	Ellington.....
9160	Eastern States 8-16-20 Open Formula.....	8-16-20	Ellington.....
9622	Eastern States 8-16-20 Open Formula.....	8-16-20	West Simsbury...
9455	Eastern States Open Formula 9-3-7 Tobacco Fertilizer.....	9-3-7	Granby.....
9454	Eastern States Open Formula 10-3-8 Tobacco Fertilizer.....	10-3-8	Ellington.....
9737	Eastern States 10-16-14 (Potash from Sulphate) Open Formula.....	10-16-14	Granby.....
9004	Eastern States 10-16-14 Open Formula.....	10-16-14	Ellington.....
9210	Eastern States 10-16-14 Open Formula.....	10-16-14	Bethel.....
9608	Eastern States 10-16-14 Open Formula.....	10-16-14	Branford.....
	<b>Essex Fertilizer Co., Boston, Mass.</b>		
9450	Essex A1 Super 2-10-2.....	2-10-2	Wallingford.....
9224	Essex Complete Manure 5-8-7.....	5-8-7	Wallingford.....
9204	Essex Fish Fertilizer for All Crops 3-8-4.....	3-8-4	Wallingford.....
9203	Essex Market Garden 4-8-4.....	4-8-4	Wallingford.....
9453	Essex Peerless Potato Manure 4-6-10.....	4-6-10	Warehouse Point..
9567	Essex Tobacco Manure 5-3-5.....	5-3-5	New Milford.....
9565	Essex Top Dressing 7-6-5.....	7-6-5	So. Manchester....

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.19	2.70	0.39	0.44	3.72	4.92	0.75	9.35	8.60	4.54	6.47	9725
0.19	2.70	0.39	0.44	3.72	4.52	0.43	10.78	10.35	4.54	4.54	9592
0.25	2.18	1.49	2.28	6.20	7.54	0.95	7.35	6.40	4.47	4.47	9562
0.00	3.50	0.54	2.02	6.06	7.37	5.15	13.68	8.53	3.21	3.21	8998
0.22	0.88	0.92	3.76	5.78	7.03	0.38	4.84	4.46	0.68	8.00	9457
0.73	1.25	0.32	0.30	2.60	3.16	0.45	12.18	11.73	3.24	3.24	9209
0.16	2.23	0.64	0.29	3.32	4.04	0.39	8.68	8.29	10.05	10.05	9208
0.89	1.98	0.30	0.38	3.55	4.32	0.48	15.00	14.52	5.90	5.90	9151
1.00	2.70	0.53	0.24	4.47	5.43	0.53	8.83	8.30	7.03	7.03	9153
0.64	2.52	0.82	0.35	4.33	5.26	0.18	11.00	10.82	5.44	5.44	9158
2.18	3.68	0.66	0.23	6.75	8.21	0.23	6.60	6.37	6.47	6.47	9156
1.26	4.67	0.73	0.34	7.00	8.51	0.38	16.05	15.67	11.91	11.91	9213
1.16	4.58	0.48	0.50	6.72	8.17	0.55	17.20	16.65	17.35	17.35	9160
1.32	4.22	0.12	0.86	6.52	7.93	0.68	16.05	15.37	18.90	18.90	9622
2.50	0.60	1.34	3.61	8.05	9.79	0.08	4.85	4.77	0.74	9.36	9455
2.08	0.85	1.44	2.88	7.25	8.81	0.50	6.25	5.75	1.83	8.61	9454
1.66	5.92	0.26	0.94	8.78	10.67	0.30	16.55	16.25	1.38	14.00	9737
1.64	5.44	0.26	0.80	8.14	9.90	0.58	17.38	16.80	14.38	14.38	9004
1.00	5.51	1.02	0.42	7.95	9.67	0.63	17.20	16.57	12.70	12.70	9210
1.36	5.85	0.65	0.44	8.30	10.09	0.85	18.65	17.80	13.21	13.21	9608
0.00	0.92	0.43	0.30	1.65	2.01	0.65	11.43	10.78	1.92	1.92	9450
0.18	2.97	0.66	0.52	4.33	5.26	1.20	9.53	8.33	7.36	7.36	9224
0.03	1.36	0.52	0.58	2.49	3.03	0.75	8.35	7.60	4.13	4.13	9204
0.31	1.80	0.47	0.74	3.32	4.04	0.88	11.10	10.22	4.41	4.41	9203
0.35	1.70	0.57	0.55	3.17	3.85	0.58	6.60	6.02	9.93	9.93	9452
1.65	0.14	0.41	2.30	4.50	5.47	0.50	4.57	4.07	0.61	5.29	9567
0.00	5.08	0.29	0.09	5.46	6.64	0.33	6.35	6.02	4.57	4.57	9565



TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i> <b>L. T. Frisbie Co., New Haven, Conn.</b>		
9225	Frisbie's 5-8-7.....	5-8-7	Wethersfield.....
9227	Frisbie's Corn and Grain Fertilizer 2-10-2.....	2-10-2	Danbury.....
9229	Frisbie's Market Garden.....	4-8-7	North Woodbury..
9223	Frisbie's Special 3-8-4.....	3-8-4	New Haven.....
9226	Frisbie's Special Vegetable and Potato Grower 4-8-4.....	4-8-4	Danbury.....
9460	Frisbie's Tobacco Grower 5-3-5.....	5-3-5	So. Windsor.....
9230	Frisbie's Top Dresser 7-6-5.....	7-6-5	Watertown.....
	<b>Gash-Stull Co., Chester, Pa.</b>		
9488	Young's Formula 8-7-6.....	8-7-6	Mfg.'s sample.....
	<b>Grasselli Chemical Co., Cleveland, Ohio</b>		
9234	Grasselli Odorless Plant Food.....	5-13-4	Fair Haven.....
	<b>International Agricultural Corp., Boston, Mass.</b>		
9374	I. A. C. Tobacco Special 7-6-5.....	7-6-5	Hockanum.....
9375	Vuelta Abajo Special Tobacco Formula.....	7-9-8	Hockanum.....
	<b>Lowell Fertilizer Co., Boston, Mass.</b>		
8871	Lowell Animal Brand for All Crops 3-8-4.....	3-8-4	Southington.....
9563	Lowell Bone Fertilizer 2-10-2.....	2-10-2	Moosup.....
8873	Lowell Corn and Vegetable 4-8-4.....	4-8-4	Southington.....
8884	Lowell Corn and Vegetable 4-8-4.....	4-8-4	Cheshire.....
9521	Lowell Corn and Vegetable 4-8-4.....	4-8-4	Cheshire.....
8885	Lowell Market Garden Manure 5-8-7.....	5-8-7	Cheshire.....
8872	Lowell Market Garden Manure 5-8-7.....	5-8-7	Southington.....
9228	Lowell Potato Grower 4-6-10.....	4-6-10	Southbury.....
9243	Lowell Tobacco Manure 5-3-5.....	5-3-5	Ellington.....
9244	Lowell Top Dressing 7-6-5.....	7-6-5	Ellington.....
9245	Lowell 5-10-5.....	5-10-5	New Haven.....
	<b>Mapes Formula and Peruvian Guano Co., New York.</b>		
9247	Mapes Conn. Valley Special.....	6-4-7	East Granby.....
8972	The Mapes Corn Manure.....	3-8-3	Hartford.....
9027	The Mapes General Truck Manure.....	5-6-5	Hartford.....
9246	The Mapes General Tobacco Manure.....	5-4-5	East Granby.....

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

In Nitrates.	Nitrogen.				Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
	In Ammonia	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.27	2.90	0.51	0.64	4.32	5.25	0.93	9.53	8.60	7.25	7.25	9225
0.04	0.78	0.51	0.58	1.91	2.32	1.08	11.33	10.25	2.26	2.26	9227
0.40	1.92	0.50	0.77	3.59	4.36	1.15	9.23	8.08	6.90	6.90	9229
0.01	1.52	0.51	0.69	2.73	3.32	1.03	9.20	8.17	4.27	4.27	9223
0.29	2.22	0.55	0.64	3.70	4.50	1.05	9.45	8.40	4.12	4.12	9226
1.41	0.13	0.43	2.74	4.71	5.73	0.57	4.30	3.73	0.16	5.11	9460
1.04	3.52	0.68	0.66	5.90	7.17	0.65	7.20	6.55	5.19	5.19	9230
2.16	3.18	0.48	0.50	6.32	7.68	0.58	8.15	7.57	5.73	5.73	9488
0.00	4.24	0.00	0.11	4.35	5.29	1.08	16.90	15.82	4.42	4.42	9234
1.43	2.01	0.11	1.97	5.52	6.71	0.28	6.40	6.12	0.54	4.50	9374
0.82	1.76	0.83	2.29	5.70	6.93	0.53	9.43	8.90	0.72	8.21	9375
0.00	1.41	0.61	0.38	2.40	2.92	0.93	8.68	7.75	1.78	3.98	8871
0.00	1.04	0.51	0.30	1.85	2.25	1.20	10.48	9.28	2.15	2.15	9563
0.39	1.76	0.50	0.55	3.20	3.89	0.85	8.85	8.00	3.94	3.94	8873
0.36	1.87	0.40	0.60	3.23	3.93	1.13	8.08	6.95	3.93	3.93	8884
0.31	2.10	0.49	0.70	3.60	4.38	1.08	8.40	7.32	4.43	4.43	9521
0.38	2.55	0.50	0.67	4.10	4.98	0.65	9.03	8.38	7.11	7.11	8885
0.35	2.74	0.53	0.52	4.14	5.03	0.70	8.75	8.05	6.82	6.82	8872
0.34	1.86	0.52	0.64	3.36	4.09	0.60	6.85	6.25	10.48	10.48	9228
1.69	0.11	0.35	2.44	4.59	5.58	0.63	4.85	4.22	0.61	5.46	9243
1.09	3.49	0.65	0.65	5.88	7.15	0.78	7.03	6.25	5.13	5.13	9244
1.80	1.16	0.58	0.70	4.24	5.15	1.13	11.15	10.02	5.40	5.40	9245
2.06	0.00	0.20	2.83	5.09	6.19	1.28	6.03	4.75	0.54	7.67	9247
0.10	1.84	0.00	0.50	2.44	2.97	1.18	10.40	9.22	3.46	3.69	8972
0.00	3.50	0.23	0.58	4.31	5.24	1.18	8.78	7.60	5.48	5.48	9027
1.48	0.04	0.16	2.80	4.48	5.45	1.35	5.40	4.05	0.36	5.34	9246

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i>		
	<b>Mapes Formula and Peruvian Guano Co., New York</b>		
8966	The Mapes General Use Manure.....	3-6-4	Windsor Locks....
9241	The Mapes Onion Manure.....	4-6-4	Hartford.....
8967	The Mapes Potato Manure.....	4-7-5	Windsor Locks....
9240	The Mapes Special Trucker "S.P.".....	5-8-7	Hartford.....
9242	The Mapes Special Trucker.....	5-8-7	Bloomfield.....
9248	The Mapes Tobacco Ash Constituents.....	1-4-15	East Granby.....
9486	The Mapes Tobacco Ash and Starter.....	4-6-15	East Granby.....
9251	The Mapes Tobacco Manure Wrapper Brand.....	7.5-2-10.5	East Granby.....
9026	The Mapes Tobacco Starter Improved.....	5-6-1	Windsor Locks....
8968	The Mapes Top Dresser.....	10-4-2	Windsor Locks....
	<b>A. G. Markham &amp; Co., Springfield, Mass.</b>		
9249	4-8-4.....	4-8-4	Mansfield Depot...
9250	4-6-10.....	4-6-10	Mansfield Depot..
9490	5-8-7.....	5-8-7	Stafford Springs...
	<b>New England Fertilizer Co., Boston, Mass.</b>		
9260	New England Complete Manure 4-6-10.....	4-6-10	Meriden.....
8971	New England Corn Phosphate 2-10-2.....	2-10-2	Rockville.....
8970	New England Market Garden Manure 5-8-7.....	5-8-7	Rockville.....
9259	New England Potato and Vegetable Manure 4-8-4.....	4-8-4	Meriden.....
8969	New England Super, A High Grade Fertilizer for all Crops.....	3-8-4	Rockville.....
9265	New England Tobacco Manure 5-3-5.....	5-3-5	Warehouse Point..
9599	New England Tobacco Manure 7-3-7.....	7-3-7	Glastonbury....
	<b>Olds &amp; Whipple, Inc., Hartford, Conn.</b>		
9483	O & W Blue Label Tobacco Fertilizer.....	6-3-6	Hockanum.....
9023	O & W Complete Market Garden.....	4-8-4	So. Manchester...
9489	O & W Complete Tobacco Fertilizer.....	5-3-5	Hockanum.....
9591	O & W Grain and General Crop Fertilizer.....	2-9-3	So. Manchester...
9024	O & W Grass Fertilizer.....	6-6-4	So. Manchester...
9484	O & W H. G. Starter and Potash.....	5-4-15	Burnside.....
9025	O & W High Grade Vegetable and Potato Fertilizer.....	5-8-7	So. Manchester...

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.00	2.40	0.11	0.53	3.04	<b>3.70</b>	0.83	7.38	<b>6.55</b>	4.91	<b>4.91</b>	<b>8966</b>
0.54	2.40	0.18	0.37	3.49	<b>4.24</b>	0.75	8.70	<b>7.95</b>	0.11	<b>4.48</b>	<b>9241</b>
0.00	3.00	0.00	0.43	3.43	<b>4.17</b>	0.93	9.18	<b>8.25</b>	4.91	<b>4.91</b>	<b>8967</b>
0.00	3.36	0.21	0.54	4.11	<b>5.00</b>	1.03	11.30	<b>10.27</b>	0.51	<b>7.38</b>	<b>9240</b>
0.00	3.07	0.17	0.53	3.77	<b>4.58</b>	1.20	10.30	<b>9.10</b>	6.93	<b>6.93</b>	<b>9242</b>
0.01	0.07	0.18	0.93	1.19	<b>1.45</b>	1.38	6.45	<b>5.07</b>	0.56	<b>15.67</b>	<b>9248</b>
3.10	0.00	0.51	0.32	3.93	<b>4.78</b>	1.70	7.33	<b>5.63</b>	0.86	<b>15.12</b>	<b>9486</b>
2.97	0.16	0.48	3.15	6.76	<b>8.22</b>	1.40	5.20	<b>3.80</b>	0.98	<b>11.51</b>	<b>9251</b>
1.51	1.70	0.29	1.02	4.52	<b>5.50</b>	3.28	10.03	<b>6.75</b>	1.61	<b>1.61</b>	<b>9026</b>
2.43	5.89	0.19	0.34	8.85	<b>10.76</b>	0.40	6.13	<b>5.73</b>	1.55	<b>2.42</b>	<b>8968</b>
0.43	1.87	0.49	0.65	3.44	<b>4.18</b>	0.85	9.00	<b>8.15</b>	4.24	<b>4.24</b>	<b>9249</b>
0.43	1.89	0.67	0.63	3.62	<b>4.40</b>	0.65	6.78	<b>6.13</b>	10.39	<b>10.39</b>	<b>9250</b>
0.71	2.13	0.74	0.62	4.20	<b>5.11</b>	1.13	9.30	<b>8.17</b>	7.30	<b>7.30</b>	<b>9490</b>
0.26	1.86	0.58	0.64	3.34	<b>4.06</b>	0.58	6.63	<b>6.05</b>	10.45	<b>10.45</b>	<b>9260</b>
0.01	1.40	0.33	0.36	2.10	<b>2.55</b>	1.40	11.55	<b>10.15</b>	2.25	<b>2.25</b>	<b>8971</b>
0.44	2.50	0.60	0.66	4.20	<b>5.11</b>	0.30	8.88	<b>8.58</b>	6.90	<b>6.90</b>	<b>8970</b>
0.34	1.90	0.50	0.60	3.34	<b>4.06</b>	0.93	9.85	<b>8.92</b>	4.35	<b>4.35</b>	<b>9259</b>
0.04	1.50	0.36	0.58	2.48	<b>3.02</b>	1.00	9.05	<b>8.05</b>	3.78	<b>3.78</b>	<b>8969</b>
1.37	0.14	0.23	2.60	4.34	<b>5.28</b>	0.45	4.10	<b>3.65</b>	0.41	<b>5.17</b>	<b>9265</b>
1.59	0.51	0.40	3.28	5.78	<b>7.03</b>	0.33	4.55	<b>4.22</b>	0.20	<b>7.64</b>	<b>9599</b>
1.12	0.06	0.46	3.42	5.06	<b>6.15</b>	0.25	4.43	<b>4.18</b>	0.49	<b>6.38</b>	<b>9483</b>
0.64	1.76	0.35	0.73	3.48	<b>4.23</b>	1.08	9.40	<b>8.32</b>	4.16	<b>4.16</b>	<b>9023</b>
1.11	0.07	0.51	2.75	4.44	<b>5.40</b>	0.25	4.05	<b>3.80</b>	0.54	<b>5.52</b>	<b>9489</b>
0.54	0.90	0.03	0.53	2.00	<b>2.43</b>	0.88	10.53	<b>9.65</b>	3.33	<b>3.33</b>	<b>9591</b>
2.18	2.50	0.33	0.18	5.19	<b>6.31</b>	0.75	7.35	<b>6.60</b>	4.00	<b>4.00</b>	<b>9024</b>
0.76	0.88	0.40	2.04	4.08	<b>4.96</b>	0.45	5.13	<b>4.68</b>	0.98	<b>16.36</b>	<b>9498</b>
1.09	2.72	0.16	0.53	4.50	<b>5.47</b>	0.65	8.93	<b>8.28</b>	8.76	<b>8.76</b>	<b>9025</b>

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
<b>Parmenter &amp; Polsey Fertilizer Co., Boston, Mass.</b>			
9481	P & P Top Dressing .....	7-6-5	Wallingford.....
9487	P & P "AA" Brand 5-8-7.....	5-8-7	Plainville.....
9261	P & P Maine Potato Fertilizer 4-6-10.....	4-6-10	Wallingford.....
<b>Piedmont Mt. Airy Guano Co., Baltimore, Md.</b>			
9263	Harvest Brand 4-8-4.....	4-8-4	Plantsville.....
9262	Harvest Brand 5-8-7.....	5-8-7	Plantsville.....
<b>Frank S. Platt Co., New Haven, Conn.</b>			
9558	Platt's Concentrated Lawn Fertilizer .....	16-5-5	New Haven
9559	Platco Special 5-8-7 .....	5-8-7	New Haven.....
<b>Rackliffe Bros. Co., Inc., New Britain, Conn.</b>			
9500	Rackliffe Brand Corn Fertilizer 4-8-4.....	4-8-4	New Britain.....
9480	Rackliffe Brand Potato and Spec. Vegetable 5-8-7.....	5-8-7	New Britain.....
<b>The Rogers and Hubbard Co., Portland, Conn.</b>			
9034	4-8-4.....	4-8-4	Hartford.....
9617	4-8-4.....	4-8-4	Wallingford.....
9035	5-8-7.....	5-8-7	Hartford.....
9620	5-8-7.....	5-8-7	Branford.....
9255	Hubbard's Bone Base Fertilizer for Seeding Down.....	3-5-6	Portland.....
9256	Hubbard's Bone Base Oats and Top Dressing.	10-3-8	Willimantic.....
9258	Hubbard's Bone Base Soluble Corn and General Crops Manure.....	3-8-6	Branford.....
9297	Hubbard's Bone Base Soluble Potato Manure.	6-8-5	Branford.....
9624	Hubbard's Bone Base Soluble Potato Manure	6-8-5	Glastonbury.....
9301	Hubbard's Bone Base Soluble Tobacco Manure	6-8-10	New Milford.....
9045	R & H All Soils All Crops Fertilizer .....	4-10-4	New Milford.....
9506	Rogers & Hubbard's Climax Tobacco Brand..	5-3-5	Granby.....
9042	Rogers & Hubbard's Corn and Grain Fertilizer	1-10-3	Willimantic.....
9498	Rogers & Hubbard's High Potash Fertilizer....	3-8-10	Branford.....
9041	Rogers & Hubbard's Potato Fertilizer.....	2-10-4	Willimantic.....
9300	R & H Tobacco Grower Vegetable Formula...	6-3-5	Suffield.....



## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In Ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.06	5.18	0.29	0.08	5.61	<b>6.82</b>	0.35	6.53	<b>6.18</b>	4.66	<b>4.66</b>	<b>9481</b>
0.25	2.65	0.81	0.52	4.23	<b>5.14</b>	0.78	9.05	<b>8.27</b>	7.15	<b>7.15</b>	<b>9487</b>
0.34	1.82	0.59	0.56	3.31	<b>4.02</b>	0.65	6.55	<b>5.90</b>	10.19	<b>10.19</b>	<b>9261</b>
0.53	1.63	0.42	0.66	3.24	<b>3.94</b>	1.28	9.20	<b>7.92</b>	4.11	<b>4.11</b>	<b>9263</b>
0.04	3.08	0.47	0.36	3.95	<b>4.80</b>	0.58	8.58	<b>8.00</b>	7.22	<b>7.22</b>	<b>9262</b>
0.00	13.57	0.11	0.48	14.16	<b>17.22</b>	0.03	5.15	<b>5.12</b>	0.28	<b>5.18</b>	<b>9558</b>
0.08	2.95	0.79	0.62	4.44	<b>5.40</b>	0.98	9.65	<b>8.67</b>	7.17	<b>7.17</b>	<b>9559</b>
0.32	2.19	0.46	0.59	3.56	<b>4.33</b>	1.30	9.55	<b>8.25</b>	4.05	<b>4.05</b>	<b>9500</b>
1.54	1.98	0.44	0.16	4.12	<b>5.01</b>	0.50	9.05	<b>8.55</b>	5.57	<b>6.41</b>	<b>9480</b>
0.17	2.09	1.01	0.18	3.45	<b>4.19</b>	1.05	8.65	<b>7.60</b>	4.26	<b>4.26</b>	<b>9034</b>
0.86	1.50	0.63	0.32	3.31	<b>4.02</b>	0.38	8.53	<b>8.15</b>	4.26	<b>4.26</b>	<b>9617</b>
0.07	2.93	1.08	0.13	4.21	<b>5.12</b>	0.70	8.40	<b>7.70</b>	7.14	<b>7.14</b>	<b>9035</b>
0.05	2.93	1.07	0.13	4.18	<b>5.08</b>	0.63	8.45	<b>7.82</b>	7.00	<b>7.00</b>	<b>9620</b>
0.00	0.80	0.40	1.27	2.47	<b>3.00</b>	6.78	12.63	<b>5.85</b>	6.49	<b>6.49</b>	<b>9255</b>
4.52	0.14	3.26	0.32	8.24	<b>10.02</b>	3.28	8.43	<b>5.15</b>	2.88	<b>8.70</b>	<b>9256</b>
0.07	0.95	0.93	0.58	2.53	<b>3.08</b>	1.45	10.30	<b>8.85</b>	5.98	<b>5.98</b>	<b>9258</b>
1.08	2.16	0.83	0.95	5.02	<b>6.10</b>	1.98	10.64	<b>8.66</b>	0.73	<b>4.49</b>	<b>9297</b>
0.86	2.08	1.37	0.66	4.97	<b>6.04</b>	1.30	10.25	<b>8.95</b>	0.70	<b>4.95</b>	<b>9624</b>
0.79	2.24	1.19	0.57	4.79	<b>5.82</b>	1.13	10.38	<b>9.25</b>	2.75	<b>9.92</b>	<b>9301</b>
0.09	2.04	0.69	0.72	3.54	<b>4.30</b>	0.65	10.63	<b>9.98</b>	4.20	<b>4.20</b>	<b>9045</b>
1.23	0.05	0.23	2.62	4.13	<b>5.02</b>	0.39	3.85	<b>3.46</b>	0.64	<b>5.01</b>	<b>9506</b>
0.12	0.23	0.36	0.44	1.15	<b>1.40</b>	0.70	11.50	<b>10.80</b>	3.36	<b>3.36</b>	<b>9042</b>
0.06	1.27	0.67	0.70	2.70	<b>3.28</b>	0.78	9.38	<b>8.60</b>	10.53	<b>10.53</b>	<b>9498</b>
0.12	0.63	0.66	0.56	1.97	<b>2.40</b>	0.60	10.33	<b>9.73</b>	4.93	<b>4.93</b>	<b>9041</b>
1.43	0.09	0.66	2.86	5.04	<b>6.13</b>	0.30	3.50	<b>3.20</b>	0.46	<b>5.43</b>	<b>9300</b>

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
<b>F. S. Royster Guano Co., Baltimore, Md.</b>			
9513	Royster's Conn. Tobacco Guano.....	5-3-5	Granby.....
9294	Royster's Comet Guano.....	3-10-6	Granby.....
9296	Royster's Gem Guano.....	2-12-4	Thompsonville....
9293	Royster's Quality Trucker.....	4-8-7	Granby.....
9295	Royster's Top Dresser.....	8-6-6	Granby.....
9290	Royster's Truckers Delight.....	4-8-4	Plainville.....
9299	Royster's 5% Truck Guano.....	5-8-7	Madison.....
9614	Royster's Valley Tobacco Guano.....	5-4-5	Windsor Locks....
9516	Royster's Wrapper Brand 7-3-7.....	7-3-7	Burnside.....
<b>M. L. Shoemaker &amp; Co., Philadelphia, Pa.</b>			
9588	Potato Special.....	5-8-7	New Milford.....
9601	"Swift-Sure" Special Tobacco Formula.....	4-8-5	New Milford.....
9560	Tobacco and General Use.....	3-10-3	Granby.....
<b>Springfield Rendering Co., Springfield, Mass.</b>			
9510	Springfield, 3-8-4.....	3-8-4	Thompsonville....
9517	Springfield 4-8-4.....	4-8-4	Suffield.....
9515	Springfield 5-8-7.....	5-8-7	Hazardville.....
<b>Swift &amp; Co., Baltimore, Md.</b>			
9065	Vigoro.....	4-12-4	Waterbury.....
<b>Synthetic Nitrogen Products Co., New York.</b>			
9605	Nitrophoska.....	18.2-30- 15	Southington.....
<b>I. P. Thomas &amp; Sons, Philadelphia, Pa.</b>			
9342	Economy Fertilizer 3-12-3.....	3-12-3	Ansonia.....
9585	I. P. Thomas 5-8-7.....	5-8-7	Milford.....
9044	Long Island Special 4-8-7.....	4-8-7	Branford.....
9345	Thomas Tobacco Grower 5-4-5.....	5-4-5	East Granby.....
9584	Tip Top Superphosphate 3-10-6.....	3-10-6	Milford.....
9586	7% Guano 7-6-5.....	7-6-5	Milford.....
9344	Truckers High Grade Guano 4-8-4.....	4-8-4	North Haven.....
9581	Victor Potash Fertilizer 2-8-5.....	2-8-5	Hamden.....

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.44	0.93	0.22	2.52	4.11	5.00	0.20	4.08	3.88	0.90	6.09	9513
0.00	1.52	0.33	0.62	2.47	3.00	0.83	10.73	9.90	6.24	6.24	9294
0.06	1.16	0.28	0.34	1.84	2.24	0.70	13.82	13.12	4.06	4.06	9296
0.00	2.12	0.45	0.69	3.26	3.96	0.63	8.60	7.97	7.13	7.13	9293
2.49	3.34	0.39	0.33	6.55	7.96	0.20	6.85	6.65	6.33	6.33	9295
0.00	2.10	0.56	0.70	3.36	4.09	0.95	9.08	8.13	4.30	4.30	9290
0.00	2.46	0.81	0.80	4.07	4.95	0.78	9.68	8.90	6.66	6.66	9299
0.32	0.88	0.29	2.86	4.35	5.29	0.65	4.73	4.08	1.29	5.11	9614
0.60	1.20	0.14	3.72	5.66	6.88	0.08	3.65	3.57	0.47	7.29	9516
0.33	2.52	0.32	1.07	4.24	5.15	1.88	9.45	7.57	5.90	5.90	9588
0.00	2.10	0.12	1.32	3.54	4.30	0.60	9.00	8.40	0.28	5.45	9601
0.08	1.50	0.17	0.90	2.65	3.22	1.20	10.68	9.48	0.27	3.17	9560
0.03	1.45	0.48	0.60	2.56	3.11	0.79	9.18	8.39	4.12	4.12	9510
0.88	1.38	0.54	0.78	3.58	4.35	0.73	8.75	8.02	4.09	4.09	9517
1.20	1.68	0.74	0.54	4.16	5.06	1.15	10.40	9.25	7.17	7.17	9515
0.32	2.74	0.05	0.39	3.50	4.26	0.28	13.00	12.72	4.28	4.28	9065
0.00	13.30	1.44	0.26	15.00	18.24	0.00	30.30	30.30	15.21	15.21	9605
0.08	1.96	0.23	0.44	2.71	3.29	2.13	14.30	12.17	2.35	3.25	9342
0.46	2.96	0.31	0.69	4.42	5.37	1.05	9.90	8.85	6.43	6.43	9585
0.30	2.29	0.23	0.58	3.40	4.13	0.78	9.45	8.67	7.05	7.05	9044
0.18	0.90	0.50	2.52	4.10	4.98	3.20	12.00	8.80	0.72	5.85	9345
0.36	1.64	0.27	0.39	2.66	3.23	0.64	11.55	10.91	4.98	6.16	9584
0.34	4.06	0.42	0.72	5.54	6.74	0.50	7.55	7.05	4.48	5.29	9586
0.46	2.08	0.35	0.71	3.60	4.38	0.85	9.72	8.87	3.38	3.78	9345
0.08	1.18	0.12	0.40	1.78	2.16	1.35	9.68	8.33	4.19	4.68	9581

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
<b>Triton Oil and Fertilizer Co., New York.</b>			
9339	Triton 4-8-4 Fertilizer.....	4-8-4	Milford.....
9349	Triton 4-8-7 Fertilizer.....	4-8-7	New London.....
9348	Triton 5-8-5 Fertilizer.....	5-8-5	New London.....
9340	Triton 5-8-7 Fertilizer.....	5-8-7	Milford.....
<b>U. S. Guano Co., Baltimore, Md.</b>			
9186	Accomac Peninsular King.....	5-8-5	No. Haven.....
9188	General Use Guano.....	2-12-4	No. Haven.....
9185	Jersey Special.....	4-8-10	No. Haven.....
9187	Royal Potato Grower.....	4-8-7	No. Haven.....
8847	Standard United States Evergreen Fish Guano.	4-8-4	Norwalk.....
8851	Standard United States Fish, Bone and Potash.	5-8-7	Southport.....
8848	Standard United States Old Fertility.....	2-8-3	Norwalk.....
9184	Standard United States 5-10-5.....	5-10-5	Orange.....
<b>Virginia-Carolina Chemical Co., New York.</b>			
9350	Bloomaid.....	6-10-4	Mfg's Sample. ....
8881	V. C. Aroostook Potato Grower.....	5-8-7	New Britain.....
8880	V. C. Fish and Potash Compound.....	2-9-3	New Britain.....
8874	V. C. XXXX Fish and Potash.....	4-8-4	New Britain.....
<b>Wilcox Fertilizer Co., Mystic, Conn.</b>			
9347	Wilcox Corn Special 3-10-4.....	3-10-4	Willimantic.....
9346	Wilcox H. G. Fish and Potash 4-8-4.....	4-8-4	Willimantic.....
9359	Wilcox Potato and Vegetable Phosphate 5-8-7..	5-8-7	Willimantic.....
9355	Wilcox 7-6-5 Top Dresser.....	7-6-5	Mystic.....
<b>Worcester Rendering Co., Auburn, Mass.</b>			
9356	Prosperity Brand Complete Dressing.....	6-6-4	Groton.....
56	Prosperity Brand Complete Dressing.....	6-6-4	Colchester.....
9040	Prosperity Brand Corn and Grain Fertilizer..	2-10-2	Colchester.....
58	Prosperity Brand Corn and Grain Fertilizer..	2-10-2	Putnam.....
9352	Prosperity Brand Market Garden Fertilizer..	5-8-7	Colchester.....
57	Prosperity Brand Market Garden Fertilizer..	5-8-7	Groton.....
9043	Prosperity Brand Potato and Vegetable Fertilizer.....	4-8-4	Groton.....

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In Ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
0.73	1.30	0.48	0.64	3.15	<b>3.83</b>	0.37	8.52	<b>8.15</b>	4.69	<b>4.69</b>	<b>9339</b>
0.73	1.53	0.50	0.59	3.35	<b>4.07</b>	0.30	9.03	<b>8.73</b>	7.34	<b>7.34</b>	<b>9349</b>
0.85	1.98	0.56	0.76	4.15	<b>5.05</b>	0.48	9.50	<b>9.02</b>	5.02	<b>5.02</b>	<b>9348</b>
1.26	1.99	0.46	0.92	4.63	<b>5.63</b>	0.23	9.28	<b>9.05</b>	7.21	<b>7.21</b>	<b>9340</b>
1.28	0.34	2.18	0.15	3.95	<b>4.80</b>	0.55	8.77	<b>8.22</b>	4.13	<b>4.86</b>	<b>9186</b>
0.70	1.50	0.12	0.30	2.62	<b>3.19</b>	0.68	11.12	<b>10.44</b>	4.03	<b>4.32</b>	<b>9188</b>
2.52	0.22	0.29	0.22	3.25	<b>3.95</b>	0.19	8.63	<b>8.44</b>	10.16	<b>10.16</b>	<b>9185</b>
1.30	1.22	0.28	0.52	3.32	<b>4.04</b>	0.83	9.07	<b>8.24</b>	6.73	<b>6.73</b>	<b>9187</b>
0.00	2.84	0.06	0.52	3.42	<b>4.16</b>	0.40	8.85	<b>8.45</b>	3.93	<b>4.81</b>	<b>8847</b>
0.22	3.50	0.01	0.54	4.27	<b>5.19</b>	0.48	8.85	<b>8.37</b>	6.43	<b>6.43</b>	<b>8851</b>
0.18	1.00	0.04	0.72	1.94	<b>2.36</b>	0.73	9.85	<b>9.12</b>	3.08	<b>3.08</b>	<b>8848</b>
0.60	2.72	0.36	0.22	3.90	<b>4.74</b>	0.48	11.00	<b>10.52</b>	4.76	<b>4.76</b>	<b>9184</b>
1.11	2.75	0.22	1.16	5.24	<b>6.37</b>	0.65	11.45	<b>10.80</b>	0.76	<b>4.96</b>	<b>9350</b>
0.00	2.78	0.60	0.69	4.07	<b>4.95</b>	1.10	9.30	<b>8.20</b>	6.66	<b>6.66</b>	<b>8881</b>
0.15	1.07	0.39	0.50	2.11	<b>2.57</b>	1.08	9.93	<b>8.85</b>	4.54	<b>4.54</b>	<b>8880</b>
0.93	2.20	0.00	0.34	3.47	<b>4.22</b>	0.73	8.30	<b>7.57</b>	4.29	<b>4.29</b>	<b>8874</b>
1.34	0.10	0.55	0.70	2.69	<b>3.27</b>	0.73	10.98	<b>10.25</b>	3.40	<b>4.11</b>	<b>9347</b>
1.73	0.26	0.91	0.78	3.68	<b>4.47</b>	0.58	8.16	<b>7.58</b>	3.90	<b>4.66</b>	<b>9346</b>
1.26	1.36	0.43	0.71	3.76	<b>4.57</b>	0.54	9.00	<b>8.46</b>	7.40	<b>7.40</b>	<b>9359</b>
2.55	1.71	0.72	0.32	5.30	<b>6.44</b>	0.20	7.05	<b>6.85</b>	2.98	<b>5.25</b>	<b>9355</b>
0.67	2.83	0.49	0.50	4.49	<b>5.46</b>	0.83	7.30	<b>6.47</b>	4.01	<b>4.01</b>	<b>9356</b>
.....	.....	.....	.....	4.87	<b>5.92</b>	0.64	7.07	<b>6.43</b>	.....	<b>4.34</b>	<b>56</b>
1.21	0.76	0.58	0.35	2.90	<b>3.53</b>	0.95	10.70	<b>9.75</b>	2.07	<b>2.07</b>	<b>9040</b>
.....	.....	.....	.....	2.29	<b>2.78</b>	1.05	12.04	<b>10.99</b>	.....	<b>2.50</b>	<b>58</b>
0.77	2.23	0.67	0.64	4.31	<b>5.24</b>	0.95	8.48	<b>7.53</b>	7.75	<b>7.75</b>	<b>9352</b>
.....	.....	.....	.....	4.22	<b>5.13</b>	0.84	7.88	<b>7.04</b>	.....	<b>6.85</b>	<b>57</b>
0.82	1.34	0.64	0.46	3.26	<b>3.96</b>	1.10	9.43	<b>8.33</b>	3.90	<b>3.90</b>	<b>9043</b>



TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Purchaser:</i>		
	<b>Berkshire Chemical Co., Bridgeport, Conn.</b>		
9527	Complete Tobacco Fertilizer.....	5-3-5	Suffield.....
	<b>Lowell Fertilizer Co., Boston, Mass.</b>		
8085	Lowell 5-10 5.....	5-10-5	Storrs.....
	<b>The Rogers &amp; Hubbard Co., Portland, Conn.</b>		
8916	Tunacre Fertilizer.....	.....	Middletown.....
	<b>Swift &amp; Co., Baltimore, Md.</b>		
9018	Vigoro.....	4-12-4	Norwich.....
	<b>Standard Wholesale Phosphate &amp; Acid Works, Baltimore, Md.</b>		
8254	5-8-7 Fertilizer.....	5-8-7	New Britain.....
8255	4-8-4 Fertilizer.....	4-8-4	New Britain.....
9052	Standard United States Buyers Mixture Fertilizer.....	.....	Andover.....
9053	Standard United States Buyers Mixture Fertilizer.....	.....	Andover.....
9058	Standard United States Fish, Bone and Potash.	5-8-7	Andover.....
9492	Standard United States Fish, Bone and Potash.	5-8-7	Rockville.....
9252	Standard United States Fish, Bone and Potash.	5-8-7	Bridgeport.....
9253	Standard United States Fish, Bone and Potash.	5-8-7	Bridgeport.....
	<b>Wilcox Fertilizer Co., Mystic, Conn.</b>		
9119	Wilcox Fertilizer 4-8-4.....	4-8-4	Norwich.....
9120	Wilcox Fertilizer 5-8-7.....	5-8-7	Norwich.....
9055	Wilcox Fertilizer 7-6-5.....	7-6-5	Andover.....

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
In Nitrates.	In ammonia.	Organic water-soluble.	Organic water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available".	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	%
....	....	....	....	4.61	<b>5.60</b>	0.20	3.65	<b>3.45</b>	0.93	<b>4.78</b>	<b>9527</b>
....	....	....	....	4.22	<b>5.13</b>	0.97	11.19	<b>10.22</b>	....	5.27	8085
....	....	....	....	8.15	<b>9.91</b>	0.18	4.73	<b>4.55</b>	....	10.54	8916
....	....	....	....	3.42	<b>4.16</b>	0.33	13.05	<b>12.72</b>	....	4.07	9018
....	....	....	....	4.38	<b>5.33</b>	0.84	8.88	<b>8.04</b>	5.07	5.07	8254
....	....	....	....	3.38	<b>4.11</b>	0.71	8.94	<b>8.23</b>	4.21	4.21	8255
....	....	....	....	5.20	<b>6.32</b>	1.13	8.28	<b>7.15</b>	7.04	7.04	9052
....	....	....	....	4.25	<b>5.17</b>	0.60	11.00	<b>10.40</b>	4.31	4.94	9053
....	....	....	....	4.14	<b>5.03</b>	0.43	8.50	<b>8.07</b>	6.66	7.01	9058
....	....	....	....	4.00	<b>4.86</b>	....	9.05	....	6.13	6.13	9492
....	....	....	....	4.37	<b>5.31</b>	0.55	8.65	<b>8.10</b>	6.45	6.79	9252
....	....	....	....	4.25	<b>5.17</b>	0.48	8.50	<b>8.12</b>	6.43	6.60	9253
....	....	....	....	3.37	<b>4.10</b>	0.18	9.03	<b>8.95</b>	3.18	4.24	9119
....	....	....	....	4.31	<b>5.24</b>	0.05	8.53	<b>8.48</b>	7.45	7.45	9120
....	....	....	....	5.66	<b>6.88</b>	0.23	6.88	<b>6.65</b>	4.59	5.61	9055

## SPECIAL MIXTURES AND HOME MIXTURES.

Fifty samples of mixed fertilizers have been examined for individuals such samples for the most part being drawn by the persons interested. The Station is responsible only for the analysis of these samples as received.

Analyses are given in Table XVI.

## VIII. MISCELLANEOUS FERTILIZERS, AMENDMENTS, WASTE PRODUCTS, ETC.

## SHEEP MANURE, ETC.

Twenty-six samples of sheep manure and other farm manures were analyzed. The identity of two of these products is uncertain. Nos. 8959 and 9495 did not have the appearance of sheep manure and did not contain appreciable amounts of phosphoric acid or potash.

Analyses are given in Table XVII.

## LIME.

Lime is not classed as a fertilizer in this State but seven samples have been analyzed for purchasers. The results are given in Table XVIII.

## OTHER MISCELLANEOUS MATERIALS.

Other miscellaneous materials, 35 in number, have been examined during the year and the results, with comments where necessary, are given in Table XIX.

## COLLABORATIVE WORK.

The laboratory has collaborated in the check meal program of the American Oil Chemists' Society, and in the check fertilizer program sponsored by the F. S. Royster Guano Co. Mr. Nolan has collaborated with the Referee of the Association of Official Agricultural Chemists upon methods for determining activity of insoluble organic nitrogen in fertilizers. This work has involved the examination of 45 samples.

TABLE XVI. ANALYSES OF SPECIAL AND HOME MIXTURES.

Station No.	Manufacturer or Brand.	Place of Sampling.	Total Nitrogen. %	Ammonia equivalent to total nitrogen. %	Phosphoric Acid.		Potash.		Station No.	
					Citrate-insoluble. %	Total %	So-called "Available". %	As muriate. %		Total %
9667	<i>Sampled by Station.</i> Sanderson's Formula B	John B. Laydon, North Haven.	3.34	4.06	0.25	8.43	8.18	1.28	6.75	9667
9596	(Old Stock).....	Chas. Maag, Manchester.....	6.52	7.93	0.08	2.38	2.30	0.40	7.35	9596
9534	Home Mixture for Corn....	E. N. Austin, Suffield.....	3.74	4.55	0.18	4.86	4.68	5.23	5.23	9534
9594	Home Mixture for Corn....	John Luginbuhl, Ellington.....	3.90	4.74	0.15	3.68	8.85	3.68	3.68	9594
9603	Home Mixture for Potatoes	John Luginbuhl, Ellington.....	4.54	5.52	1.68	8.73	7.05	4.05	4.05	9603
9604	Home Mixture for Grass....	John Luginbuhl, Ellington.....	6.88	8.36	0.08	6.35	6.27	6.07	6.07	9604
9768	Wilcox 4-8-4 Fertilizer....	P. Cutler, Inc., Colchester.....	3.17	3.85	0.10	8.58	8.48	3.43	4.26	9768
9771	Wilcox 5-8-7 Fertilizer....	W. A. Howard, Woodstock....	4.04	4.91	0.13	8.33	8.20	7.36	7.36	9771
9770	Wilcox 5-10-5 Fertilizer....	H. F. Joy, Woodstock.....	4.18	5.08	0.35	10.55	10.20	4.90	4.90	9770
9579	Woodruff Home Mixture..	S. D. Woodruff & Sons, Orange	4.00	4.86	1.10	7.48	6.38	7.19	7.19	9579

TABLE XVI. ANALYSES OF SPECIAL AND HOME MIXTURES—Concluded.

Station No.	Manufacturer or Brand.	Place of Sampling.	Total Nitrogen.	Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.
					Citrate-insoluble.	Total.	As sulfate.	Total.	
			%	%	%	%	%	%	%
9013	<i>Sampled by Purchaser.</i> Special Mixture Fertilizer..	The Allied Tobacco Co., Hartford.....	6.41	7.79	0.33	1.85	1.52	11.87	9013
8263	Formula A.....	American Sumatra Tobacco Co., Bloomfield.....	6.00	7.29	0.65	5.24	4.59	4.76	8263
8337	Formula A.....	American Sumatra Tobacco Co., Bloomfield.....	6.02	7.32	0.48	4.69	4.21	5.08	8337
8262	Formula B.....	American Sumatra Tobacco Co., Bloomfield.....	5.36	6.52	1.11	6.30	5.19	6.54	8262
8302	Formula B.....	American Sumatra Tobacco Co., Bloomfield.....	5.46	6.64	1.06	6.05	4.99	6.22	8302
8343	Formula C.....	American Sumatra Tobacco Co., Bloomfield.....	5.90	7.17	0.82	4.73	3.91	3.91	8343
8458	Formula E.....	American Sumatra Tobacco Co., Bloomfield.....	4.98	6.05	0.45	3.48	3.03	5.79	8458
8816	Formula F.....	American Sumatra Tobacco Co., Bloomfield.....	5.70	6.93	0.28	5.23	4.95	4.56	8816
8920	Formula G.....	American Sumatra Tobacco Co., Bloomfield.....	5.36	6.52	0.38	3.63	3.25	5.79	8920
8344	Drill Fertilizer.....	American Sumatra Tobacco Co., Bloomfield.....	9.77	11.88	0.22	2.04	1.82	1.07	8344
8006	Fall Top Bed Fertilizer....	American Sumatra Tobacco Co., Bloomfield.....	5.44	6.61	0.65	4.72	4.07	5.80	8006



TABLE XV ANALYSES OF SPECIAL AND HOME MIXTURES.

Station No.	Manufacturer or Brand.	Place of Sampling.	Total Nitrogen. %	Ammonia equivalent to total nitrogen. %	Phosphoric Acid.			Potash.		Station No.
					Citrate-insoluble. %	Total. %	So-called "Available". %	As muriate. %	Total. %	
8692	<i>Sampled by Purchaser.</i> Apothecaries Hall Co., Wash- terbury, Car No. 168774.	Hatheway & Steane, Inc., Hart- ford	4.12	5.01	0.30	8.58	8.28	7.05	8692	
9629	Home Mixture	E. N. & C. C. Austin, Suffield..	4.78	5.81	.....	4.60	.....	5.45	9629	
9351	Nature's Own Fertilizer, Bestvall Mfg. Co., Phil- adelphia, Pa.	Mfr.'s Sample	7.50	9.12	.....	1.80	.....	0.99	9351	
9463	Special Mixture Fertilizer..	William J. Burgess, Thompson- ville.	6.37	7.74	0.43	4.53	4.10	6.91	9463	
9048	Fertilizer	Daigle Bros., Marion	4.68	5.69	0.50	10.53	10.03	6.95	9048	
9572	Eastern States Farmers' Ex- change, Springfield, Mass.	Leslie W. Newberry, So. Windsor	6.06	7.37	0.05	4.73	4.68	7.43	9572	
9654	Special Mixture Fertilizer..	J. E. Phelps, Suffield	4.86	5.91	1.90	6.78	4.88	5.04	9654	
9535	Home Mixed Fertilizer....	The Hartman Tobacco Co., Hartford.	6.96	8.46	0.40	3.44	3.04	6.47	9535	
7786	Platt's Concentrated Lawn Fertz., Frank S. Platt Co. New Haven.	Mfr's Sample	15.86	19.28	.....	.....	.....	.....	7786	

TABLE XV ANALYSES OF SPECIAL AND HOME MIXTURES—Continued.

Station No.	Manufacturer or Brand.	Place of Sampling.	Total nitrogen.	Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.
					Citrate-insoluble.	Total.	As sulfate.	Total.	
			%	%	%	%	%	%	%
9395	<i>Sampled by Purchaser.</i> Special Mixture Fertilizer No. 3.	H. E. Wells, Warehouse Point..	6.25	7.60	0.10	7.30	1.04	15.89	9395
9396	Special Mixture Fertilizer No. 4.	H. E. Wells, Warehouse Point..	6.22	7.56	0.15	7.38	0.80	16.43	9396
9397	Special Mixture Fertilizer No. 5.	H. E. Wells, Warehouse Point..	5.00	6.08	0.55	6.00	6.67	6.85	9397
9398	Special Mixture Fertilizer No. 6.	H. E. Wells, Warehouse Point..	3.60	4.38	0.83	8.13	5.25	5.43	9398
8297	Complete Fertilizer Grower	The Rogers & Hubbard Co., Portland.	4.91	5.97	0.32	3.41	....	5.19	8297
8376	"Climax" Fertilizer.	The Rogers & Hubbard Co., Portland.	4.27	5.19	0.50	4.02	....	5.08	8376
9716	5-8-7 Fertilizer No. 1.	The Rogers & Hubbard Co., Portland.	4.18	5.08	0.33	8.70	7.27	7.27	9716
9717	5-8-7 Fertilizer No. 2.	The Rogers & Hubbard Co., Portland.	4.21	5.12	0.35	8.50	7.28	7.28	9717
9666	Special Mixture Fertilizer.	Paul P. Kostek, Melrose.	6.04	7.34	....	4.05	1.20	6.55	9666

TABLE XV. ANALYSES OF SPECIAL AND HOME MIXTURES—Concluded.

Station No.	Manufacturer or Brand.	Place of Sampling.	Total nitrogen. %	Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
					Citrate-insoluble. %	Total. %	So-called "Available". %	As murate. %	Total. %	
9708	<i>Sampled by Purchaser.</i> Special Home Mixture (Ro- senblum).....	Consolidated Cigar Co., Hart- ford.....	5.83	7.09	0.68	3.65	2.97	0.74	6.35	9709
9710	Special Home Mixture (Myers).....	Consolidated Cigar Co., Hart- ford.....	6.16	7.49	0.45	4.40	3.95	0.03	4.43	9710
9711	Special Home Mixture (Shaker).....	Consolidated Cigar Co., Hart- ford.....	6.40	7.78	0.55	4.40	3.85	0.04	4.21	9711
9712	Special Home Mixture (Winton).....	Consolidated Cigar Co., Hart- ford.....	5.92	7.20	0.90	3.95	3.05	0.33	6.19	9712
9713	Special Home Mixture (Kanter).....	Consolidated Cigar Co., Hart- ford.....	6.02	7.32	0.38	3.65	3.27	0.49	4.12	9713
9714	Special Home Mixture (Hunting).....	Consolidated Cigar Co., Hart- ford.....	6.14	7.47	0.58	4.58	4.00	0.11	4.47	9714
9715	Special Home Mixture (Barton).....	Consolidated Cigar Co., Hart- ford.....	5.80	7.05	0.40	4.18	3.78	0.24	6.21	9715
7987	Fertilizer No. 1.....	Truman H. Hale, Gildersleeve..	5.62	6.83	0.97	4.39	3.42	.....	5.89	7987
7998	Fertilizer No. 2.....	Truman H. Hale, Gildersleeve..	5.78	7.03	0.91	4.27	3.36	.....	5.72	7998
8096	Fertilizer.....	S. D. Woodruff & Sons, Orange	.45	1.76	1.35	8.30	6.95	.....	11.36	8096
8341	Clay's Fertilizer.....	J. P. Johnson, Entomology Dept.	4.87	5.92	6.65	9.66	3.01	.....	0.16	8341

TABLE XVII. ANALYSES OF

Station No.	Manufacturer or Brand.	Place of Sampling.
<i>Sampled by Station.</i>		
8870	A. A. C. Pulverized Sheep and Goat Manure. American Agricultural Chemical Co., New York.....	Bristol Grain & Supply Co., Bristol.....
9189	Sheep Manure. Apothecaries Hall Co., Waterbury.....	F. T. Blish Hardware Co., So. Manchester.....
9028	Armour's Sheep and Goat Manure 1½-1-2. Armour Fertilizer Works, New York....	F. A. Bartlett Tree Expert Co., Stamford.....
8959	Berkshire Sheep Manure. Berkshire Chemical Co., Bridgeport.....	Eldredge Hardware Co., Norwich.....
9540	Par Plus Brand Pulverized Sheep Manure. A. H. Case & Co., Buffalo, N. Y.....	S. D. Woodruff & Son, Orange.
8886	Corenco Sheep Manure. Consolidated Rendering Co., Boston, Mass.....	Cheshire Reformatory, Cheshire
8999	Davey Shredded Cattle Manure, Davey Tree Expert Co., Kent, Ohio.....	R. E. Landis, Sound Beach....
9495	Sheep Manure. Meech & Stoddard, Inc., Middletown.....	Meech & Stoddard, Middletown
9021	"Sheep's Head" Pulverized Sheep Manure. Natural Guano Co., Aurora, Ill.....	Cadwell & Jones, Hartford....
9479	Favorite Brand Sheep Manure. Olds & Whipple, Inc., Hartford.....	Sampled at factory.....
9257	Groz-It Brand (Pulverized Sheep Manure). Pacific Manure & Fertilizer Co., San Francisco, Cal.....	F. F. Hitchcock Co., Woodbury
8903	Premier Brand Poultry Manure, Premier Poultry Manure Co., Chicago, Ill.....	Lightbourn & Pond, New Haven
8904	Premier Brand Sheep Manure. Premier Premier Poultry Manure Co., Chicago, Ill.	Lightbourn & Pond, New Haven
8905	Wizard Brand Pulverized Sheep Manure. Pulverized Manure Co., Chicago, Ill.....	Comstock-Ferre & Co., Wethersfield.....
8989	Wizard Brand Pulverized Sheep Manure. Pulverized Manure Co., Chicago, Ill.....	H. E. Meeker, Danbury.....
9264	Wizard Cattle Manure. Pulverized Manure Co., Chicago, Ill.....	S. P. Strople, New Britain.....
9292	Sheep Manure. The Rogers & Hubbard Co., Portland.....	W. L. Richmond, New Milford.
9496	Royster's Sheep & Goat Manure. F. S. Royster Guano Co., Baltimore, Md.....	F. B. Newton, Plainville.....
9583	Sheep and Goat Manure. I. P. Thomas & Son, Philadelphia, Pa.....	Ira W. Beers, Hamden.....
<i>Sampled by Purchaser.</i>		
7656	Poultry Manure.....	Z. N. Beach, Wallingford.....
9755	Poultry Manure <sup>1</sup> .....	Charter Bros., Stafford Springs.
9655	Chicken Manure.....	Raymond C. Bugbee, Groton..
9056	Favorite Brand Sheep Manure. Olds & Whipple, Inc., Hartford.....	J. A. Barrasso, Andover.....
8324	Chicago Stock Yard Sheep Manure. Pulverized Manure Co., Chicago, Ill.....	Geo. C. Meachen, Stratford....
8325	Venezuelan Goat Manure. Summer Fertilizer Co., Baltimore, Md.....	Geo. E. Meachen, Stratford....
8008	Sheep Manure. S. D. Woodruff & Sons, New York.....	Mfr.'s Sample.....

<sup>1</sup> 16.93% moisture.

## SHEEP MANURE, ETC.

Total Nitrogen.	Ammonia equivalent to total nitrogen.		Phosphoric acid.				Potash.		Station No.
	Found.	Guaranteed.	Available.		Total		Found.	Guaranteed.	
			Found.	Guaranteed.	Found.	Guaranteed.			
%	%	%	%	%	%	%	%	%	
1.47	1.79	1.50	1.67	0.50	1.90	....	3.10	2.00	8870
2.93	3.56	1.80	....	....	2.93	1.00	2.52	2.00	9189
1.64	1.99	1.50	0.80	....	1.45	1.00	3.36	2.00	9028
3.02	3.67	3.00	....	....	....	....	....	....	8959
2.29	2.78	2.25	....	....	3.08	1.50	1.65	1.50	9540
1.67	2.03	1.50	....	....	1.20	0.50	3.26	2.00	8886
1.86	2.26	1.27	1.40	1.00	1.78	1.00	2.71	1.00	8999
3.08	3.74	3.52	0.15	0.23	0.30	....	0.12	0.12	9495
1.84	2.24	2.73	1.08	1.00	1.93	1.25	2.32	2.00	9021
1.36	1.65	1.65	....	....	1.00	0.75	2.75	2.50	9479
1.47	1.79	1.82	0.75	0.75	0.95	1.25	3.04	3.00	9257
4.86	5.91	6.10	2.38	2.50	2.53	2.75	1.20	1.30	8903
1.87	2.27	2.00	0.93	0.80	1.08	1.00	2.09	2.00	8904
1.78	2.16	2.43	1.03	1.25	1.28	....	2.77	2.00	8905
2.23	2.71	2.43	1.68	1.25	1.78	....	2.72	2.00	8989
2.04	2.48	2.10	1.30	1.00	1.60	....	1.58	1.00	9264
2.50	3.04	2.25	....	....	1.28	....	1.72	1.50	9292
1.76	2.14	2.00	1.20	1.00	1.40	....	3.68	2.00	9496
1.24	1.51	1.50	....	....	2.00	1.00	2.24	2.00	9583
2.19	2.66	....	....	....	3.92	....	1.38	....	7656
2.58	3.14	....	....	....	3.05	....	1.30	....	9755
1.84	2.24	....	....	....	3.88	....	1.69	....	9655
1.50	1.82	1.65	....	....	1.10	0.75	3.28	2.50	9056
2.03	2.47	....	....	....	1.47	....	2.35	....	8324
1.66	2.02	....	....	....	1.28	....	3.45	....	8325
4.26	5.18	....	....	....	0.26	....	0.12	....	8008



TABLE XVIII. ANALYSES OF

Station No.	Manufacturer or Brand.	Sampled by.
	<b>American Lime &amp; Stone Co., Bellefonte, Pa.</b>	
8610	Lime.....	Blue Hills Farm, Wallingford.....
	<b>The Connecticut Agstone Co., Danbury.</b>	
9051	Limestone.....	J. A. Barrasso, Andover.....
	<b>Grangers Mfg. Co., West Stockbridge, Mass.</b>	
9222	Grangers Agricultural Limestone.....	Mehmel & Sarvi, Plantsville.....
9254	Grangers Lime.....	C. R. Treat, Orange.....
	<b>Lee Lime Corporation, Lee, Mass.</b>	
8081	Limestone, unground.....	W. L. Wallace, Canaan.....
	<b>Manufacturer Unknown.</b>	
8266	Lime.....	E. C. P. Sanger, Falls Village.....
9573	Limestone.....	John Swanson, Bolton.....

## LIMESTONE, ETC.

Chemical Analysis.						Mechanical Analysis.					Station No.
Lime (CaO).		Magnesia (MgO).		Total Oxides.	Insoluble in acid.	20 mesh.	40 mesh.	50 mesh.	80 mesh.	100 mesh.	
Found.	Guaranteed.	Found.	Guaranteed.								
%	%	%	%	%	%	%	%	%	%	%	
71.38	.....	0.94	.....	72.32	.....	.....	.....	.....	.....	.....	8610
39.67	.....	4.51	.....	44.18	.....	93.0	83.0	73.0	58.0	28.0	9051
.....	.....	.....	.....	.....	.....	97.0	87.0	75.0	61.0	57.0	9222
41.39	.....	6.98	.....	48.37	.....	100.0	100.0	99.8	93.5	85.0	9254
55.08	.....	0.41	.....	55.49	.....	.....	.....	.....	.....	.....	8081
29.85	.....	20.45	.....	50.30	.....	.....	.....	.....	.....	.....	8266
46.91	.....	0.33	.....	47.24	.....	50.0	38.0	24.0	14.0	12.0	9573

TABLE XIX. MISCELLANEOUS MATERIALS.

No.	Material	Nitrogen %	Phosphoric acid %	Potash %	Remarks
8041	Ashes from corn cobs.	.....	6.98	13.96	.....
9050	Cottonhull bran.	0.48	0.20	1.23	.....
7972	Cottonseed hulls.	0.74	0.11	1.11	.....
8007	Cottonseed hulls.	0.60	0.24	1.14	.....
8078	Cottonseed hulls.	0.79	0.05	1.05	.....
9571	Fertilizer.	6.21	.....	.....	Check test for another laboratory.
9046	Fertilizer.	.....	.....	.....	Identified as precipitated bone.
9047	Fertilizer.	.....	.....	.....	Mixture of limestone and burned lime.
9088	Fertilizer.	.....	.....	.....	Identified as muriate of potash.
9406	Fertilizer.	.....	.....	.....	Nitrate of potash or nitrate of soda and potash.
8042	Fertilizer (cottonseed cake)	3.94	.....	.....	.....
8625	"Fertilizer" (Lawn).....	.....	.....	.....	Limestone. CaO 49.12%, MgO 2.08%
9508	Fertilizer, mixed.....	.....	.....	.....	Identified as acid phosphate.
9536	Fertilizer, mixed.....	.....	.....	.....	Thought to have caused injury to tobacco plants. No borax found and only 0.16% of chlorine.
9687	Fertilizer, mixed.....	.....	.....	.....	Microscopic examination only.
9688	Fertilizer, mixed.....	.....	.....	.....	Microscopic examination only.
9763	Fertilizer (tankage).....	.....	.....	.....	Microscopic examination. Only meat and bone detected. Chlorine 0.44%, sulphuric acid, none.
9724	Fertilizer (tankage).....	.....	.....	.....	.....

TABLE XIX. MISCELLANEOUS MATERIALS—Concluded.

No.	Material	Nitrogen %	Phosphoric acid %	Potash %	Remarks
8845	Fish (whole).....	2.75	3.30	.....	Water and oil 72.70%.
9734	Humus.....	.....	.....	.....	Moisture 27.69%, ash 1.71%, organic matter 70.60%.
9302	Lime, hydrated.....	.....	.....	.....	Passed 300 mesh, 94.1%.
8110	Manganese sulphate.....	.....	.....	.....	Contained 33.92% MnO.
9689	Mineral.....	.....	.....	.....	Identified by Dept. of Mineralogy, Yale University, as blast furnace slag.
8286	Molasses waste.....	0.15	0.03	0.40	Analysis on material as submitted. Solids 7.51%. Plant food in a ton worth about \$1.50. CaO 33.25%. MgO none or trace.
9638	Nova Scotia Plaster.....	.....	.....	.....	Moisture 12.00%, ash 39.35%, organic matter 48.65%.
9733	Sheep Manure.....	.....	.....	.....	.....
9049	Soy bean meal.....	7.95	1.43	2.11	.....
9063	Sulphur, dusting.....	.....	.....	.....	All passed 300 mesh.
9064	Sulphur, dusting.....	.....	.....	.....	73% passed 300 mesh.
8043	Tobacco dust.....	1.36	0.05	1.72	Nicotine 0.56%.
8068	Tobacco dust.....	.....	.....	.....	Nicotine 1.62%.
7941	Tobacco leaves, deposit on.	.....	.....	.....	Partly silica. Not completely identified.
7699	Tobacco stems.....	2.21	0.75	5.11	.....
9219	Tobacco stems.....	2.58	0.80	9.66	.....
9491	Volcanic deposit.....	none	trace	trace	Water 0.71%, ash 95.16%, organic and volatile 4.13%.

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