

BULLETIN 290

OCTOBER, 1927

Connecticut Agricultural Experiment Station  
New Haven, Connecticut

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REPORT ON INSPECTION  
OF  
COMMERCIAL FERTILIZERS  
1927

*1 1/2 HP. speed 1800  
3/4 16 W. 1105 phase  
- 125% compound wound  
field rheostat.  
# 22000 -*

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

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**Report on Inspection**  
of  
**Commercial Fertilizers for 1927**

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

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# Report on Inspection of Commercial Fertilizers, 1927

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 and 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 1927.

For 1927, 64 firms and individuals registered at this Station for sale in this State 414 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. 16% Acid Phosphate  
 AAC Tobacco Ash Element  
 AAC Tobacco Starter  
 Acme Fertilizer  
 Aroostook Potato Manure  
 Castor Pomace  
 Complete General Fertilizer  
 Cotton Seed Meal  
 Double A Tobacco Fertilizer  
 Double Manure Salts  
 Dry Ground Fish  
 Fine Ground Bone  
 Gladiator Fertilizer  
 Grass and Lawn Top Dressing  
 Hi-Grade Tobacco Manure  
 Monarch Fertilizer  
 Muriate of Potash  
 Nitrate of Soda  
 Old Hickory Fertilizer  
 Patapsco 5-8-7 Fertilizer  
 Pulverized Sheep and Goat Manure  
 Sulphate of Potash  
 Bowker's All Round Fertilizer  
 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  
 National Aroostook Special Fertilizer  
 National Complete Tobacco Fertilizer  
 National Market Garden Fertilizer  
 National Pine Tree State Potato Fertilizer  
 National Premier Potato Manure  
 Sanderson's 5-8-7 Fertilizer  
 Sanderson's 5-10-5 Fertilizer  
 Sanderson's 3-12-3 Fertilizer  
 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 20-20

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

Acid Phosphate  
 Bone Meal 4-20  
 Bone Meal 3-22  
 Bone & Meat Tankage  
 Carbonate of Potash  
 Castor Pomace  
 Double Sulphate Potash and Magnesia  
 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 7-4-7  
 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 Gardeners Special 4-8-4  
 Liberty Potato and Vegetable 2-8-10  
 Liberty Sheep Manure  
 Liberty Tobacco Special 5-4-5  
 Liberty Top Dresser for Grass and Grain 10-3½-8  
 Muriate Potash  
 Nitrate Soda  
 Nitrate Soda and Potash  
 Precipitated Bone  
 Sulphate Potash  
 Tankage

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

Armour's Big Crop Acid Phosphate 16%  
 Armour's Big Crop Bone Meal 3-48  
 Armour's Big Crop Fertilizer 8-6-6  
 Armour's Big Crop Fertilizer 5-8-7  
 Armour's Big Crop Fertilizer 4-6-10  
 Armour's Big Crop Fertilizer 4-8-7  
 Armour's Big Crop Fertilizer 4-8-4  
 Armour's Big Crop Fertilizer 4-16-4  
 Armour's Big Crop Fertilizer 3-8-4  
 Armour's Big Crop Fertilizer 2-12-4  
 Armour's Big Crop Super Phosphate 20%  
 Armour's Big Crop Tobacco Special 5-4-5  
 Armour's Castor Pomace 5½%  
 Armour's Corn Grower 2-8-2  
 Armour's Cotton Seed Meal 8%  
 Armour's Dried Ground Fish 10%  
 Armour's Ground Tankage 9%  
 Armour's Lawn and Garden Grower 6-8-6  
 Armour's Muriate of Potash 48%  
 Armour's Nitrate of Soda 18%  
 Armour's Sheep Manure 1½-1-2  
 Armour's Sulphate of Potash 48%

**Ashcraft-Wilkinson Company, Atlanta, Ga.**

Helmet Brand  
Monarch Brand  
Paramount Brand

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

Atlantic Grain Fertilizer 2-10-2  
Atlantic Special Vegetable 4-8-4  
Atlantic Tobacco Grower 5-4-5  
Atlantic Tobacco Manure 5-8-6  
Atlantic 5-4-16

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

Castor Pomace

**E. J. Bantle, Glastonbury, Conn.**

Bantle's Wrapper Brand

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

Arcadian Sulphate of Ammonia

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

Bartlett's Green Tree Food

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

Berkshire Acid Phosphate  
Berkshire Castor Pomace  
Berkshire Complete Fertilizer  
Berkshire Complete Tobacco  
Berkshire Dry Ground Fish  
Berkshire Economical Grass Fertilizer  
Berkshire Fine Ground Bone  
Berkshire Grass Special  
Berkshire Long Island Special  
Berkshire Market Garden Fertilizer  
Berkshire Potato and Vegetable Phosphate  
Berkshire Sheep Manure  
Berkshire Starter with 10% Potash  
Berkshire Tobacco Special  
Boardman's Complete Fertilizer  
High Grade Sulphate Potash  
Muriate Potash  
Nitrate of Soda  
Precipitated Bone Phosphate

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

Corn, Onion and Potato and General Purpose  
Special Tobacco Fertilizer

**F. W. Brode Corporaton, Memphis, Tenn.**

Owl Brand 41% Cotton Seed Meal

**A. H. Case & Company, Incorporated, Buffalo, N. Y.**

Case's Brand Pulverized Sheep Manure

**The E. D. Chittenden Company, 1115 Main St., Bridgeport, Conn.**

Chittenden's Acid Phosphate  
Chittenden's Castor Pomace  
Chittenden's Complete Grain  
Chittenden's High Grade Potato 7% Potash  
Chittenden's High Grade Tobacco  
Chittenden's Nitrate of Soda  
Chittenden's Potato Special 4% Potash  
Chittenden's Special Top Dresser  
Chittenden's Tobacco Special  
Chittenden's Tobacco Starter  
Chittenden's Vegetable and Onion Grower  
Fine Ground Bone

**Everett B. Clark Seed Company, Milford, Conn.**

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

**The Conn. Fat Rendering & Fertilizer Corp., New Haven, Conn.  
Tankage****Consolidated Rendering Company, 40 North Market St., Boston, Mass.**

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

**C. A. Cowles, Plantsville, Conn.**

C. A. Cowles 4-8-4 Fertilizer

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

C. & R. Lawn Shrub

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

Davey Shredded Cattle Manure  
Davey Tree Food

**Eastern States Farmers' Exchange, 33 Lyman St., Springfield, Mass.**

Eastern States Acid Phosphate  
Eastern States Fine Bone Meal  
Eastern States High Analysis Fertilizer 8-16-20  
Eastern States High Analysis Fertilizer 10-16-14  
Eastern States High Analysis Fertilizer 8-16-8  
Eastern States High Analysis Fertilizer 4-16-4  
Eastern States Muriate of Potash

Eastern States Nitrate of Soda  
 Eastern States No Filler 3-12-3  
 Eastern States No Filler Fertilizer 4-8-10  
 Eastern States No Filler 5-8-7  
 Eastern States No Filler Fertilizer 5-10-5  
 Eastern States No Filler Fertilizer 8-6-6  
 Eastern States Open Formula A Tobacco Fertilizer  
 Eastern States Sulphate of Ammonia  
 Eastern States Sulphate of Potash

**Ed. Eggert, Hartford, Conn.**

Cotton Seed Hull Ashes

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

Essex A1 Superphosphate 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 Tobacco Grower 5-4-5  
 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

**L. T. Frisbie Co., New Haven, Conn.**

Frisbie's Corn and Grain Fertilizer 2-10-2  
 Frisbie's Fine Bone Meal  
 Frisbie's 5-8-7  
 Frisbie's Market Garden 4-8-7  
 Frisbie's Special 3-8-4  
 Frisbie's Special Vegetable and Grower 4-8-4  
 Frisbie's Tobacco Grower 5-4-5  
 Frisbie's Tobacco Manure 5-8-6  
 Frisbie's Top Dresser 7-6-5  
 Frisbie's 3/50 Bone Meal

**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, 126 State St., Boston, Mass.**

Acid Phosphate  
 Basic Slag  
 Bone Meal  
 Castor Pomace  
 Cottonseed Meal 43%  
 I. A. C. Connecticut Valley Special  
 I. A. C. Crop Grower  
 I. A. C. General Favorite  
 I. A. C. High Grade Manure

I. A. C. Ideal  
 I. A. C. New England Special  
 I. A. C. Nitrate of Soda  
 I. A. C. Tobacco Producer  
 Rainbow Brand Cottonseed Meal  
 Special 4-8-6  
 Sulphate of Potash  
 Tankage

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

Joynt Brand, Wood Ashes

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

Castor Pomace  
 Linseed Meal

**Kuttroff, Pickhardt & Co., Inc., 1150 Broadway, New York City.**

Calcium Nitrate B. A. S. F. (Nitrate of Lime)  
 Urea B. A. S. F. (Floranid)

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

Lowell Animal Brand A High Grade Manure 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 Phosphate 4-8-7  
 Lowell Top Dressing 7-6-5  
 Lowell Tobacco 5-4-5  
 Lowell 8-6-6  
 Lowell 5-10-5  
 Lowell 3-12-3

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

"Lovit Brand" 41%  
 "Lovit Brand" 43%

**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 Tobacco Ash Constituents  
 The Mapes Tobacco Ash and Starter  
 The Mapes Tobacco Manure, Wrapper Brand  
 The Mapes Tobacco Starter Improved  
 The Mapes Top Dresser  
 Pure Fine Ground Bone  
 Nitrate of Soda  
 Sulphate of Potash

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

4-8-4  
5-8-7

**Memphis Cottonseed Products Company, Memphis, Tenn.**

Durham Forty-Three Cottonseed Meal

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

"Sheep's Head" Pulverized Sheep Manure

**R. N. Neal & Company, Memphis, Tenn.**

"Triangle" Brand 41%

**New England Fertilizer Company, 40 A 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 Superphosphate A High Grade Fertilizer For All Crops  
3-8-4  
New England Tobacco Manure 5-4-5  
New England Top Dressing 7-6-5

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

O & W Acid Phosphate  
O & W Castor Pomace  
O & W Complete Market Garden Fertilizer  
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 Compound  
O & W High Grade Tobacco Starter  
O & W High Grade Vegetable and Potato Fertilizer  
O & W Nitrate of Soda  
O & W Precipitated Bone  
O & W Pure Bone Meal  
O & W Tobacco Fertilizer. Blue Label Brand  
High Grade Carbonate of Potash, 96-98  
High Grade Sulphate of Potash

**Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.**

Old Deerfield Castor Pomace  
Old Deerfield 7-4-7  
Old Deerfield 5-8-7

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

Grozit Brand (Pulverized Sheep Manure)

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

"P & P" "AA" Brand 5-8-7  
"P & P" Maine Potato Fertilizer 4-6-10  
"P & P" Plymouth Rock Brand For All Crops 3-8-4  
Parmenter & Polsey Corn and Vegetable 4-8-4

**Piedmont Mt. Airy Guano Co., Baltimore, Md.**

Harvest Brand 16% Acid Phosphate  
 Harvest Brand 2-8-2  
 Harvest Brand 3-8-4  
 Harvest Brand 4-6-10  
 Harvest Brand 4-8-4  
 Harvest Brand 5-8-7  
 Muriate of Potash  
 Nitrate of Soda  
 Piedmont 16% Acid Phosphate  
 Piedmont 4-8-10 Fertilizer  
 Piedmont 5-8-7 Fertilizer  
 Piedmont 8-6-6 Fertilizer  
 Piedmont 4-6-10 Fertilizer  
 Piedmont Plow Brand  
 Piedmont Unexcelled Guano  
 Steam Bone

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

Platco Special 5-8-7

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

Premier Brand Poultry Manure  
 Premier Brand Sheep Manure

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

Wizard Brand Cattle Manure  
 Wizard Brand Pulverized Sheep Manure

**Rackliffe Brothers Company, Inc., New Britain, Conn.**

4-8-4 Rackliffe Brand  
 5-8-7 Rackliffe Brand  
 Nitrate of Soda

**Rocky Mountain Fertilizer Co., Helena, Mont.**

Wonder Grower Pulverized Sheep Manure

**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 "Bone Base" Soluble Corn and General Crops Manure  
 Hubbard's "Bone Base" Soluble Potato Manure  
 Hubbard's "Bone Base" Soluble Tobacco Manure  
 Hubbard's Pure Raw Knuckle Bone Flour  
 Hubbard's Strictly Pure Fine Bone  
 Nitrate of Potash  
 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

**F. S. Royster Guano Company, 602 Citizens Nat'l Bank Bldg., Baltimore, Md.**

Cottonseed Meal  
 Nitrate of Soda  
 Royster's 16% Acid Phosphate  
 Royster's 5% Truck Guano  
 Royster's Gem Guano  
 Royster's Ground Dried Fish Scrap  
 Royster's Pure Raw Bone Meal  
 Royster's Quality Trucker  
 Royster's Rational Guano  
 Royster's Spearhead Guano  
 Royster's Top Dresser  
 Royster's Trucker's Delight  
 Royster's Valley Tobacco Guano  
 Sheep Manure  
 Sulphate of Ammonia  
 Sulphate of Potash

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

"Swift-Sure" Ammoniated Phos Quick Grower 5-8-7  
 "Swift-Sure" Four and Half Bone Meal  
 "Swift-Sure" Tobacco and General Use (Pot. fr. Sulphate) 3-10-3  
 "Swift-Sure" Tobacco Special  
 "Swift-Sure" Tobacco Starter 4-10-0

**Springfield Rendering Co., Springfield, Mass.**

Springfield Animal Brand 3-8-4  
 Springfield Market Garden Grower and Top Dresser 5-8-7  
 Springfield Special Potato, Onion and Vegetable 4-8-4  
 Springfield Tobacco Special 5-4-5  
 Springfield 4-8-7

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

Vigoro

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

16% Acid Phosphate  
 Economy Fertilizer 3-12-3  
 I. P. Thomas 5-8-7  
 Long Island Special 4-8-7  
 Muriate of Potash  
 Nitrate of Soda  
 Pure Ground Bone  
 Tankage  
 Thomas' Fish and Potash Fertilizer 5-8-5  
 Thomas' Tobacco Grower 5-4-5  
 Tip-Top Super-Phosphate 3-10-6  
 Truckers' High Grade Guano 4-8-4  
 Victor Potash Fertilizer 2-8-5  
 7% Guano

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

Acid Phosphate  
 Nitrate of Soda  
 Triton 4-8-4 Fertilizer  
 Triton 4-8-7 Fertilizer



**United States Guano Co., Baltimore, Md.**

Standard United States 3-9-2  
Standard United States 4-8-10  
Standard United States 5-8-5  
Standard United States 16% Acid Phosphate  
Standard United States Bone Meal  
Standard United States Ever Green Fish Guano  
Standard United States Mammoth Potato Grower  
Standard United States Nitrate of Soda  
Standard United States Royal Potato Grower

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

V-C Aroostook Potato Grower  
V-C Fairway Fertilizer  
V-C XXXX Fish and Potash

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

Acid Phosphate  
Ground Blood and Meat Tankage  
Ground Steamed Bone  
Nitrate of Soda, containing Potash  
Wilcox Corn Special  
Wilcox Dry Ground Fish  
Wilcox General Vegetable Phosphate  
Wilcox High Grade Fish and Potash  
Wilcox Potato Fertilizer  
Wilcox Special 4-8-4 Fertilizer  
Wilcox 7-6-5 Top Dresser

**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

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

"Toro" Brand of Sheep Manure  
Woodruff's Home Mixed Fertilizer

**Wm. P. Young & Son, 22-24 High St., Pottstown, Pa.**

Young's Formula A Complete Fertilizer

## INSPECTION OF 1927.

During the past season the Station agent has visited 95 towns and villages in the State and has drawn 507 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 1927.

	Number of Samples	Page
<i>I. Containing Nitrogen as the chief active ingredient.</i>		
Nitrate of Soda .....	31	18
Sulphate of Ammonia .....	8	18
Urea .....	1	21
Calcium Nitrate .....	2	21
Castor Pomace .....	74	22
Cottonseed Meal .....	174	27
Linseed Meal .....	8	27
<i>II. Containing Phosphoric Acid as the chief active ingredient:</i>		
Precipitated Bone Phosphate .....	8	35
Superphosphate (Acid Phosphate) .....	22	37
<i>III. Containing Potash as the chief ingredient:</i>		
Carbonate of Potash .....	11	40
Muriate of Potash .....	9	40
Sulphate of Potash .....	22	41
Sulphate of Potash-Magnesia .....	2	41
Cotton Hull Ashes .....	12	41
Wood Ashes .....	14	41
<i>IV. Containing Nitrogen and Potash:</i>		
Nitrate of Potash and Soda .....	3	47
Nitrate of Potash .....	2	47
<i>V. Containing Nitrogen and Phosphoric Acid:</i>		
Dry Ground Fish .....	34	48
Tankage .....	8	52
Ground Bone .....	37	52
<i>VI. Mixed Fertilizer:</i>		
Containing Nitrogen and Phosphoric Acid .....	5	57
Containing Phosphoric Acid and Potash .....	1	57
Containing Nitrogen, Phosphoric Acid and Potash .....	243	57
Special and Home Mixtures .....	39	78
<i>VII. Miscellaneous fertilizers, amendments, waste products, etc.:</i>		
Sheep Manure, etc. ....	17	78
Lime, etc. ....	21	78
Miscellaneous, including check meals and fertilizers .....	76	86
Total .....	884	

## I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN.

### NITRATE OF SODA.

Commercial grades of nitrate of soda contain from 91 to 97 per cent of sodium nitrate, equivalent to from 15 to 16 per cent of nitrogen or 18.2 to 19.5 per cent of ammonia. The salt may contain also small amounts (2 to 3 per cent), of potassium and magnesium chlorides, sodium sulphate and sodium iodide.

Thirty-one samples were analyzed and all met or exceeded guaranties so far as guaranties were given. Seventeen were sampled by the Station agent and the remainder were sampled by purchasers.

The average nitrogen content is 15.52 per cent. Prices quoted ranged from \$63.00 to \$80.00, the average being about \$68.00. Nitrogen from this source has cost about 21.9 cents per pound.

Analyses are given in Table I.

### SULPHATE OF AMMONIA.

Ammonium sulphate is chiefly obtained as a by-product in the manufacture of coke and illuminating gas. Commercial grades of this material contain about 20.5 per cent of nitrogen, which is equivalent to 25 per cent of ammonia. It also may contain from  $\frac{1}{2}$  to 2 per cent of moisture and a little free sulphuric acid (0.1 to 0.3 per cent).

Arcadian sulphate of ammonia is specially dried and screened to remove lumps and to insure good distribution when applied. It contains less than  $\frac{1}{2}$  of 1 per cent of moisture and is usually guaranteed to contain 20.75 per cent of nitrogen.

Eight samples were analyzed and all exceeded 20.5 per cent of nitrogen, the average being 20.67 per cent. Only one ton price was quoted, viz., \$69.00, at which the cost of nitrogen is about 16.7 cents per pound.

Analyses are given in Table II.

TABLE I. ANALYSES OF NITRATE OF SODA.

Station No.	Manufacturer or Jobber,	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
6613	American Agricultural Chemical Co., New York . . . . .	Station agent. Stock of F. S. Bidwell Co., Windsor Locks. . . . .	15.26	15.22
6623	American Agricultural Chemical Co., New York . . . . .	J. C. Dufford, Glastonbury . . . . .	15.40	15.22
6291	Apothecaries Hall Co., Waterbury, Conn. . . . .	Hatheway & Steane, Inc., Hartford . . . . .	15.38	14.80
6338	Apothecaries Hall Co., Waterbury, Conn. . . . .	Hatheway & Steane, Inc., Hartford . . . . .	15.42	14.80
6371	Apothecaries Hall Co., Waterbury, Conn. . . . .	Hatheway & Steane, Inc., Hartford . . . . .	15.66	14.80
6377	Apothecaries Hall Co., Waterbury, Conn. . . . .	Hatheway & Steane, Inc., Hartford . . . . .	15.66	14.80
6611	Apothecaries Hall Co., Waterbury, Conn. . . . .	Station agent. Stock of R. W. Hine, Cheshire. . . . .	15.42	14.80
7144	Apothecaries Hall Co., Waterbury, Conn. . . . .	A. N. Shepard & Son, Hartford . . . . .	15.56	14.80
6699	Armour Fertilizer Works, New York . . . . .	Station agent. F. A. Bartlett Tree Expert Co., Stamford . . . . .	15.68	14.81
6637	Berkshire Chemical Co., Bridgeport . . . . .	Station agent at factory . . . . .	15.50	15.00
7221	E. D. Chittenden Co., Bridgeport . . . . .	Station agent. Stock of Fred Schlichting, Broad Brook . . . . .	15.42	15.00
6701	E. B. Clark Seed Co., Milford . . . . .	Station agent at factory . . . . .	15.38	15.00
6633	Consolidated Rendering Co., Boston, Mass. . . . .	Station agent. Stock of Frank Libner & Son, Norwalk . . . . .	15.62	15.22
6957	Consolidated Rendering Co., Boston, Mass. . . . .	Daigle Bros., Marion . . . . .	15.32	15.22
6704	Eastern States Farmer's Exchange, Springfield, Mass. . . . .	Station agent. Stock of Stephen Hoyt's Sons, New Canaan . . . . .	15.44	14.80
5731	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield . . . . .	15.60	....
5732	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield . . . . .	15.56	....
5733	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield . . . . .	15.34	....
5734	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield . . . . .	15.60	....
6878	International Agricultural Corp., Boston, Mass. . . . .	Station agent. Stock of Willimantic Grain Co., Willimantic . . . . .	15.92	15.00
6657	Mapes Formula & Peruvian Guano Co., New York . . . . .	Station agent. Stock of Mapes Branch, Hartford . . . . .	15.34	14.81
6676	Olds & Whipple Inc., Hartford	Station agent. Stock of Silberman & Kahn, Hartford . . . . .	15.22	15.00
7530	Olds & Whipple Inc., Hartford	John M. Herr, Burnside . . . . .	15.64	15.00
7184	Piedmont Mt. Airy Guano Co., Baltimore, Md. . . . .	Station agent. Stock of Fred H. Rolf, Inc., Guilford . . . . .	15.42	15.00

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

Station No.	Manufacturer or Jobber,	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
7177	Rackliffe Bros., Co., New Britain	Station agent at factory	15.64	15.00
6845	F. S. Royster Guano Co., Baltimore, Md.	Station agent. Stock of Geo. S. Phelps & Co., Thompsonville.	15.38	15.00
6749	I. P. Thomas & Son Co., Philadelphia, Pa.	Station agent. Stock of F. C. Morse & Son, Guilford	15.54	15.00
6922	Triton Oil & Fertilizer Co., New York	Station agent. Stock of Red Wing Feed & Lumber Co., Colchester.	15.38	14.80
7353	United States Guano Co., Baltimore, Md.	Station agent. Stock of E. O. Chapman, North Haven	16.70	15.00
6138	Wessel Duval Co.	Conn. Sumatra Tobacco Co., Buckland	15.32	....
6139	Wessel Duval Co.	Conn. Sumatra Tobacco Co., Buckland	15.54	....

TABLE II. ANALYSES OF SULPHATE OF AMMONIA

Station No.	Manufacturer or Jobber,	Purchased, Sampled or Sent by	Per cent Nitrogen.	
			Found.	Guaranteed.
6642	The Barrett Company, New York	Station agent. Stock of Berkshire Chemical Co., Bridgeport	20.86	20.75
7140	The Barrett Company, New York	A. N. Shepard & Son, Hartford	20.54	20.75
6956	Consolidated Rendering Co., Boston	Daigle Bros., Marion	20.58	20.50
6635	Consolidated Rendering Co., Boston	Station agent. Stock of L. T. Frisbie Co., New Haven	20.54	20.50
7470	Consolidated Rendering Co., Boston	Station agent. Stock of G. S. Jennings, Southport	20.60	20.50
6702	Eastern States Farmers' Exchange, Springfield, Mass.	Station agent. Stock of Stephen Hoyt's Sons, New Canaan	20.52	20.55
7098	Ford Motor Co., Detroit, Mich.	Manufacturer's sample	21.00	20.80
7181	F. S. Royster Guano Co., Baltimore, Md.	Station agent. Stock of W. S. Brown, Trumbull	20.74	20.56

## UREA.

Urea is one of the newer ammoniates and is made synthetically in Europe on a considerable scale. It is a white crystalline substance and the grade offered for fertilizer purposes contains about 45 per cent of nitrogen equivalent to 55 per cent of ammonia. In a pure state urea contains 46.65 per cent of nitrogen.

One sample, **6904**, was analyzed. It was taken by the Station agent from stock of Olds and Whipple, Hartford, the American agents being Kuttroff, Pickhardt and Co., Inc., New York. The salt was guaranteed to contain 46 per cent of nitrogen, equivalent to 55.9 per cent of ammonia, and was found to contain 46.08 per cent of nitrogen equivalent to 55.94 per cent ammonia.

Urea leaves no residue in the soil and it said to equal nitrate of soda in availability. Many tests are being made in this and other States to determine the value of this material for fertilizer purposes.

## NITRATE OF LIME.

Nitrate of lime or calcium nitrate is produced by combining lime or limestone with nitric acid. It is produced in large quantities in Europe, where atmospheric nitrogen is utilized for the production of nitric acid.

The salt absorbs moisture to such an extent that it is shipped in drums or in paper-lined bags. The grade offered for fertilizer purposes contains about 15.5 per cent of nitrogen equivalent to 18.8 per cent of ammonia. The lime (CaO), content is about 30 per cent.

Two samples were examined.

**5836.** Purchased by the Station for experimental purposes. It contained 15.52 per cent of nitrogen equivalent to 18.87 per cent of ammonia.

**6903.** Sampled from stock of Olds and Whipple, Hartford; jobbers, Kuttroff, Pickhardt and Co., Inc., New York. The nitrogen found was 15.26 per cent, equivalent to 18.55 per cent ammonia. It was sold under a guaranty of 15 per cent nitrogen, 18.2 per cent ammonia.

## CASTOR POMACE.

Castor pomace is the ground residue left after the removal of oil from the castor bean. It should be stored out of reach of farm animals, as it is very poisonous. The material is chiefly valuable as a source of nitrogen, although, like other vegetable ammoniates, cottonseed meal and linseed meal, it contains small amounts of phosphoric acid and potash.

Seventy-four samples have been analyzed. Fifteen were taken officially by the Station agent and the remainder were sampled and submitted by the purchasers.

The material was found to be of very satisfactory quality, only four samples showing less than the guaranteed amount of nitrogen, and these deficiencies did not exceed  $\frac{1}{4}$  of 1 per cent. These goods are generally sold on a guaranty of 4.5 per cent of nitrogen, and the average nitrogen for all the samples examined is 4.80 per cent.

Prices quoted have ranged from \$21.50 to \$30.00 per ton, which makes the cost of nitrogen about 24 cents per pound.

Analyses are given in Table III.

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>			
6684	.....	Station agent, from stock of Frank Seeman, Milford.....	4.36	4.53
6945	.....	Station agent, from stock of T. J. Barrisford, West Suffield.....	4.64	4.53
7397	.....	Station agent, from stock of Frank Seeman, Milford.....	4.54	4.53
	<b>Apothecaries Hall Co., Waterbury, Conn.</b>			
6621	.....	Station agent, from factory.....	4.50	4.52
6165	Car No. 79553.....	Hatheway & Steane, Inc., Hart- ford.....	4.52	4.52
6341	Car No. 36425.....	Hatheway & Steane, Inc., Hart- ford.....	5.09	4.52
6366	Car No. 20094.....	Hatheway & Steane, Inc., Hart- ford.....	4.63	4.52
6367	Car No. 17835.....	Hatheway & Steane, Inc., Hart- ford.....	4.99	4.52
6370	Car No. 17786.....	Hatheway & Steane, Inc., Hart- ford.....	5.21	4.52
6872	Car No. 17776.....	Hatheway & Steane, Inc., Hart- ford.....	5.50	4.52
7145	Car No. N. H. 73843.....	A. N. Shepard & Sons, Hartford..	5.28	4.52
	<b>Armour Fertilizer Works, New York City.</b>			
6825	.....	Station agent, from stock of Geo. S. Phelps & Co., Thompsonville	5.00	4.52
	<b>Baker Castor Oil Co., New York City.</b>			
5526	Car No. 10534.....	American Sumatra Tobacco Co., Bloomfield.....	4.76	4.50
5527	Car No. 215961.....	American Sumatra Tobacco Co., Bloomfield.....	4.84	4.50
5528	Car No. 16446.....	American Sumatra Tobacco Co., Bloomfield.....	4.77	4.50
5529	Car No. 27497.....	American Sumatra Tobacco Co., Bloomfield.....	4.54	4.50
5530	Car No. 39553.....	American Sumatra Tobacco Co., Bloomfield.....	4.78	4.50
5612	Car No. 33449.....	American Sumatra Tobacco Co., Bloomfield.....	4.67	4.50



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>Baker Castor Oil Co., New York City</b>			
5613	Car No. 517497.....	American Sumatra Tobacco Co., Bloomfield.....	4.74	4.50
5614	Car No. 75043.....	American Sumatra Tobacco Co., Bloomfield.....	4.60	4.50
5869	Car No. 597157.....	American Sumatra Tobacco Co., Bloomfield.....	4.82	4.50
5949	Car No. 531097.....	American Sumatra Tobacco Co., Bloomfield.....	4.71	4.50
5950	Car No. 86131.....	American Sumatra Tobacco Co., Bloomfield.....	4.83	4.50
5951	Car No. 17021.....	American Sumatra Tobacco Co., Bloomfield.....	4.49	4.50
6036	Car No. 290232.....	American Sumatra Tobacco Co., Bloomfield.....	4.81	4.50
6037	Car No. 90385.....	American Sumatra Tobacco Co., Bloomfield.....	4.68	4.50
6038	Car No. 510771.....	American Sumatra Tobacco Co., Bloomfield.....	4.82	4.50
6075	Car No. 35119.....	American Sumatra Tobacco Co., Bloomfield.....	4.89	4.50
6213	Car No. 559133.....	American Sumatra Tobacco Co., Bloomfield.....	5.74	4.50
6214	Car No. 568368.....	American Sumatra Tobacco Co., Bloomfield.....	5.08	4.50
6215	Car No. 95103.....	American Sumatra Tobacco Co., Bloomfield.....	5.34	4.50
6216	Car No. 23648.....	American Sumatra Tobacco Co., Bloomfield.....	5.57	4.50
6217	Car No. 76281.....	American Sumatra Tobacco Co., Bloomfield.....	5.16	4.50
6220	Car No. 33987.....	American Sumatra Tobacco Co., Bloomfield.....	4.65	4.50
6240	Car No. 560608.....	American Sumatra Tobacco Co., Bloomfield.....	5.34	4.50
6950	Car No. 35119.....	American Sumatra Tobacco Co., Bloomfield.....	4.88	4.50
6678	.....	Station agent, from stock of Sil- berman & Kahn, Hartford.....	4.42	4.50
7344	.....	Station agent, from stock of Rogers & Hubbard, Portland.....	4.96	4.50
7389	.....	J. E. Phelps, Suffield.....	4.51	4.50

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>Berkshire Chemical Co., Bridgeport, Conn.</b>			
5609	.....	E. N. & C. C. Austin, Suffield....	4.86	4.52
6105	.....	L. B. Haas & Co., Hartford....	4.50	4.52
6140	Car No. 35351.....	Conn. Sumatra Tobacco Co., Buckland.....	4.43	4.52
6141	Car No. 35351.....	Conn. Sumatra Tobacco Co., Buckland.....	4.55	4.52
6148	Car Nos. 72453 and 62697...	Conn. Sumatra Tobacco Co., Buckland.....	4.50	4.52
6149	Car Nos. 72453 and 62697...	Conn. Sumatra Tobacco Co., Buckland.....	4.58	4.52
6150	Car Nos. 72453 and 62697...	Conn. Sumatra Tobacco Co., Buckland.....	4.25	4.52
6151	Car Nos. 72453 and 62697...	Conn. Sumatra Tobacco Co., Buckland.....	4.34	4.52
6158	Car No. 80193.....	Conn. Sumatra Tobacco Co., Buckland.....	4.40	4.52
6159	Car No. 80193.....	Conn. Sumatra Tobacco Co., Buckland.....	4.70	4.52
6294	Car No. 23331.....	Hatheway & Steane Inc., Hart- ford.....	4.49	4.52
6334	.....	Station agent, from stock of L. B. Haas & Co., Hartford.....	4.57	4.52
6602	.....	Charles A. Huntington, Windsor..	4.21	4.52
6865	Car No. N. Y. 84948.....	Spencer Bros., Inc., Suffield.....	4.66	4.52
6974	.....	W. S. Pinney, Suffield.....	4.61	4.52
7169	.....	George F. King, Suffield.....	4.28	4.52
7345	.....	Station agent, from stock of E. N. Austin, Suffield.....	4.86	4.52
7390	.....	Station agent, from stock of T. W. Ryan, Stratford.....	4.94	4.52
	<b>E. D. Chittenden Co., Bridgeport, Conn.</b>			
7222	.....	Station agent, from stock of P. F. Chamberlain, Broad Brook....	4.54	4.50
	<b>Consolidated Rendering Co., Boston, Mass.</b>			
7155	.....	Station agent, from stock of Fred Getto, Glastonbury.....	4.92	4.52
7497	.....	Station agent, from stock of Arthur Manning, Manchester..	4.52	4.52

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

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	<b>Old Deerfield Fertz. Co., Inc., South Deerfield, Mass.</b>			
6352	.....	The Allied Tobacco Co., Hartford.	4.83	4.52
6496	Car No. 231910.....	The Allied Tobacco Co., Hartford.	5.14	4.52
6497	Car No. 226655, N. Y. C.....	The Allied Tobacco Co., Hartford.	5.30	4.52
6556	Car No. 247357.....	The Allied Tobacco Co., Hartford.	4.45	4.52
	<b>Olds &amp; Whipple, Inc., Hartford, Conn.</b>			
6695	.....	Station agent, from factory.....	4.74	.....
7031	.....	Station agent at factory.....	5.22	5.00
7531	.....	John M. Herr, Burnside.....	5.13	5.00
7041	Thum No. 1.....	Henry E. Wells, Warehouse Point.	5.45	5.00
7042	Thum No. 2.....	Henry E. Wells, Warehouse Point.	5.12	5.00
	<b>The Rogers &amp; Hubbard Co., Portland, Conn.</b>			
7170	.....	George F. King, Suffield.....	5.31	.....
	<b>Silberman &amp; Kahn, Hartford, Conn.</b>			
5902	Car No. 13763.....	American Sumatra Tobacco Co., Bloomfield.....	5.03	.....
	<b>Manufacturer Unknown</b>			
7029	.....	Marcus Floyd, Hartford.....	4.52	.....
7512	.....	Joe Pavano, Plainville.....	5.02	.....
6333	.....	Truman H. Hale, Gildersleeve....	4.64	.....

## COTTONSEED MEAL.

The quality of cottonseed meal purchased for fertilizer during the year is shown by the following summary:

Grade.	No. of samples	Average nitrogen per cent	Average nitrogen, per cent, in		
			1926	1925	1924
36 per cent protein (5.76 N.).....	12	5.78	5.84	5.87	5.79
41 per cent protein (6.58 N.).....	88	6.56	6.60	6.65	6.76
43 per cent protein (6.88 N.).....	31	7.05	6.78	6.87	7.02
No guaranty reported .....	43	6.64	...	...	...
Total .....	174	6.61	...	...	...

Of one hundred and thirty-one samples for which guaranties were given, one hundred and nine substantially equalled or exceeded their guaranties and twenty-two did not.

As for several years past, most of the samples were of the 41 per cent protein grade.

The 43 per cent grade of meal was the only one of the three grades to show any substantial overrun in nitrogen.

In the last four years the nitrogen content of the three grades of meal has remained fairly uniform; however, the 41 per cent grade has shown a slight but constant decrease.

The average nitrogen content of all samples is 6.61 per cent, which is a 41 per cent protein grade.

So far as ton price quotations are available the range has been from \$33.50 to \$45.00; the average, based on 67 quotations, is \$37.00. The cost per pound of nitrogen is 27.8 cents, which is the lowest in several years.

Analyses are given in Table IV.

## LINSEED MEAL.

Eight samples of linseed meal were analyzed and all were of good quality. The average nitrogen content is 5.75 per cent. The average of seven price quotations is \$47.00 and the cost of nitrogen from this source has been about 41 cents per pound.

Analyses are given in Table IV.

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>Cottonseed Meal</b>		
7475	American Agricultural Chem- ical Co., New York	Station agent at factory, West Haven.....	7.05	6.58
	<b>Armour Fertilizer Works, New York.</b>			
6881	Armour's 8%.....	Station agent, from stock of Jacob Bantly, Glastonbury.....	6.65	6.58
7495	Armour's 8%.....	Nicholas Schug, Burnside.....	6.62	6.58
	<b>Ashcraft-Wilkinson Co., Atlanta, Ga.</b>			
5531	Car No. 22204.....	American Sumatra Tobacco Co., Bloomfield.....	6.95	....
5616	Car No. 48134.....	American Sumatra Tobacco Co., Bloomfield.....	6.81	....
5026	Paramount, Car No. A. C. L., 35862.....	The Coles Company, Middletown.	5.14	5.76
6152	No. 15, Car Nos. 89224-71886- 81058, (Schumacher Oil Works).....	Conn. Sumatra Tobacco Co., Buckland.....	7.21	....
6153	No. 16, Car Nos. 89224-71886- 81058, (Schumacher Oil Works).....	Conn. Sumatra Tobacco Co., Buckland.....	6.98	....
6154	No. 17, Car Nos. 89224-71886- 81058, (Schumacher Oil Works).....	Conn. Sumatra Tobacco Co., Buckland.....	7.24	....
6155	No. 18, Car Nos. 89224-71886- 81058, (Schumacher Oil Works).....	Conn. Sumatra Tobacco Co., Buckland.....	7.18	....
6156	No. 19, Car Nos. 89224-71886- 81058, (Schumacher Oil Works).....	Conn. Sumatra Tobacco Co., Buckland.....	7.61	....
6157	No. 20, Car Nos. 89224-71886- 81058, (Schumacher Oil Works).....	Conn. Sumatra Tobacco Co., Buckland.....	6.75	....
6144	No. 7, Car No. 75212, (So. Texas Cotton Oil Co.).....	Conn. Sumatra Tobacco Co., Buckland.....	6.95	....
6145	No. 8, Car No. 75212, (So. Texas Cotton Oil Co.).....	Conn. Sumatra Tobacco Co., Buckland.....	7.00	....
6146	No. 9, Car No. 75212, (So. Texas Cotton Oil Co.).....	Conn. Sumatra Tobacco Co., Buckland.....	6.76	....
6147	No. 10, Car No. 75212, (So. Texas Cotton Oil Co.).....	Conn. Sumatra Tobacco Co., Buckland.....	7.24	....
5977	Car No. 76128.....	L. B. Haas & Co., Inc., Hartford..	7.62	....

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>Ashcraft-Wilkinson Co., Atlanta, Ga.</b>	<b>Cottonseed Meal.</b>		
6544	Helmet, Lot 1.....	E. G. Hastings, Suffield.....	6.77	6.58
6545	Helmet, Lot 2.....	E. G. Hastings, Suffield.....	6.72	6.58
6856	Monarch, Car No. A. C. L. 47316	Spencer Bros., Suffield.....	7.05	6.88
6860	Monarch, Car No. A. C. L. 48532	Spencer Bros., Suffield.....	7.11	6.88
7111	Helmet, Car No. S. A. L. 85058	Spencer Bros., Suffield.....	5.74	6.58
7112	Helmet, Car No. N. S. 4233...	Spencer Bros., Suffield.....	6.05	6.58
7113	Paramount, Car No. Ga. 19026	Spencer Bros., Suffield.....	5.89	5.76
7115	Paramount, Car No. Ga. 7795.	Spencer Bros., Suffield.....	5.84	5.76
7116	Paramount, Car No. Ga. 18586	Spencer Bros., Suffield.....	5.98	5.76
7117	Helmet, Car No. A. C. L. 38286	Spencer Bros., Suffield.....	6.81	6.58
7120	Helmet, Car No. N. S. 20923..	Spencer Bros., Inc., Suffield.....	6.59	6.58
7121	Helmet, Car No. N. S. 4358...	Spencer Bros., Inc., Suffield.....	6.32	6.58
7198	Paramount, Car No. A. C. L. 35483.....	Spencer Bros., Inc., Suffield.....	5.88	5.76
7199	Paramount, Car No. S. A. L. 10918.....	Spencer Bros., Inc., Suffield.....	5.73	5.76
7200	Paramount, Car No. S. L. S. F. 127137.....	Spencer Bros., Inc., Suffield.....	5.58	5.76
5911	Monarch, Car No. M. C. 35205	Steane, Hartman & Co., Hartford.	7.59	6.88
5912	Monarch, Car No. N. Y. N. H. & H. 86622.....	Steane, Hartman & Co., Hartford.	7.50	6.88
5952	Monarch, Car No. N. Y. N. H. & H. 89889.....	Steane, Hartman & Co., Hartford.	7.50	6.88
5953	Monarch, Car No. P. R. R. 19644.....	Steane, Hartman & Co., Hartford.	7.67	6.88
7401	Paramount.....	Station agent, from stock of John Sullivan & Son, Thompsonville.	5.88	5.76
5954	Monarch, Car No. M. C. 8829	Oliver J. Thrall, Windsor.....	7.74	6.88
5955	Monarch, Car No. N. H. 80382	Oliver J. Thrall, Windsor.....	7.70	6.88
5956	Monarch, Car No. H. & T. C. 84975.....	Oliver J. Thrall, Windsor.....	7.69	6.88
5957	Monarch, Car No. N. H. 74649	Oliver J. Thrall, Windsor.....	7.57	6.88
	<b>The Berg Company, Philadelphia, Pa.</b>			
7432	.....	The Conn. Sumatra Tobacco Co., Buckland.....	6.65	.....
	<b>F. W. Brode Corp., Memphis, Tenn.</b>			
7087	Owl Brand.....	Station agent, from stock of Jos. Rostek, Jr., Melrose.....	6.70	6.56
7101	Owl Brand.....	Station agent, from stock of L. P. M. Hickey, East Hartford.....	6.57	6.56

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>F. W. Brode Corp., Memphis, Tenn.</b>	<b>Cottonseed Meal.</b>		
7171	Owl Brand.....	Geo. S. Phelps & Co., Thompson- ville.....	6.53	6.56
7172	Owl Brand, Car No. P. & O. 195770.....	Geo. S. Phelps & Co., Thompson- ville.....	6.72	6.56
7247	Owl Brand, No. 1.....	A. L. Koster, West Hartford.....	6.60	6.56
7248	Owl Brand, No. 2.....	A. L. Koster, West Hartford.....	6.68	6.56
7249	Owl Brand, No. 3.....	A. L. Koster, West Hartford.....	6.91	6.56
7341	Owl Brand.....	Station agent, from stock of E. N. Austin, Suffield.....	6.80	6.56
	<b>Humphreys-Godwin Co., Memphis, Tenn.</b>			
5813	Car No. 31497.....	American Sumatra Tobacco Co., Bloomfield.....	6.38	....
5814	Car No. 55077.....	American Sumatra Tobacco Co., Bloomfield.....	7.85	....
5615	Car No. 77630.....	American Sumatra Tobacco Co., Bloomfield.....	6.79	....
5227	Dixie Brand, Car No. 31227..	American Sumatra Tobacco Co., Bloomfield.....	6.44	6.58
5728	Dixie Brand, Car No. 25778..	American Sumatra Tobacco Co., Bloomfield.....	6.60	6.58
5729	Dixie Brand, Car No. 83936..	American Sumatra Tobacco Co., Bloomfield.....	6.20	6.58
5730	Dixie Brand, Car No. 25491..	American Sumatra Tobacco Co., Bloomfield.....	6.58	6.58
5765	Dixie Brand, Car No. 58366..	American Sumatra Tobacco Co., Bloomfield.....	6.49	6.58
5766	Dixie Brand, Car No. 84201..	American Sumatra Tobacco Co., Bloomfield.....	6.82	6.58
5767	Dixie Brand, Car No. 85717..	American Sumatra Tobacco Co., Bloomfield.....	6.34	6.58
5768	Dixie Brand, Car No. 56629..	American Sumatra Tobacco Co., Bloomfield.....	6.50	6.58
5770	Dixie Brand, Car No. 72137..	American Sumatra Tobacco Co., Bloomfield.....	6.50	6.58
5771	Dixie Brand, Car No. 80162..	American Sumatra Tobacco Co., Bloomfield.....	6.55	6.58
5772	Dixie Brand, Car No. 17706..	American Sumatra Tobacco Co., Bloomfield.....	6.27	6.58
5773	Dixie Brand, Car No. 87848..	American Sumatra Tobacco Co., Bloomfield.....	6.60	6.58
5774	Dixie Brand, Car No. 7367..	American Sumatra Tobacco Co., Bloomfield.....	6.46	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>Humphreys-Godwin Co., Memphis, Tenn.</b>	<b>Cottonseed Meal.</b>		
5775	Dixie Brand, Car No. 55588 ..	American Sumatra Tobacco Co., Bloomfield .....	6.47	6.58
5776	Dixie Brand, Car No. 4869 ...	American Sumatra Tobacco Co., Bloomfield .....	6.45	6.58
5777	Dixie Brand, Car No. 28254 ..	American Sumatra Tobacco Co., Bloomfield .....	6.82	6.58
5778	Dixie Brand, Car No. 50752 ..	American Sumatra Tobacco Co., Bloomfield .....	6.49	6.58
6949	Car No. 40100 .....	American Sumatra Tobacco Co., Bloomfield .....	6.62	....
6222	Dixie Brand, Car No. P. McK & Y 80227 .....	L. B. Haas & Co., Inc., Hartford ..	6.58	6.58
7166	Dixie Brand, Car No. C & N. W. 47160 .....	L. B. Haas & Co., Inc., Hartford ..	6.31	6.58
6167	Car No. 167624 .....	Hatheway & Steane, Inc., Hartford	6.30	....
6168	Car No. 164639 .....	Hatheway & Steane, Inc., Hartford	6.11	....
6169	Car No. 170897 .....	Hatheway & Steane, Inc., Hartford	6.69	....
6170	Car No. 57015 .....	Hatheway & Steane, Inc., Hartford	6.36	....
6171	Car No. 248430 .....	Hatheway & Steane, Inc., Hartford	6.71	....
6172	Car No. 159489 .....	Hatheway & Steane, Inc., Hartford	6.66	....
6173	Car No. 10561 .....	Hatheway & Steane, Inc., Hartford	6.60	....
6292	Car No. 15846 .....	Hatheway & Steane, Inc., Hartford	6.34	....
6296	Car No. 226504 .....	Hatheway & Steane, Inc., Hartford	6.65	....
6297	Car No. 82078 .....	Hatheway & Steane, Inc., Hartford	6.69	....
6375	Dixie Brand, Car No. 709598 .	Hatheway & Steane, Inc., Hartford	6.64	6.58
6870	Dixie Brand, Car No. 56341 ..	Hatheway & Steane, Inc., Hartford	6.33	6.58
7136	Dixie Brand .....	A. N. Shepard & Son, Hartford ...	6.66	6.58
7137	Dixie Brand .....	A. N. Shepard & Son, Hartford ...	6.66	6.58
6679	Dixie Brand .....	Station agent, from stock of Sil- berman & Kahn, Hartford .....	6.48	6.58
6660	Bull Brand .....	Station agent, from stock of Spencer Bros., Inc., Suffield .....	6.99	6.88
6852	Bull Brand, Car Southern 409401 .....	Spencer Bros., Inc., Suffield .....	6.93	6.88
6853	Bull Brand, Car Southern 150389 .....	Spencer Bros., Inc., Suffield .....	6.97	6.88
6854	Bull Brand, S. F. 14526 .....	Spencer Bros., Inc., Suffield .....	6.76	6.88
6855	Bull Brand, I. C. 330213 .....	Spencer Bros., Inc., Suffield .....	6.88	6.88
6858	Bull Brand, C. B. & Q. 131837.	Spencer Bros., Inc., Suffield .....	6.93	6.88
6861	Bull Brand, I. C. 340615 .....	Spencer Bros., Inc., Suffield .....	7.02	6.88
6862	Bull Brand, I. C. 342716 .....	Spencer Bros., Inc., Suffield .....	6.89	6.88
6863	M. C. 98467 .....	Spencer Bros., Inc., Suffield .....	6.82	6.88
6864	Bull Brand, Southern 253511 .	Spencer Bros., Inc., Suffield .....	6.91	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>Humphreys-Godwin Co., Memphis, Tenn.</b>	<b>Cottonseed Meal.</b>		
7105	Dixie Brand, Car No. I. C. 156222	Spencer Bros., Inc., Suffield	6.40	6.58
7106	Dixie Brand, Car No. M. C. 52571	Spencer Bros., Inc., Suffield	6.64	6.58
7107	Dixie Brand, Car No. M. C. 99982	Spencer Bros., Inc., Suffield	6.40	6.58
7108	Dixie Brand, Car No. I. C. 155718	Spencer Bros., Inc., Suffield	6.38	6.58
7109	Dixie Brand, Car No. I. C. 247162	Spencer Bros., Inc., Suffield	6.67	6.58
7110	Dixie Brand, Car No. Ga. 51411	Spencer Bros., Inc., Suffield	6.55	6.58
7114	Dixie Brand, Car No. A. C. L. 17546	Spencer Bros., Inc., Suffield	6.67	6.58
7118	Bull Brand, Car No. I. C. 223252	Spencer Bros., Inc., Suffield	6.77	6.88
7119	Dixie Brand, Car No. So. 164943	Spencer Bros., Inc., Suffield	6.74	6.58
7122	Dixie Brand, Car No. Ga. 55952	Spencer Bros., Inc., Suffield	6.47	6.58
7123	Dixie Brand, Car No. I. C. 247864	Spencer Bros., Inc., Suffield	6.48	6.58
7124	Dixie Brand, Car No. P. & E. 3560	Spencer Bros., Inc., Suffield	6.60	6.58
7201	Dixie Brand, Car No. N. Y. C. 245186	Spencer Bros., Inc., Suffield	6.65	6.58
6101	Dixie Brand, Car No. P. & L. C. 45772	Steane, Hartman & Co., Hartford	6.52	6.58
6102	Dixie Brand, Car No. C. C. C. & St. L. 54234	Steane, Hartman & Co., Hartford	6.64	6.58
6103	Dixie Brand, Car No. P. & C. 33168	Steane, Hartman & Co., Hartford	6.42	6.58
6329	Dixie Brand, Car No. A. C. L. 29639	Steane, Hartman & Co., Hartford	6.79	6.58
6330	Dixie Brand, Car No. A. C. L. 43009	Steane, Hartman & Co., Hartford	6.61	6.58
6331	Dixie Brand, Car No. C. C. C. & St. L. 45262	Steane, Hartman & Co., Hartford	6.66	6.58
7013	Dixie Brand, Car No. 19058	L. Wetstone & Sons, Inc., Hartford	6.48	6.58
7014	Dixie Brand, Car No. 21413	L. Wetstone & Sons, Inc., Hartford	6.75	6.58
7015	Dixie Brand, Car No. 42832	L. Wetstone & Sons, Inc., Hartford	6.39	6.58
7016	Dixie Brand, Car No. 31042	L. Wetstone & Sons, Inc., Hartford	6.68	6.58
7017	Dixie Brand, Car No. 84717	L. Wetstone & Sons, Inc., Hartford	6.77	6.58
7018	Dixie Brand, Car No. 51094	L. Wetstone & Sons, Inc., Hartford	6.67	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>Humphreys-Godwin Co., Memphis, Tenn.</b>	<b>Cottonseed Meal.</b>		
7019	Dixie Brand, Car No. 86232 ..	L. Wetstone & Sons, Inc., Hartford	6.68	6.58
7020	Dixie Brand, Car No. 5615 ..	L. Wetstone & Sons, Inc., Hartford	6.53	6.58
7230	Dixie Brand, Car No. 163931 ..	L. Wetstone & Sons, Inc., Hartford	6.69	6.58
6871	Car No. 92703 ..	Hatheway & Steane, Inc., Hartford	6.33	....
7391	Dixie Brand ..	J. E. Phelps, Suffield ..	6.63	6.58
7009	Car No. 135931 ..	Hatheway & Steane, Inc., Hartford	6.47	....
5764	Bull Brand ..	Lawton, Miner & Co., Unionville.	7.02	6.88
7421	Dixie Brand ..	Station agent, from stock of Geo. A. Peckham, Suffield ..	6.38	6.58
6885	Danish Brand ..	Station agent, from stock of S. J. Orr, West Suffield ..	6.38	5.76
	<b>International Agricultural Corp., Woburn, Mass.</b>			
6947	43% ..	Huntington Bros., Windsor ..	6.68	6.88
6952	43% ..	Huntington Bros., Windsor ..	6.75	6.88
6973	43%, Car No. 62225 ..	L. B. Haas & Co., Inc., Hartford ..	6.43	6.88
7107	43%, Car No. 15852 ..	L. B. Haas & Co., Inc., Hartford ..	6.42	6.88
7168	43%, Car No. 75741 ..	L. B. Haas & Co., Inc., Hartford ..	6.78	6.88
7072	International Rainbow ..	Arthur E. Pascoe, Warehouse Point ..	5.68	5.76
7089	International Rainbow ..	Station agent, from stock of Geo. S. Phelps & Co., Thompsonville.	5.58	5.76
6550	Zenith, Car No. 67271 ..	Allied Tobacco Co., Hartford ..	6.68	6.56
6555	Zenith, Car No. 66785 ..	Allied Tobacco Co., Hartford ..	6.67	6.56
6557	Zenith, Car No. 63710 ..	Allied Tobacco Co., Hartford ..	6.44	6.56
6558	Zenith, Car No. 66278 ..	Allied Tobacco Co., Hartford ..	6.57	6.56
6559	Zenith, Car No. 62016 ..	Allied Tobacco Co., Hartford ..	6.68	6.56
6910	Zenith, Car No. Ga. 7055 ..	Allied Tobacco Co., Hartford ..	6.61	6.56
6911	Zenith, Car No. 10925 ..	Allied Tobacco Co., Hartford ..	6.53	6.56
6912	Zenith, Car No. 562078 ..	Allied Tobacco Co., Hartford ..	6.55	6.56
	<b>Spencer Kellogg &amp; Son, Buffalo, N. Y.</b>			
6342	Car No. 48246 ..	Hatheway & Steane, Inc., Hartford	6.64	6.56
	<b>L. B. Lovitt &amp; Co., Memphis, Tenn.</b>			
7154	Lovit Brand 41% ..	Station agent, from stock of Berk- shire Chemical Co., Bridgeport ..	6.25	6.56
7268	Lovit Brand 41% ..	C. D. Cannon, Windsor Locks ..	7.05	6.56
7160	Lovit Brand 43% ..	Station agent, from stock of Day- ville Coal & Grain Co., Putnam.	6.76	6.88
6301	Car S. P. 17175 ..	S. F. Holcomb & Son, W. Granby.	6.71	....

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 Co., Memphis, Tenn.</b>	<b>Cottonseed Meal</b>		
6223	Car No. M. O. P. 27777.....	N. E. Kendall & Son, Granby.....	6.70	....
6029	Lovit Brand 43%, Car No. U. P. 19498.....	Spencer Bros., Inc., Suffield.....	6.99	6.88
6030	Lovit Brand 43%, Car No. I. C. 246483.....	Spencer Bros., Inc., Suffield.....	6.97	6.88
6857	Lovit Brand 41%, Car No. M. & O. 20875.....	Spencer Bros., Inc., Suffield.....	6.64	6.56
6859	Lovit Brand 41%, Car No. A. C. L. 28060.....	Spencer Bros., Inc., Suffield.....	6.50	6.56
7560	.....	Berkshire Chemical Co., Bridge- port.....	6.53	....
	<b>Marianna Sales Co., Memphis, Tenn.</b>			
5608	Car No. A. C. L. 40777.....	The Coles Company, Middletown.	5.75	5.76
	<b>Memphis Cottonseed Prod- ucts Co., Memphis, Tenn.</b>			
7134	Durham 41%.....	Hartz Bros., Burnside.....	6.54	6.56
6672	Durham 43%.....	John F. Luddy, Elmrose Farm, Hazardville.....	6.89	6.88
	<b>R. N. Neal &amp; Son, Memphis, Tenn.</b>			
6551	"Triangle" Brand 41%, Car No. 20476.....	The Allied Tobacco Co., Hartford.	6.49	6.56
6552	"Triangle" Brand 41%, Car No. 335912.....	The Allied Tobacco Co., Hartford.	5.95	6.56
6553	"Triangle" Brand 41%, Car No. 47285.....	The Allied Tobacco Co., Hartford.	6.32	6.56
	<b>Manufacturer Unknown.</b>			
6554	Car No. 67729.....	Allied Tobacco Co., Hartford.....	6.81	....
6907	No. 1.....	F. Albert Carlson, New Milford...	6.79	....
6908	No. 2.....	F. Albert Carlson, New Milford...	6.67	....
6360	Car No. 34896.....	Hatheway & Steane, Inc., Hartford	6.54	....
6373	Car No. 109217.....	Hatheway & Steane, Inc., Hartford	6.87	....
7007	Car No. 4059.....	Hatheway & Steane, Inc., Hartford	6.51	....
7023	.....	Marcus Floyd, Hartford.....	7.11	....
7024	.....	Marcus Floyd, Hartford.....	6.65	....
7025	.....	Marcus Floyd, Hartford.....	7.00	....
7026	.....	Marcus Floyd, Hartford.....	6.58	....

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>Spencer Kellogg &amp; Son, Buffalo, N. Y.</b>	<b>Linseed Meal.</b>		
7500	.....	Station agent, from stock of Apothecaries Hall Co., East Windsor.....	5.47	5.44
6293	Car No. 84219.....	Hatheway & Steane, Inc., Hartford	5.76	5.44
6295	Car No. 9499.....	Hatheway & Steane, Inc., Hartford	5.83	5.44
6298	Car No. 8408.....	Hatheway & Steane, Inc., Hartford	5.79	5.44
6340	Car No. 38957.....	Hatheway & Steane, Inc., Hartford	5.72	5.44
7138	Car No. N. H. 92027.....	A. N. Shepard & Son, Hartford...	5.68	5.44
	<b>Manufacturer Unknown.</b>			
6365	Car No. 8044.....	Hatheway & Steane, Inc., Hartford	5.89	....
6378	Car No. 38395.....	Hatheway & Steane, Inc., Hartford	5.84	....

## II. RAW MATERIALS CHIEFLY VALUABLE FOR PHOSPHORIC ACID.

### PRECIPITATED BONE PHOSPHATE.

This material is a by-product in the manufacture of gelatin and practically all of the phosphoric acid in it is in the "available" form.

Eight samples were analyzed and all were of good quality, although two fell a little short of their guaranties.

Available phosphoric acid from this source has cost about 5.6 cents per pound so far as can be estimated from the prices quoted.

Analyses are given in Table V.

TABLE V. ANALYSES OF PRECIPITATED BONE PHOSPHATE.

Station No.	Manufacturer or Wholesale Dealer	Place of Sampling	Phosphoric Acid			
			Citrate-insoluble.	Total	Found	Guaranteed.
			%	%	%	%
6616	<i>Sampled by Station.</i>	At factory.....	0.84	47.32	41.48	36.00
6640	Apothecaries Hall Co., Waterbury.....	At factory.....	0.48	38.24	37.76	38.00
6694	Berkshire Chemical Co., Bridgeport.....	At factory.....	0.32	37.94	37.62	38.00
	Olds & Whipple, Inc., Hartford.....					
	<i>Sampled by Purchaser.</i>					
7028	.....	Marcus Floyd, Hartford.....	0.60	39.00	38.40	.....
6289	Apothecaries Hall Co., Waterbury, Car No. 88276.....	Hatheway & Steane, Inc., Hartford	0.85	42.12	41.27	36.00
6372	Apothecaries Hall Co., Waterbury, Car No. 1085.....	Hatheway & Steane, Inc., Hartford	0.73	42.80	42.07	36.00
7527	Olds & Whipple, Inc., Hartford.....	John M. Herr, Burnside.....	0.70	41.90	41.20	38.00
5067	Olds & Whipple, Inc., Hartford.....	John B. Stewart, Windsor.....	1.49	43.16	41.67	38.00

## SUPERPHOSPHATE (ACID PHOSPHATE).

This important raw material is made by treating finely ground phosphate rock with sulphuric acid. The mixture while still in a fluid condition is run into tanks called "hot dens", where it soon solidifies, after which it is broken up and pulverized to make it suitable for use in fertilizer mixtures.

Superphosphate is a mixture of calcium phosphate (soluble mono-calcium phosphate), and calcium sulphate (gypsum). It contains 16 per cent or more of available phosphoric acid.

Twenty-two samples were analyzed and all met their guarantees with two exceptions, where deficiencies of about 0.4 per cent were found.

The average available phosphoric acid found this year is 16.87 per cent. The average of prices quoted is \$20.70 and available acid has therefore cost about 6.2 cents per pound in this raw material.

Analyses are given in Table VI.

TABLE VI. ANALYSES OF SUPERPHOSPHATE (ACID PHOSPHATE).

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Phosphoric Acid.				Station No.
			Citrate-insoluble.	Total.	Found.	"Available," Guaranteed.	
			%	%	%	%	
	<i>Sampled by Station.</i>						
6615	American Agricultural Chemical Co., New York.....	Suffield: Spencer Bros.....	0.27	16.94	16.67	16.00	6615
6618	Apothecaries Hall Co., Waterbury...	Sampled at factory, East Windsor...	0.88	17.11	16.23	16.00	6618
6815	Armour Fertz. Works, New York.....	Stamford: F. A. Bartlett Tree Ex- pert Co.....	0.65	20.85	20.20	20.00	6815
6696	Armour Fertz. Works, New York.....	Danbury: F. C. Benjamin.....	0.47	16.77	16.30	16.00	6696
6641	Berkshire Chemical Co., Bridgeport.	Sampled at factory.....	0.13	17.58	17.45	16.00	6641
7219	E. D. Chittenden Co., Bridgeport....	Broad Brook: Fred Schlichting.....	0.91	16.98	16.07	16.00	7219
6700	E. B. Clark Seed Co., Milford.....	Sampled at factory.....	0.24	15.83	15.59	16.00	6700
6652	Consolidated Rendering Co., Boston, Mass.....	Highwood: H. D. Peters.....	0.31	18.08	17.77	16.00	6652
6697	Eastern States Farmers' Exchange Springfield, Mass.....	New Canaan: Stephen Hoyt & Sons.	0.22	16.76	16.54	16.00	6697
7151	International Agricultural Corp., Boston, Mass.....	Willimantic: Willimantic Grain Co..	0.30	16.50	16.20	16.00	7151
6739	Olds & Whipple, Inc., Hartford.....	So. Manchester: F. T. Blish Hard- ware Co.....	0.31	16.46	16.15	16.00	6739
7178	Piedmont Mt. Airy Guano Co., Bal- timore, Md.....	Plantsville: Mehmel & Sarvi.....	0.83	17.00	16.17	16.00	7178
6744	Rogers & Hubbard Co., Portland....	Sampled at factory.....	0.30	18.40	18.10	16.00	6744

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

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Phosphoric Acid.					Station No.
			Citrate-insoluble.	Total.	Found.	Guaranteed.	"Available."	
6844	F. S. Royster Guano Co., Baltimore, Md.	Thompsonville: Geo. S. Phelps & Co.	% 0.38	% 15.95	% 15.57	% 16.00	6844	
7476	F. S. Royster Guano Co., Baltimore, Md.	Plainville: F. B. Newton.	0.20	17.10	16.90	16.00	7476	
6748	I. P. Thomas & Son Co., Philadelphia, Pa.	Guilford: F. C. Morse & Son.	1.35	18.35	17.00	16.00	6748	
6827	I. P. Thomas & Son Co., Philadelphia, Pa.	Talcottville: Lyman Bros.	1.20	17.80	16.60	16.00	6827	
6921	Triton Oil & Fertilizer Co., New York	Colchester: Red Wing Feed & Lumber Co.	0.15	18.40	18.25	16.00	6921	
7351	United States Guano Co., Baltimore, Md.	North Haven: E. O. Chapman.	0.33	17.30	16.97	16.00	7351	
7450	Wilcox Fertilizer Co., Mystic.	Willimantic: Jordan Hardware Co.	0.20	17.25	17.05	16.00	7450	
6955	<i>Sampled by Purchaser.</i>							
7027	Consolidated Rendering Co., Boston	Marion: Daigle Bros.	0.95	17.35	16.40	16.00	6955	
		Hartford: Marcus Floyd.	0.30	17.15	16.85	.....	7027	



### III. RAW MATERIALS CHIEFLY VALUABLE FOR POTASH.

#### CARBONATE OF POTASH.

The commercial grades of carbonate of potash generally contain from 60 to 65 per cent of actual potash ( $K_2O$ ). The pure and moisture-free salt contains 68.2 per cent  $K_2O$ .

Eleven samples of this material were analyzed, three of these being samples taken by the Station agent and the remainder being sampled and sent by purchasers.

The official samples contained well over 65 per cent of potash. Some of the samples submitted by purchasers tested somewhat under 60 per cent. The dealers, Apothecaries Hall Co., advise that their stock was purchased on a guaranty of 65 per cent, but for resale they made the guaranty 61 per cent to insure a margin of safety. The low results are explained by the fact that the goods as sampled contained more moisture than that upon which the original guaranty was based. Potassium carbonate absorbs moisture rather readily and while it may contain as little as 1 per cent or less, it is more likely to contain 5 to 10 per cent as the purchaser receives it. However, if the absorption of moisture takes place after the goods are packed the purchaser is not defrauded because he receives all the potash which was originally packed but in a somewhat more dilute form.

The average potash content in the samples examined is 63.8 per cent. Price quotations are so limited and so variable that an estimated cost per pound for potash is not very informing. According to valuations which we have used this year 11 cents per pound is the accepted figure for potash from this source.

Analyses are given in Table VII.

#### MURIATE OF POTASH.

Muriate of potash in commercial grades contains about 50.5 per cent of actual potash, which is equivalent to about 80 per cent pure potassium chloride. Guaranties for potash are usually placed at 48 to 50 per cent. The Association of Official Agricultural Chemists has accepted tentatively a standard of not less than 48 per cent potash for this salt.

The nine samples examined all exceeded their guaranties and the average potash content is 51.5 per cent. Potash from this source has cost about 4.6 cents per pound according to the average of quoted prices, viz., \$46.00.

Analyses are given in Table VII.

## SULPHATE OF POTASH.

This salt usually contains about 48 per cent of actual potash as offered for fertilizer purposes.

Twenty-two samples were analyzed, nine of which were officially drawn by the Station agent. All samples exceeded their guaranties, and the average potash content was slightly over 49.5 per cent. The cost per pound of potash at the average ton price, \$53.70, is 5.4 cents.

Analyses are given in Table VII.

## SULPHATE OF POTASH-MAGNESIA.

Only two samples of this salt were analyzed and both exceeded their guaranties, which were 26 per cent potash in both cases.

Analyses are given in Table VII.

## COTTONHULL ASHES.

Twelve samples of cottonhull ashes have been analyzed. This material is very variable in composition, the potash content having ranged from less than 10 per cent to over 35 per cent. Last year it was found that low potash was associated with very high phosphoric acid content, about 30 per cent.

Analyses are given in Table VII.

## WOOD ASHES.

Canada hard wood ashes are used in considerable quantities by tobacco growers in this State, purchases being made on the unit of potash basis. Besides potash wood ashes contain 1 to 3 per cent of phosphoric acid and 30 per cent or more of lime ( $\text{CaO}$ ).

Fourteen samples were analyzed and all except No. **7566** were of good quality. Potash ranged from 4.6 to over 7 per cent.

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.
			Found.	Guaranteed.	
			%	%	
			67.01	61.00	7157
			66.92	....	6675
			65.98	65.00	6741
			60.64	61.00	6868
			59.16	61.00	6860
			58.72	61.00	7008
			64.78	61.00	7143
			65.70	....	6221
			65.16	65.00	6804
			66.11	65.00	7390
			61.88	....	6626
			51.72	50.00	7079
			52.20	50.00	6620
			51.90	48.00	6698
			51.77	50.00	6638
			50.40	50.00	7346
			51.55	50.00	6651

**Carbonate of Potash.***Sampled by Station:*

Apothecaries Hall Co., Waterbury.....  
 A. Klipstein & Son, New York.....  
 Olds & Whipple Inc., Hartford.....

*Sampled by Purchaser:*

Apothecaries Hall Co., Waterbury, Car No. 83283...  
 Apothecaries Hall Co., Waterbury, Car No. 10626...  
 Apothecaries Hall Co., Waterbury, Car No. 141927...  
 Apothecaries Hall Co., Waterbury, Car No. 73843...  
 A. Klipstein, New York.....  
 Olds & Whipple, Inc., Hartford.....  
 Olds & Whipple, Inc., Hartford.....  
 W. S. Pinney, Suffield.....

**Muriate of Potash.***Sampled by Station:*

American Agricultural Chemical Co., New York.....  
 Apothecaries Hall Co., Waterbury.....  
 Armour Fertilizer Works, New York.....  
 Berkshire Chemical Co., Bridgeport.....  
 Berkshire Chemical Co., Bridgeport.....  
 Consolidated Rendering Co., Boston, Mass.....

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

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash		Station No.
			Found.	Guaranteed.	
7075 6746	<b>Muriate of Potash</b> <i>Sampled by Station:</i> Eastern States Farmers' Exchange, Springfield, Mass. I. P. Thomas & Son Co., Philadelphia, Pa.	Ridgewood Farm, North Haven. F. C. Morse & Son, Guilford.	%	%	7075
			51.82	50.00	6746
6958	<i>Sampled by Purchaser:</i> Consolidated Rendering Co., Boston, Mass.	Daigle Bros., Marion.	51.70	50.00	6958
6614 6617 6923 6639 6636 7152 7153 6740 6843	<b>Sulphate of Potash.</b> <i>Sampled by Station:</i> American Agricultural Chemical Co., New York. Apothecaries Hall Co., Waterbury. Armour Fertilizer Works, New York. Berkshire Chemical Co., Bridgeport. Consolidated Rendering Co., Boston, Mass. International Agricultural Corp., Boston, Mass. Mapes Formula & Peruvian Guano Co., New York. Olds & Whipple, Inc., Hartford. F. S. Royster Guano Co., Baltimore, Md.	Spencer Bros., Suffield.	48.76	48.00	6614
		Sampled at factory, East Windsor.	50.85	48.00	6617
		Jacob Bantly, Glastonbury.	49.54	48.00	6923
		Sampled at factory.	49.04	48.00	6639
		L. T. Frisbie Co., New Haven.	49.20	48.00	6636
		Willimantic Grain Co., Willimantic.	51.41	48.00	7152
		S. J. Orr, West Suffield.	49.36	48.00	7153
		Sampled at factory.	49.21	48.65	6740
		Geo. S. Phelps & Co., Thompsonville.	49.40	48.00	6843
		Hatheway & Steane, Inc., Hartford.	50.96	48.00	6290
		Hatheway & Steane, Inc., Hartford.	50.62	48.00	6299
		Hatheway & Steane, Inc., Hartford.	49.57	48.00	6337
		Hatheway & Steane, Inc., Hartford.	50.20	48.00	6374



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

POTASH SALTS, ETC.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found	Guaranteed	
7626	Cotton Hull Ashes. <i>Sampled by Station:</i>	Jos. Rostek, Jr., Melrose.	%	%	7626
7347			26.06	24.25	7347
6631	<i>Sampled by Purchaser:</i>	Ed. Eggert, Hartford.	33.95	.....	6631
6930			36.76	.....	6930
6987			25.23	.....	6987
7564			27.38	.....	7564
7565			12.72	.....	7565
7022			21.78	.....	7022
6944	<i>Wood Ashes. <i>Sampled by Station:</i></i>	J. B. Rose, West Suffield.	7.26	3.00	6944
6946			6.03	3.00	6946
6959			5.97	3.00	6959
6960			6.88	3.00	6960
6287	<i>Sampled by Purchaser:</i>	Allied Tobacco Co., Hartford.	6.09	3.00	6287
6288			4.57	3.00	6288
6364			6.71	3.00	6364

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

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found	Guaranteed	
			%	%	
6866	John Joynt, Lucknow, Canada, Car No. 8314.....	Hatheway & Steane, Inc., Hartford.....	6.92	3.00	6866
6867	John Joynt, Lucknow, Canada, Car No. 212783.....	Hatheway & Steane, Inc., Hartford.....	5.94	3.00	6867
7006	John Joynt, Lucknow, Canada, Car No. 67461.....	Hatheway & Steane, Inc., Hartford.....	6.74	3.00	7006
7231	John Joynt, Lucknow, Canada, Car No. 62657.....	Ed. Eggert, Hartford.....	5.63	3.00	7231
7232	John Joynt, Lucknow, Canada, Car No. 60015.....	Ed. Eggert, Hartford.....	4.61	3.00	7232
7566	Car No. 2296.....	Ed. Eggert, Hartford.....	1.82	.....	7566
7233	John Joynt, Lucknow, Canada, Car No. 84756.....	Olds & Whipple, Inc., Hartford.....	5.49	3.00	7233

**Wood Ashes***Sampled by Purchaser:*

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

Five samples of this group of materials have been examined, three taken by the Station agent and two sent by purchasers. Analyses are given in Table VIII.

**7073.** Nitrate of Soda and Potash. Apothecaries Hall Co., Waterbury. Sampled by Station agent, stock of B. H. Barnes, Waterbury.

**6934.** Nitrate of Soda and Potash. Wilcox Fertilizer Co., Mystic. Sampled by Station agent, stock of Jordan Hardware Co., Willimantic.

**6163.** Nitrate of Soda and Potash. W. R. Grace & Co., New York. Submitted by L. B. Haas & Co., Inc., Hartford.

**6745.** Nitrate of Potash. The Rogers & Hubbard Co., Portland. Sampled by Station agent at factory.

**6083.** Nitrate of Potash. The Rogers & Hubbard Co., Portland. Submitted by L. B. Haas & Co., Inc., Hartford.

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

Station No.	7073	6934	6163	6745	6083
	%	%	%	%	%
Nitrogen:					
found .....	14.90	14.81	14.16	14.58	14.52
guaranteed .....	14.80	14.72	....	11.50	30.98
Equivalent to ammonia:					
found .....	18.12	18.01	17.22	17.73	17.65
guaranteed .....	18.00	17.90	....	13.98	17.00
Potash:					
found .....	13.03	12.53	15.97	12.66	12.08
guaranteed .....	10.00	11.80	....	11.00	11.00



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

### DRY GROUND FISH.

Dry ground fish or fish scrap is made from non-edible fish, such as menhaden and dogfish, and the offal from fish canneries. The fish are first steamed and pressed to remove oil and then dried and ground.

Thirty-four samples were analyzed, nine of which were sampled by the Station agent and the remainder sampled and submitted by purchasers.

Six samples showed considerable deficiencies in nitrogen. The guaranties for phosphoric acid were largely exceeded in most cases, but slight shortages were found in two samples.

The average nitrogen content found in this material this year is 8.5 per cent, and the average phosphoric acid content is 6.8 per cent. The average ton price, based on quotations reported, is about \$64.00. Allowing 5 cents per pound for phosphoric acid, the cost of nitrogen per pound has been about 33.6 cents.

Analyses are given in Table IX.

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.		
			%	%	%	%	%		
6659	<i>Sampled by Station:</i> American Agricultural Chemical Co., New York.	F. S. Bidwell Co., Windsor Locks. . . . . Sampled at factory. . . . .	8.61	8.23	10.47	8.29	6.00	6659	
6674			Apothecaries Hall Co., Waterbury. . . . .	8.50	8.20	10.34	7.12	5.00	6674
6924			Armour Fertilizer Works, New York. . . . .	8.88	8.23	10.80	9.90	4.00	6924
6335			Berkshire Chemical Co., Bridgeport. . . . .	8.39	8.22	10.20	5.92	6.00	6335
6693			Consolidated Rendering Co., Boston, Mass. . . . .	8.23	8.22	10.01	9.18	6.40	6693
6900	Olds & Whipple, Inc., Hartford. . . . .	9.44	8.23	11.48	7.28	5.00	6900		
7443	F. S. Royster Guano Co., Baltimore, Md. . . . .	8.34	8.22	10.14	6.48	3.50	7443		
6935	Wilcox Fertilizer Co., Mystic. . . . .	8.46	9.04	10.29	6.38	6.00	6935		
7478	Wilcox Fertilizer Co., Mystic. . . . .	8.20	9.04	9.97	7.55	6.00	7478		
6622	<i>Sampled by Purchaser:</i> American Agricultural Chemical Co., New York.	J. C. Dufford, Glastonbury. . . . .	8.70	8.23	10.58	8.10	6.00	6622	
6166		Apothecaries Hall Co., Waterbury, Car No. 88690. . . . .	9.28	8.20	11.28	7.45	5.00	6166	
6300		Apothecaries Hall Co., Waterbury, Car No. 1095. . . . .	9.19	8.20	11.17	7.56	5.00	6300	

TABLE IX. ANALYSES OF DRY GROUND FISH—Continued.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Nitrogen		Ammonia equivalent total nitrogen.	Phosphoric Acid.		Station No.
			Total found.	Total Guaranteed.		Total found.	Total Guaranteed.	
6336	<i>Sampled by Purchaser:</i> Apothecaries Hall Co., Waterbury, Truck No. 1092.....	Hatheway & Steane, Inc., Hartford.	% 9.14	% 8.20	% 11.11	% 7.37	% 5.00	6336
6376	Apothecaries Hall Co., Waterbury, Car No. 78058.....	Hatheway & Steane, Inc., Hartford.	8.92	8.20	10.84	8.06	5.00	6376
7141	Apothecaries Hall Co., Waterbury, Car No. 92027.....	A. N. Shepard & Son, Hartford.....	8.58	8.20	10.43	6.68	5.00	7141
5607	Atlantic Packing Co., New Haven.....	American Sumatra Tobacco Co., Bloomfield.....	7.68	8.23	9.34	4.87	....	5607
5610	Atlantic Packing Co., New Haven, Car No. 220794.....	Bloomfield.....	8.18	8.23	9.95	4.96	....	5610
5611	Atlantic Packing Co., New Haven, Car No. 30491.....	American Sumatra Tobacco Co., Bloomfield.....	8.10	8.23	9.85	4.86	....	5611
5621	Atlantic Packing Co., New Haven, Car No. 252740.....	American Sumatra Tobacco Co., Bloomfield.....	8.00	8.23	9.73	5.23	....	5621
5622	Atlantic Packing Co., New Haven, Car No. 32902.....	American Sumatra Tobacco Co., Bloomfield.....	8.46	8.23	10.29	5.32	....	5622
5725	Atlantic Packing Co., New Haven, Car No. 14689.....	American Sumatra Tobacco Co., Bloomfield.....	7.91	8.23	9.62	5.10	....	5725
5726	Atlantic Packing Co., New Haven, Car No. 14195.....	American Sumatra Tobacco Co., Bloomfield.....	8.22	8.23	9.99	4.97	....	5726



## TANKAGE.

This material is meat and bone refuse from various sources. The refuse is steamed and pressed to remove fat and is then dried and ground. Its composition depends upon the proportions of meat and of bone which are present. In general, 5 per cent or less of nitrogen and 15 per cent or more of phosphoric acid indicate considerable admixtures of bone. High grade tankage contains 8 to 10 per cent of nitrogen and 5 to 10 per cent of phosphoric acid.

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

Eight samples of meat and bone tankage were analyzed during the year. Two, and possibly three, of them were essentially bone tankage; the remainder were high in nitrogen and relatively low in phosphoric acid, indicating considerable amounts of meat. All met the guaranties under which they were sold.

Analyses are given in Table X.

## GROUND BONE.

Thirty-seven samples of ground bone were analyzed. Twenty-one of them were sampled by the Station agent and the remainder were sampled and submitted by the dealers or purchasers.

Of the official samples only two deficiencies were found, one in nitrogen and one in phosphoric acid.

The average composition of this raw material this year based upon analyses of all samples submitted is 3.12 per cent of nitrogen and 24 per cent of phosphoric acid.

Analyses are given in Table XI.

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.		Found.	Guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.	
6619	<i>Sampled by Station:</i> Apothecaries Hall Co., Waterbury . . . . . Apothecaries Hall Co., Waterbury . . . . . Connecticut Fat Rendering & Fertilizer Corp., New Haven . . . . .	Sampled at factory . . . . . Chas. Templeton, Waterbury . . . . .	%	%	%	%	%	%	%	6619
6683			3.79	3.29	23.64	20.00	50.0	50.0	50.0	6683
6634			7.96	7.40	6.21	3.00	51.0	49.0	49.0	6634
6650	Consolidated Rendering Co., Boston, Mass. Consolidated Rendering Co., Boston, Mass. I. P. Thomas & Son Co., Philadelphia, Pa. Wilcox Fertilizer Co., Mystic . . . . .	Sampled at factory . . . . . Frank Libner & Son, Norwalk . . . . . L. T. Frisbie Co., New Haven . . . . . Wm. Snyder, East Wallingford M. E. Thompson, Ellington . . . . .	3.30	3.29	22.21	25.00	61.0	39.0	61.0	6634
6653			5.32	4.92	17.16	14.00	28.0	72.0	72.0	6650
7179			7.43	7.41	10.22	9.15	20.0	80.0	80.0	6653
6933			7.36	7.40	11.15	11.15	45.0	55.0	55.0	7179
6933	<i>Sampled by Purchaser:</i> Consolidated Rendering Co., Boston, Mass.	Daigle Bros., Marion . . . . .	8.89	7.40	6.48	4.50	58.0	42.00	58.0	6933
6954			7.52	7.41	10.45	9.15	18.0	82.0	82.0	6954

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.		Found.	Guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.	
	<i>Sampled by Station:</i>									
6610	American Agricultural Chemical Co., New York	Roodner Feed Co., So. Norwalk	2.65	2.47	3.22	25.36	22.88	72.0	28.0	6610
6612	Apothecaries Hall Co., Waterbury	J. A. Glasnapp, West Cheshire	4.00	3.29	4.86	22.72	20.00	55.0	45.00	6612
6884	Apothecaries Hall Co., Waterbury	Sampled at factory	3.02	2.46	3.67	25.80	22.00	60.0	40.0	6884
6809	Armour Fertilizer Works, New York	F. C. Benjamin, Danbury	2.79	2.47	3.39	23.65	22.00	63.0	37.0	6809
6632	Berkshire Chemical Co., Bridgeport	Frank Libner & Son, Norwalk	4.56	2.47	5.54	19.71	20.00	49.0	51.0	6632
7532	E. D. Chittenden Co., Bridgeport	J. E. Stoddard, Abington	3.31	2.47	4.02	22.40	20.00	41.5	58.5	7532
6661	Consolidated Rendering Co., Boston, Mass.	Geo. S. Phelps & Co., Thompsonville	2.09	2.46	2.54	24.47	22.90	52.0	48.0	6661
7398	Consolidated Rendering Co., Boston, Mass.	Pring Bros., Wallingford	2.92	2.46	3.55	27.00	22.90	52.0	48.0	7398
6703	Eastern States Farmers' Exchange, Springfield, Mass.	Stephen Hoyt's Sons, New Canaan	3.12	2.46	3.79	24.57	23.00	53.0	47.0	6703
6654	L. T. Frisbie Co., New Haven	Sampled at factory	2.98	2.46	3.62	23.50	22.90	53.0	47.0	6654
6655	L. T. Frisbie Co., New Haven	Frank S. Platt Co., New Haven	3.97	3.28	4.83	22.87	22.00	40.0	60.0	6655
6902	International Agricultural Corp., Boston, Mass.	Willimantic Grain Co., Willimantic	2.22	2.47	2.70	25.55	22.00	83.0	17.0	6902
6656	Mapes Formula & Peruvian Guano Co., New York	Mapes Branch, Hartford	4.10	3.29	4.98	20.33	20.00	35.0	65.0	6656
6677	Olds & Whipple, Inc., Hartford	Silberman & Kahn, Hartford	2.86	2.50	3.48	22.65	22.00	63.0	37.0	6677

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.	
	<i>Sampled by Station</i>									
7335	Piedmont Mt. Airy Guano, Baltimore, Md.	Fred H. Rolf, Inc., Guilford.	2.66	2.47	3.23	24.15	21.00	%	%	7335
6658	The Rogers & Hubbard Co., Portland.	Cadwell & Jones, Hartford.	3.74	3.82	4.55	24.91	24.70	78.0	22.0	6658
6743	The Rogers & Hubbard Co., Portland.	Sampled at factory.	3.44	3.29	4.18	20.80	20.50	55.0	45.0	6743
7584	M. L. Shoemaker & Co., Philadelphia, Pa.	Olds & Whipple, Inc., Hartford	3.38	3.70	4.11	25.05	21.00	69.0	31.0	7584
6747	I. P. Thomas & Sons Co., Philadelphia, Pa.	F. C. Morse & Son, Guilford.	2.75	2.45	3.34	24.10	23.00	61.0	39.0	6747
6847	Wilcox Fertilizer Co., Mystic.	M. E. Thompson, Ellington.	2.48	2.46	3.02	24.40	22.00	48.0	52.0	6847
	<i>Sampled by Purchaser:</i>									
6625	American Agricultural Chemical Co., New York.	J. C. Dufford, Glastonbury.	2.55	2.47	3.10	25.56	22.00	47.0	53.0	6625
6174	Apothecaries Hall Co., Waterbury, Car No. 81894.	Hatheway & Steane, Inc., Hartford.	4.91	3.29	5.97	20.92	20.00	32.0	68.0	6174
6339	Apothecaries Hall Co., Waterbury, Car. No. 160545.	Hatheway & Steane, Inc., Hartford.	3.96	3.29	4.81	22.97	20.00	57.0	43.0	6339
6368	Apothecaries Hall Co., Waterbury, Car. No. 92564.	Hatheway & Steane, Inc., Hartford.	4.28	3.29	5.20	21.61	20.00	32.0	68.0	6368
7010	Apothecaries Hall Co., Waterbury, Car. No. 150092.	Hatheway & Steane, Inc., Hartford.	4.13	3.29	5.02	22.10	20.00	43.0	57.0	7010
7142	Apothecaries Hall Co., Waterbury, Car. No. N. H. 73843.	A. N. Shepard & Son, Hartford	3.94	3.29	4.79	23.35	20.00	58.0	42.0	7142



TABLE XI. ANALYSES OF GROUND BONE—Concluded

Station No.	Manufacturer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Mechanical Analysis.		Station No.	
			Found.	Guaranteed.		Found.	Guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.		
	<i>Sampled by Purchaser:</i>										
5811	Armour Fertilizer Works, New York, Car No. S 41390.	American Sumatra Tobacco Co., Bloomfield.	2.92	2.47	3.55	26.10	22.00	48.0	52.0	5811	
5812	Armour Fertilizer Works, New York, Car No. 78584.	American Sumatra Tobacco Co., Bloomfield.	2.71	2.47	3.29	26.53	22.00	43.0	57.0	5812	
5821	Armour Fertilizer Works, New York, Car No. 84878.	American Sumatra Tobacco Co., Bloomfield.	2.62	2.47	3.19	26.48	22.00	48.0	52.0	5821	
5903	Armour Fertilizer Works, New York, Car No. 58278.	American Sumatra Tobacco Co., Bloomfield.	2.62	2.47	3.19	26.32	22.00	43.0	57.0	5903	
5904	Armour Fertilizer Works, New York, Car No. 149319.	American Sumatra Tobacco Co., Bloomfield.	2.36	2.47	2.87	27.22	22.00	55.5	44.5	5904	
7132	Armour Fertilizer Works, New York, Car No. 22050.	American Sumatra Tobacco Co., Bloomfield.	2.28	2.47	2.77	27.25	22.00	51.5	48.5	7132	
5524	Hollingshurst Co., New York, Car No. 254306.	American Sumatra Tobacco Co., Bloomfield.	2.75	.....	3.34	21.07	.....	40.0	60.0	5524	
5525	Hollingshurst Co., New York, Car No. 48826.	American Sumatra Tobacco Co., Bloomfield.	2.59	.....	3.15	20.51	.....	51.0	49.0	5525	
7598	The Rogers & Hubbard Co., Portland.	The Rogers & Hubbard Co., Portland.	3.34	.....	4.06	26.30	24.70	.....	.....	7598	
6750	.....	Elliott A. Gardner, Meriden	1.01	.....	1.23	25.64	.....	20.0	80.0	6750	
7234	.....	Frank L. Davis, Putnam	3.25	.....	3.95	22.95	.....	53.0	47.0	7234	

## VI. MIXED FERTILIZERS.

MIXTURES CONTAINING ONLY NITROGEN AND  
PHOSPHORIC ACID.

Five samples of this group of materials were analyzed.

**6882.** Ammo Phos. American Cyanamid Co., New York. Sampled by the Station agent from stock of Olds & Whipple, Inc., Hartford, Conn.

**7213.** Ammo Phos. American Cyanamid Co., New York. Sampled by the Station agent from stock of Olds & Whipple, Inc., Hartford, Conn.

**6808.** Liberty Lawn Fertilizer. Apothecaries Hall Co., Waterbury. Sampled by the Station agent at factory.

**7433.** "Swift-Sure" Tobacco Starter 4-10-0. M. L. Shoemaker, Philadelphia, Pa. Sampled by the Station agent from stock of F. T. Blish Hardware Co., South Manchester, Conn.

**7426.** O & W High Grade Tobacco Starter. Olds & Whipple, Inc., Hartford, Conn. Sampled by the Station agent from stock of Steane, Hartman & Co., Hartford, Conn.

	6882	7213	6808	7433	7426
	%	%	%	%	%
Nitrogen, found .....	15.60	16.00	4.51	3.46	8.58
guaranteed .....	16.00	16.00	3.20	3.25	8.23
Ammonia equivalent to nitrogen ..	18.07	19.45	5.48	3.46	10.43
Phosphoric acid, total .....	21.80	21.70	13.88	11.73	5.03
available found .....	21.20	20.82	8.18	10.55	4.33
guaranteed ..	19.00	19.00	4.00	10.00	3.00

MIXTURES CONTAINING ONLY PHOSPHORIC ACID  
AND POTASH.

Only one sample in this group was analyzed.

**7078.** A. A. C. Tobacco Ash Elements. American Agricultural Chemical Co. Sampled by Station agent from stock of Spencer Bros., Suffield.

It contained 5.63 per cent total and 5.35 per cent available phosphoric acid, and 14.32 per cent of potash. It was guaranteed 0-5-15.

MIXTURES CONTAINING NITROGEN, PHOSPHORIC ACID  
AND POTASH.

In Table XII are given analyses of two hundred and forty-three samples of complete fertilizers, all being official samples drawn for inspection purposes by the Station agent.

The A. O. A. C. Committee on Definitions of Terms and Interpretation of Results on Fertilizers urges the practice of including the analysis or grade of fertilizer as a part of the brand name thereof, both by manufacturers in labelling their goods and by control officials in reports and publications. Accordingly, in our analyses the grade is given following the brand name, and for ready comparison, the corresponding items in the analytical results are given in bold face type.

The outstanding facts brought out by the inspection this year may be summarized as follows:

Total number of official samples analyzed .....	243
Samples considerably deficient in	
one item .....	69
two items .....	8
three items .....	1
total samples deficient .....	78
Total items of plant food guaranteed (243 x 3) .....	729
Total items found deficient:	
ammonia .....	24
available P <sub>2</sub> O <sub>5</sub> .....	30
potash .....	34
Commercial deficiencies exceeding \$1.00 per ton.....	7

This tabulated statement shows that one-third of the total number of samples analyzed were deficient in one or more of the guaranteed items of plant food; but that less than four per cent were deficient in more than one of such items.

Ammonia, available phosphoric acid and potash being guaranteed in each of the samples analyzed there was a total of seven hundred and twenty-nine guaranties made, of which number eighty-eight were short by considerable amounts; in other words about 12 per cent of the guaranties made were not met and 88 per cent were substantially met or exceeded.

The distribution of deficiencies is about equally divided between ammonia, phosphoric acid and potash. The deficiencies in the most expensive ingredient (ammonia), were fewest in number.

Shortages in money value in excess of \$1.00 per ton have been found in only seven samples, which is less than 3 per cent of the total number.

However, guaranties required by law are minimum guaranties in all cases and purchasers are not altogether satisfied when only about two-thirds of the samples examined in an official inspection meet these conditions. With all due allowance for analytical differences which may occur between industrial and control laboratories, it would seem, nevertheless, that a greater number of samples should be found which meet guaranties in all respects.

## CONCERNING DEFICIENT SAMPLES.

The following brands show deficiencies in money value in excess of \$1.00 per ton, the approximate amount being arrived at by balancing overruns against shortages and reckoning ammonia at 20 cents, available phosphoric acid at 5½ cents, and potash at 5 cents per pound.

TABLE XIII. SAMPLES SHOWING COMMERCIAL DEFICIENCIES.

Sta. No.	Brand.	Approximate deficiency in money value per ton.
7057	Eastern States 10-16-14 .....	\$4.26
7100	Eastern States 8-6-6 .....	1.83
7339	Essex Top Dresser 7-6-5 .....	2.32
6838	Royster's 5% Truck Guano 5-8-7 .....	1.30 <sup>1</sup>
7435	U. S. Guano Co. 4-8-10 .....	7.70 <sup>2</sup>
6937	V-C XXXX Fish and Potash .....	1.68 <sup>3</sup>
6932	Wilcox Top Dresser 7-6-5 .....	1.53

<sup>1</sup> Second sample 7480 deficient, but by less than \$1.00.

<sup>2</sup> See comment below.

<sup>3</sup> Second sample not deficient.

Sample **7435**, U. S. Guano Co. 4-8-10 shows a large shortage in ammonia and also in potash. The analysis shows that this stock was nearer a 2-8-10 grade than a 4-8-10 and suggested a possible mistake in our sample inasmuch as 2-8-10 goods were in stock at the place of sampling. Another sample could not be secured, but an examination of the inspector's records showed no error; and an examination of the empty sacks at the purchaser's farm showed that the markings were clear and not likely to be confused. The grade 4-8-10 was plainly marked, and in the case of the 2-8-10 goods the grade did not appear at all, but the brand name "Manmoth Potato Grower" was given. We could only conclude that 2-8-10 goods were packed in bags marked 4-8-10 by mistake; but in any event there was a substantial deficiency in potash.

## COMMERCIAL DEFICIENCIES FOR A PERIOD OF YEARS.

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 com-

piled for the 7-year period 1921-1927, and are tabulated in Table XIV. 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 1600 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 XIV. COMMERCIAL DEFICIENCIES FOR THE PERIOD 1921-1927.

Manufacturer.	Total number of samples.	Number equaling or exceeding guaranties in money value.	Per cent for 7 yr. period.	Per cent for 1927.
American Agricultural Chemical Co. ....	305	293	96	100
Apothecaries Hall Co. ....	61	61	100	100
Armour Fertilizer Works ....	73	55	75	100
Atlantic Packing Co. ....	48	44	92	100
Berkshire Fertilizer Co. ....	60	60	100	100
Boardman, F. E. ....	12	12	100 <sup>1</sup>	...
Bridges, A. D. & Sons ....	15	15	100	100
Chittenden, E. D. Co. ....	45	41	92	100
Clark, E. B., Seed Co. ....	32	30	94	100
Coe-Mortimer Co. ....	30	27	90 <sup>1</sup>	...
Eastern States Farmers' Exchange	65	54	83	77
Essex Fertilizer Co. ....	46	45	98	83
Frisbie, L. T. Co. ....	74	64	87	100
International Agricultural Corp...	59	54	92	100
Lowell Fertilizer Co. ....	73	65	89	100
Mapes Formula and Peruvian Guano Co. ....	90	89	99	100
New England Fertilizer Co. ....	55	52	95	100
Nitrate Agencies ....	14	11	...	...
Olds & Whipple, Inc. ....	44	44	100	100
Parmenter & Polsey ....	25	24	96	100
Piedmont-Mt. Airy Guano Co....	29	20	69	100
Rogers & Hubbard Co., The ....	97	94	97	100
Royster, F. S. Guano Co. ....	54	41	76	89
Shoemaker, M. L. & Co. ....	19	19	100	100
Springfield Rendering Co. ....	29	27	93	100
Thomas, I. P. & Son ....	24	24	100 <sup>2</sup>	100
United States Guano Co. ....	16	15	93 <sup>2</sup>	75
Virginia-Carolina Chemical Co. ..	53	49	92	75
Wilcox Fertilizer Co. ....	56	52	93	83
Worcester Rendering Co. ....	25	22	88	100
Totals .....	1628	1503	92	97

<sup>1</sup> No samples in 1927.<sup>2</sup> For three years.

## NEW ENGLAND STANDARD NINE.

The nine fertilizer grades chosen as adequate for all agricultural needs in New England have been represented in the inspection this year as shown in the accompanying summary:

Grade.	No. of Samples.
0-12-6 .....	0
2-12-4 .....	2
3-10-4 .....	2
3-10-6 .....	0
4- 8-4 .....	35
4- 8-6 .....	4
5- 4-5 .....	20
5- 8-7 .....	38
8- 6-6 .....	4
Total .....	105

In no year since the standard nine was selected has the number of samples taken in official inspection and falling in these respective grades equalled one-half of the total number of samples drawn. We are unable to say what proportion of the total tonnage is represented in these nine grades.

## QUALITY OF INSOLUBLE ORGANIC NITROGEN.

Examination of the insoluble organic nitrogen in mixed fertilizers this year has shown no conclusive evidence of inferior ammoniates.

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i> American Agricultural Chemical Co., New York.		
7210	A. A. C. Tobacco Starter.....	3-7-16	Ellington.....
6939	Acme Fertilizer.....	1-9-4	Bloomfield.....
6970	Aroostook Potato Manure.....	5-8-7	Bloomfield.....
6940	Complete General Fertilizer.....	3-8-4	Bloomfield.....
7084	Double A Tobacco Fertilizer.....	5-4-5	Gaylordsville.....
6968	Gladiator Fertilizer.....	4-8-7	North Haven.....
6765	Grass & Lawn Top Dressing.....	6-6-4	Middletown.....
6919	Grass & Lawn Top Dressing.....	6-6-4	Milford.....
7477	Hi-Grade Tobacco Manure.....	7-4-7	Poquonock.....
6963	Monarch Fertilizer.....	4-8-4	New Britain.....
6936	Old Hickory Fertilizer.....	2-8-10	North Haven.....
7533	Patapasco 5-8-7.....	5-8-7	Silver Lane.....
6768	Bowker's All Round Fertilizer.....	3-8-4	New Milford.....
6965	Bowker's Market Garden Fertilizer.....	4-8-4	Willimantic.....
6767	Bowker's Potato & Vegetable Phosphate.....	2-9-3	New Milford.....
6769	Bowker's Stockbridge Early Crop Manure.....	5-8-7	New Canaan.....
6926	Bowker's Stockbridge Early Crop Manure.....	5-8-7	Milldale.....
6969	Bowker's Stockbridge Hill & Drill Fertilizer..	4-8-7	Milldale.....
6962	Bowker's Stockbridge Tobacco Manure.....	5-4-5	New Milford.....
7407	Bowker's Sure Crop Fertilizer.....	1-9-4	Higganum.....
6993	Bradley's Blood, Bone and Potash.....	5-8-7	Suffield.....
7083	Bradley's Complete Manure for Potatoes and Vegetables.....	4-8-7	Bethel.....
6992	Bradley's Complete Tobacco Manure.....	5-4-5	Suffield.....
6764	Bradley's Eclipse Fertilizer.....	1-9-4	Meriden.....
6967	Bradley's Northland Potato Grower.....	4-8-4	Glastonbury.....
7076	Bradley's Potato Fertilizer.....	2-9-3	Colchester.....
6762	Bradley's Potato Manure.....	3-8-4	Suffield.....
6918	Bradley's Potato Manure.....	3-8-4	Meriden.....
6761	Bradley's XL Superphosphate of Lime.....	3-10-4	Windsor Locks.....
6991	National Aroostook Special Fertilizer.....	5-8-7	West Cheshire.....
7081	National Complete Tobacco Fertilizer.....	5-4-5	Simsbury.....
6995	National Market Garden Fertilizer.....	3-8-4	Middletown.....
6994	National Pine Tree State Potato Fertilizer...	4-8-4	Middletown.....
7080	National Premier Potato Manure.....	4-8-7	Simsbury.....
6998	Sanderson's Atlantic Coast Mixture.....	3-10-4	West Cheshire.....
7077	Sanderson's Complete Tobacco Grower.....	5-4-5	Glastonbury.....
6996	Sanderson's Corn Superphosphate.....	2-9-3	So. Coventry.....
6997	Sanderson's Formula A.....	4-8-4	So. Coventry.....
7402	Sanderson's Formula A.....	4-8-4	Woodstock.....
6999	Sanderson's Formula B.....	4-8-7	West Cheshire.....
7408	Sanderson's Potato Manure.....	3-8-4	West Haven.....
7074	Sanderson's 5-8-7 Fertilizer.....	5-8-7	Milford.....

## CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH.

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	1.60	0.14	0.79	2.61	3.17	0.27	7.35	7.08	1.28	16.17	7210
0.12	0.44	0.38	0.26	1.20	1.46	0.60	9.24	8.64	4.02	4.02	6939
0.00	3.08	0.52	0.52	4.12	5.01	0.35	8.20	7.85	6.96	6.96	6970
0.02	1.60	0.48	0.48	2.58	3.14	0.45	8.46	8.01	4.00	4.00	6940
0.07	1.13	0.36	2.56	4.12	5.01	0.20	4.65	4.45	0.39	4.98	7084
0.12	2.32	0.42	0.50	3.36	4.09	0.17	8.14	7.97	7.05	7.05	6968
0.35	3.92	0.13	0.54	4.94	6.01	0.15	6.47	6.32	3.75	3.75	6765
0.92	3.06	0.22	0.58	4.78	5.81	0.38	6.80	6.42	3.99	3.99	6919
0.45	0.77	0.48	3.91	5.61	6.82	0.20	4.63	4.43	0.69	7.23	7477
0.22	1.93	0.57	0.53	3.25	3.95	0.55	8.58	8.03	3.90	3.90	6963
0.04	1.00	0.34	0.32	1.70	2.07	0.28	8.46	8.18	10.07	10.07	6936
0.00	2.78	0.73	0.51	4.02	4.89	0.53	8.24	7.71	6.39	6.39	7533
0.21	1.58	0.27	0.46	2.52	3.06	0.26	8.10	7.84	4.05	4.05	6768
0.12	2.10	0.47	0.57	3.26	3.96	0.37	8.41	8.04	4.13	4.13	6965
0.04	0.94	0.40	0.38	1.76	2.14	0.58	9.78	9.20	2.90	2.90	6767
0.12	3.08	0.36	0.52	4.08	4.96	0.37	8.23	7.86	6.66	6.66	6769
0.07	3.09	0.62	0.50	4.28	5.20	0.30	8.50	8.20	6.72	6.72	6926
0.00	2.32	0.43	0.54	3.29	4.00	0.20	8.43	8.23	7.04	7.04	6969
0.52	0.79	0.49	2.38	4.18	5.08	0.18	4.13	3.95	0.13	5.44	6962
0.06	0.28	0.43	0.27	1.04	1.26	0.54	9.50	8.96	4.02	4.02	7407
0.00	3.11	0.48	0.52	4.11	5.00	0.48	8.88	8.40	6.75	6.75	6993
0.00	2.30	0.52	0.56	3.38	4.11	0.30	8.33	8.03	7.08	7.08	7083
0.29	0.83	0.56	2.46	4.14	5.03	0.20	3.85	3.65	0.39	4.96	6992
0.08	0.19	0.43	0.24	0.94	1.14	0.45	9.06	8.61	3.92	3.92	6764
0.30	1.80	0.68	0.53	3.31	4.02	0.65	8.73	8.08	3.68	3.68	6967
0.00	1.00	0.47	0.38	1.85	2.25	0.55	9.90	9.35	3.47	3.47	7076
0.00	1.55	0.48	0.45	2.48	3.02	0.40	8.45	8.05	3.68	3.68	6762
0.00	1.62	0.48	0.47	2.57	3.12	0.52	8.45	7.93	3.88	3.88	6918
0.14	1.40	0.52	0.39	2.45	2.98	0.93	11.10	10.17	3.95	3.95	6761
0.06	3.00	0.47	0.49	4.02	4.89	0.13	8.39	8.26	7.12	7.12	6991
0.45	0.67	0.22	2.88	4.22	5.13	0.15	4.73	4.58	0.61	5.76	7081
0.00	1.58	0.44	0.45	2.47	3.00	0.27	8.00	7.73	3.90	3.90	6995
0.00	2.29	0.48	0.55	3.32	4.04	0.28	8.25	7.97	3.90	3.90	6994
0.00	2.34	0.55	0.52	3.41	4.14	0.25	8.33	8.08	6.85	6.85	7080
0.26	1.59	0.45	0.43	2.73	3.32	0.88	10.29	9.41	4.26	4.26	6998
0.49	0.57	0.18	2.76	4.00	4.86	0.23	4.33	4.10	0.63	5.03	7077
0.00	1.12	0.40	0.33	1.85	2.25	0.24	9.43	9.19	3.59	3.59	6996
0.00	2.34	0.43	0.57	3.34	4.06	0.43	8.25	7.82	4.19	4.19	6997
0.32	1.63	0.73	0.49	3.17	3.85	0.68	8.95	8.27	3.77	3.77	7402
0.82	1.25	0.11	1.30	3.48	4.23	0.26	8.00	7.74	0.70	6.86	6999
0.08	1.52	0.44	0.51	2.55	3.10	0.63	8.83	8.20	3.85	3.85	7408
0.00	3.00	0.44	0.55	3.99	4.85	0.33	8.23	7.90	6.72	6.72	7074



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—Continued.</b>			
7161	Sanderson's 5-8-7. Fertilizer.....	5-8-7	Woodstock.....
7162	Sanderson's 5-8-7. Fertilizer.....	5-8-7	Woodstock.....
7206	Sanderson's 5-10-5 Fertilizer.....	5-10-5	Woodstock.....
7207	Sanderson's 3-12-3 Fertilizer.....	3-12-3	Woodstock.....
<b>Apothecaries Hall Co., Waterbury.</b>			
6759	Liberty Corn and All Crops 2-8-2.....	2-8-2	Cheshire.....
6770	Liberty Corn Fruit and All Crops 2-12-4.....	2-12-4	Greenwich.....
6766	Liberty Fish Bone and Potash 3-8-3.....	3-8-3	Waterbury.....
6990	Liberty High Grade Market Gardners Special 5-8-7.....	5-8-7	Cheshire.....
7055	Liberty Home Vegetable Garden Fertilizer... 4-8-7.....	4-2-5	Waterbury.....
7001	Liberty Onion Special (Potash as Sulphate) 4-8-7.....	4-8-7	East Windsor.....
7000	Liberty Potato and General Crops 4-8-10.....	4-8-10	East Windsor.....
6760	Liberty Potato and Market Gardners Special 4-8-4.....	4-8-4	Cheshire.....
6883	Liberty Potato and Vegetable 2-8-10.....	2-8-10	East Windsor.....
7158	Liberty Tobacco Special 5-4-5.....	5-4-5	East Windsor.....
7062	Liberty Top Dresser for Grass and Grain 10-3½-8.....	10-3½-8	New London.....
7499	Liberty Top Dresser for Grass and Grain 10-3½-8.....	10-3½-8	East Windsor.....
<b>Armour Fertilizer Works, New York.</b>			
6925	Armour's Big Crop 4-8-4.....	4-8-4	Meriden.....
6810	Armour's Big Crop 5-8-7.....	5-8-7	Danbury.....
6879	Armour's Big Crop 8-6-6.....	8-6-6	Madison.....
6824	Armour's Big Crop Fertilizer 3-8-4.....	3-8-4	Thompsonville.....
6886	Armour's Big Crop Fertilizer 4-6-10.....	4-6-10	Seymour.....
6811	Armour's Big Crop Fertilizer 4-8-4.....	4-8-4	Danbury.....
7159	Armour's Big Crop Fertilizer 4-16-4.....	4-16-4	Hampton.....
6823	Armour's Big Crop Tobacco Special 5-4-5.....	5-4-5	Thompsonville.....
7400	Armour's Corn Grower.....	2-8-2	Wethersfield.....
<b>Atlantic Packing Co., New Haven</b>			
6887	Atlantic Grain Fertilizer 2-10-2.....	2-10-2	Sampled at factory..
7204	Atlantic 5-4-16.....	5-4-16	Glastonbury.....
7471	Atlantic Grain Fertilizer 2-10-2.....	2-10-2	East Hartford.....
7203	Atlantic Special Vegetable 4-8-4.....	4-8-4	Glastonbury.....
7205	Atlantic Tobacco Manure 5-8-6.....	5-8-6	East Hartford.....

## 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.	
%	%	%	%	%	%	%	%	%	%	%	
0.13	3.05	0.69	0.41	4.28	5.20	0.30	8.30	8.00	7.07	7.07	7161
0.00	3.37	0.47	0.43	4.27	5.19	0.28	8.85	8.57	6.67	6.67	7162
0.29	3.09	0.25	0.49	4.12	5.01	0.43	10.06	9.63	5.31	5.31	7206
0.19	1.79	0.37	0.44	2.79	3.39	0.83	11.86	11.03	3.10	3.10	7207
0.09	0.98	0.00	0.87	1.94	2.36	0.78	9.05	8.27	3.33	3.33	6759
0.11	1.20	0.47	0.14	1.92	2.33	1.24	12.88	11.64	4.22	4.22	6770
1.01	1.03	0.00	0.74	2.78	3.38	0.60	8.58	7.98	3.08	3.08	6766
0.80	2.78	0.35	0.14	4.07	4.95	0.60	9.08	8.48	7.60	7.60	6990
0.23	0.08	0.52	3.05	3.88	4.72	4.58	11.35	6.77	6.35	6.35	7055
1.30	0.10	0.51	1.68	3.59	4.36	2.14	10.06	7.92	0.89	7.22	7001
2.42	0.84	0.34	0.11	3.71	4.51	0.68	9.20	8.52	9.89	9.89	7000
0.12	2.12	0.36	0.76	3.36	4.09	0.55	9.00	8.45	4.20	4.20	6760
0.92	0.80	0.27	0.12	2.11	2.57	0.05	8.15	8.10	11.24	11.24	6883
0.09	1.70	0.00	2.63	4.42	5.37	0.20	6.28	6.08	0.57	5.92	7158
0.82	6.54	0.31	0.21	7.88	9.58	0.30	4.50	4.20	7.64	7.64	7001
0.00	6.60	0.31	1.08	7.99	9.71	0.10	4.65	4.55	9.72	9.72	7001
0.65	2.11	0.28	0.25	3.29	4.00	0.27	8.05	7.78	3.90	3.90	7001
0.76	3.00	0.23	0.10	4.09	4.97	0.28	8.63	8.35	6.84	6.84	7001
1.50	4.75	0.20	0.10	6.55	7.96	0.05	7.03	6.98	6.08	6.08	7001
0.14	1.86	0.24	0.21	2.45	2.98	0.24	8.41	8.17	4.31	4.31	7001
0.51	2.41	0.31	0.09	3.32	4.04	0.15	6.47	6.32	9.17	9.17	6886
0.62	2.02	0.17	0.22	3.03	3.68	0.25	8.48	8.23	4.48	4.48	6811
0.71	2.39	0.31	0.09	3.50	4.26	0.33	16.30	15.97	3.32	4.01	7159
0.83	0.14	0.13	2.79	3.89	4.73	0.58	5.78	5.20	0.56	5.02	6823
0.29	0.94	0.10	0.21	1.54	1.87	0.45	8.65	8.20	2.11	2.11	7400
0.13	1.02	0.21	0.36	1.72	2.09	0.14	10.09	9.95	1.74	2.07	6887
1.40	1.00	0.37	1.43	4.20	5.11	2.95	9.65	6.70	0.66	17.10	7204
0.03	1.06	0.23	0.32	1.64	1.99	0.38	10.80	10.42	2.03	2.03	7471
0.64	1.28	0.55	0.79	3.26	3.96	0.68	8.94	8.26	3.90	3.90	7203
1.44	1.30	0.56	0.81	4.11	5.00	0.65	9.05	8.40	0.58	5.98	7205

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i>		
	<b>E. J. Bantle, Glastonbury</b>		
6880	Bantle's Wrapper Brand.....	7-4-7	Sampled at factory..
	<b>F. A. Bartlett Tree Expert Co., Stamford.</b>		
6877	Bartlett's Green Tree Food.....	6-8-4	Sampled at factory..
	<b>Berkshire Chemical Co., Bridgeport.</b>		
6814	Berkshire Complete Fertilizer.....	3-8-3	Ridgefield.....
6927	Berkshire Complete Tobacco.....	5-4-5	Windsorville.....
6928	Berkshire Economical Grass Fertilizer.....	10-3-8	Sampled at factory..
6813	Berkshire Grass Special.....	7-6-5	Ridgefield.....
6807	Berkshire Long Island Special.....	5-8-7	Guilford.....
6806	Berkshire Market Garden Fertilizer.....	4-8-4	Guilford.....
6805	Berkshire Potato and Vegetable Phosphate...	2-9-3	Norwalk.....
7209	Berkshire Starter 10% Potash.....	5-8-10	East Granby.....
7212	Berkshire Tobacco Special.....	7-4-7	Suffield.....
	<b>A. D. Bridges Sons Co., Hazardville.</b>		
7419	A. D. Bridges Sons Special Tobacco Fertilizer.	5-4-5	Somers.....
7061	Corn, Onion, Potato and General Purpose....	4-8-4	Sampled at factory..
	<b>E. D. Chittenden Co., Bridgeport.</b>		
7216	Chittenden's Complete Grain.....	2-9-3	Bloomfield.....
7217	Chittenden's High Grade Potato 7% Potash..	5-8-7	Abington.....
7202	Chittenden's Potato Special 4% Potash.....	4-8-4	Bloomfield.....
7220	Chittenden's Tobacco Special.....	5-4-5	Broad Brook.....
7225	Chittenden's Tobacco Starter.....	4-6-10	Wapping.....
7218	Chittenden's Vegetable and Onion Grower...	3-8-4	Tolland.....
	<b>E. B. Clark Seed Co., Milford.</b>		
6816	Special Mixture General Use.....	4-8-4	Sampled at factory..
7063	Special Mixture with 6% Potash.....	4-8-6	Branford.....
7064	Superphosphate.....	5-8-7	Branford.....
7053	Tip Top Brand.....	5-10-5	Sampled at factory..
	<b>C. A. Cowles, Plantsville.</b>		
7054	C. A. Cowles 4-8-4 Fertilizer.....	4-8-4	Sampled at factory..
	<b>C &amp; R. Sales Corp., Worcester, Mass.</b>		
7208	C. & R. Lawn and Shrub.....	6-5-5	Norwich.....
	<b>Davey Tree Expert Co., Kent, Ohio.</b>		
7082	Davey Tree Food.....	7-7-3-3	Sound Beach.....

## 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.	
%	%	%	%	%	%	%	%	%	%	%	
1.42	1.22	0.49	3.07	6.20	7.54	0.46	5.68	5.22	0.66	7.84	6880
0.02	3.80	0.28	0.92	5.02	6.10	3.14	11.12	7.98	3.62	3.62	6877
0.08	2.10	0.21	0.56	2.95	3.59	0.55	9.30	8.75	3.37	3.37	6814
1.26	0.14	0.20	2.93	4.53	5.51	0.50	6.05	5.55	0.98	6.40	6927
2.06	4.54	0.39	1.08	8.07	9.81	1.98	9.30	7.32	8.73	8.73	6928
1.51	2.54	0.35	1.38	5.78	7.03	0.23	7.80	7.57	5.10	5.10	6813
0.04	2.91	0.31	1.24	4.50	5.47	0.25	8.98	8.73	7.32	7.32	6807
0.10	2.68	0.27	0.63	3.68	4.47	0.38	8.80	8.42	4.36	4.36	6806
0.15	1.41	0.00	0.46	2.02	2.46	0.70	10.88	10.18	3.37	3.37	6805
0.02	2.74	0.24	1.36	4.36	5.30	0.85	8.78	7.93	2.22	10.67	7209
0.91	0.91	0.19	3.87	5.88	7.15	0.13	4.78	4.65	0.97	8.03	7212
0.12	1.06	0.05	3.11	4.34	5.28	0.38	5.23	4.85	0.35	5.78	7419
0.83	1.52	0.19	0.92	3.46	4.21	0.68	9.38	8.70	4.23	4.23	7061
0.20	1.50	0.19	0.33	2.22	2.70	0.47	9.28	8.81	3.68	3.68	7216
0.00	3.44	0.28	0.34	4.06	4.94	0.55	8.60	8.05	7.00	7.00	7217
0.00	2.86	0.13	0.36	3.35	4.07	0.30	8.45	8.15	4.43	4.43	7202
0.16	2.50	0.26	1.36	4.28	5.20	0.13	4.93	4.80	1.28	5.78	7220
0.00	3.07	0.09	0.40	3.56	4.33	0.23	6.45	6.22	2.47	9.29	7225
0.03	2.05	0.18	0.32	2.58	3.14	0.48	8.80	8.32	3.82	3.82	7218
0.21	2.02	0.05	1.04	3.32	4.04	2.18	9.75	7.57	3.40	4.15	6816
0.00	2.32	0.30	0.78	3.40	4.13	0.48	9.03	8.55	6.25	6.25	7063
0.00	3.00	0.41	0.90	4.31	5.24	0.33	8.48	8.15	7.07	7.07	7064
0.04	3.44	0.14	0.46	4.08	4.96	0.40	10.48	10.08	5.06	5.06	7053
0.12	2.16	0.51	0.57	3.36	4.09	0.38	8.90	8.52	4.12	4.12	7054
0.18	0.98	1.17	2.94	5.27	6.41	1.18	7.68	6.50	6.12	6.12	7208
0.00	3.44	0.45	2.03	5.92	7.20	1.58	9.90	8.32	3.40	3.40	7082

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i> <b>Eastern States Farmers' Exchange, Springfield, Mass.</b>			
7059	Eastern States High Analysis Fertilizer 8-16-20	8-16-20	North Haven.....
7057	Eastern States High Analysis Fertilizer 10-16-14.....	10-16-14	North Haven.....
7099	Eastern States No-Filler 3-12-3.....	3-12-3	Granby.....
7060	Eastern States No-Filler 4-8-10.....	4-8-10	North Haven.....
7056	Eastern States No-Filler 5-8-7.....	5-8-7	North Haven.....
7058	Eastern States No-Filler Fertilizer 5-10-5.....	5-10-5	North Haven.....
7100	Eastern States No-Filler Fertilizer 8-6-6.....	8-6-6	Unionville.....
7338	Open Formula A Tobacco Fertilizer.....	6,5-4,25-	
		5,50	Feeding Hills.....
7420	Open Formula A Tobacco Fertilizer.....	6,5-4,25-	
		5,50	Thompsonville.....
<b>Essex Fertilizer Co., Boston, Mass.</b>			
7336	Essex A 1 Superphosphate 2-10-2.....	2-10-2	Rockville.....
7215	Essex Complete Manure 5-8-7.....	5-8-7	Wallingford.....
7095	Essex Fish Fertilizer, For All Crops 3-8-4.....	3-8-4	Wallingford.....
7094	Essex Market Garden 4-8-4.....	4-8-4	Wallingford.....
7224	Essex Tobacco Grower 5-4-5.....	5-4-5	Wapping.....
7339	Essex Top Dressing 7-6-5.....	7-6-5	West Stafford.....
<b>L. T. Frisbie Co., New Haven.</b>			
7090	Frisbie's 5-8-7.....	5-8-7	Clintonville.....
7474	Frisbie's 5-8-7.....	5-8-7	Norwich.....
7092	Frisbie's Corn and Grain Fertilizer 2-10-2.....	2-10-2	Danbury.....
7156	Frisbie's Market Garden 4-8-7.....	4-8-7	Buckland.....
7096	Frisbie's Special 3-8-4.....	3-8-4	New Haven.....
7091	Frisbie's Special Vegetable and Potato Grower.	4-8-4	Danbury.....
7223	Frisbie's Tobacco Grower 5-4-5.....	5-4-5	Burnside.....
7423	Frisbie's Tobacco Manure.....	5-8-6	Burnside.....
7097	Frisbie's Top Dresser 7-6-5.....	7-6-5	Orange.....
<b>International Agricultural Corp. Boston, Mass.</b>			
7330	I. A. C. Crop Grower.....	5-8-7	Willimantic.....
7424	I. A. C. High Grade Manure 4-8-10.....	4-8-10	Rockville.....
7331	I. A. C. Ideal.....	4-8-4	Willimantic.....
7427	I. A. C. Tobacco Producer 5-4-5.....	5-4-5	Suffield.....
7425	I. A. C. Connecticut Valley Special.....	7-4-7	Rockville.....
7214	Special 4-8-6.....	4-8-6	Willimantic.....
<b>Lowell Fertilizer Co., Boston, Mass.</b>			
7260	Lowell Animal Brand, A High Grade Manure 3-8-4.....	3-8-4	Southington.....

## 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.	
%	%	%	%	%	%	%	%	%	%	%	
1.52	3.26	0.13	1.21	6.12	7.44	0.95	16.45	15.50	22.56	22.56	7059
1.35	4.77	0.44	1.33	7.89	9.59	1.03	15.42	14.39	13.15	13.15	7057
0.10	1.84	0.32	0.39	2.65	3.22	1.08	13.05	11.97	3.83	3.83	7099
0.41	1.92	0.70	0.26	3.29	4.00	0.51	8.45	7.94	9.24	9.24	7060
0.46	2.39	0.37	0.82	4.04	4.01	0.25	8.68	8.43	6.59	6.59	7056
0.54	2.22	0.38	0.86	4.00	4.86	0.63	10.93	10.30	4.49	4.49	7058
2.48	1.88	0.86	0.80	6.02	7.32	0.50	7.00	6.50	6.34	6.34	7100
0.95	0.17	0.32	3.85	5.29	6.43	0.28	6.60	6.32	0.41	4.11	7338
1.20	0.12	0.08	3.99	5.39	6.55	0.23	5.65	5.42	1.02	6.54	7420
0.04	0.68	0.56	0.54	1.82	2.21	1.15	11.15	10.00	1.91	1.91	7336
0.28	2.69	0.45	0.66	4.08	4.06	0.55	8.58	8.03	6.55	6.55	7215
0.00	1.42	0.49	0.70	2.61	3.17	0.48	8.70	8.22	4.05	4.05	7095
0.15	2.08	0.50	0.91	3.64	4.43	0.68	8.90	8.22	4.05	4.05	7094
0.85	0.83	0.38	2.07	4.13	5.02	0.35	5.38	5.03	0.74	6.05	7224
0.07	4.69	0.31	0.13	5.20	6.32	0.48	6.81	6.33	5.04	5.04	7339
0.54	2.24	0.63	0.79	4.20	5.11	1.08	9.83	8.75	6.92	6.92	7090
0.48	2.17	0.85	0.77	4.27	5.19	0.95	9.43	8.48	7.10	7.10	7474
0.03	0.97	0.33	0.53	1.86	2.26	1.15	11.15	10.00	2.02	2.02	7092
0.73	1.20	0.62	0.76	3.31	4.02	0.55	8.80	8.25	6.55	6.55	7156
0.36	1.13	0.43	0.69	2.61	3.17	1.03	9.20	8.17	4.00	4.00	7096
0.77	1.44	0.57	0.58	3.36	4.09	1.10	9.53	8.43	4.09	4.09	7091
1.64	0.04	0.28	2.14	4.10	4.98	0.50	5.35	4.85	0.86	5.82	7223
1.18	1.34	0.80	0.68	4.00	4.86	0.75	9.55	8.80	0.66	6.03	7423
1.74	2.57	0.94	0.89	6.14	7.47	1.23	7.80	6.57	4.76	4.76	7097
0.33	2.38	0.30	1.09	4.10	4.98	0.18	8.33	8.15	7.02	7.02	7330
0.42	1.90	0.13	0.80	3.25	3.95	2.53	10.65	8.12	10.73	10.73	7424
0.54	1.73	0.20	0.84	3.31	4.02	0.10	8.10	8.00	4.12	4.12	7331
0.02	2.10	0.37	2.17	4.66	5.67	0.06	3.33	3.27	1.37	6.82	7427
0.16	2.04	1.49	2.21	5.90	7.17	0.09	3.98	3.89	0.58	7.18	7425
0.64	1.74	0.09	0.71	3.18	3.87	0.13	8.28	8.15	5.85	5.85	7214
0.00	1.33	0.50	0.62	2.45	2.98	0.92	8.51	7.59	3.82	3.82	7260

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
<b>Lowell Fertilizer Co., Boston, Mass.</b>			
7261	Lowell Bone Fertilizer 2-10-2.....	2-10-2	Southbury.....
7258	Lowell Corn and Vegetable 4-8-4.....	4-8-4	Southington.....
7416	Lowell Market Garden Manure 5-8-7.....	5-8-7	Somersville.....
7262	Lowell Market Garden Manure 5-8-7.....	5-8-7	Milford.....
7259	Lowell Potato Phosphate 4-8-7.....	4-8-7	Southington.....
7267	Lowell Tobacco 5-4-5.....	5-4-5	Ellington.....
7266	Lowell Top Dressing 7-6-5.....	7-6-5	Ellington.....
6681	Lowell 3-12-3.....	3-12-3	Cheshire.....
6680	Lowell 5-10-5.....	5-10-5	Cheshire.....
7417	Lowell 5-10-5.....	5-10-5	Orange.....
6682	Lowell 8-6-6.....	8-6-6	Cheshire.....
<b>Mapes Formula and Peruvian Guano Co., New York.</b>			
6984	Mapes Conn. Valley Special.....	6-4-7	East Granby.....
6897	Mapes Corn Manure.....	3-8-3	Hartford.....
6985	Mapes General Tobacco Manure.....	5-4-5	East Granby.....
6898	Mapes General Truck Manure.....	5-6-5	Hartford.....
6976	Mapes General Use Manure.....	3-6-4	Windsor Locks.....
7263	Mapes Onion Manure.....	4-6-4	Hartford.....
6896	Mapes Potato Manure.....	4-7-5	Hartford.....
7257	Mapes Special Trucker.....	5-8-7	Hartford.....
7264	Mapes Tobacco Ash Constituents.....	1-4-15	East Granby.....
7274	Mapes Tobacco Ash and Starter.....	4-6-15	East Granby.....
7405	Mapes Tobacco Manure, Wrapper Brand....	7-5-2-10-5	East Granby.....
6977	Mapes Tobacco Starter Improved.....	5-6-1	Windsor Locks.....
7256	Mapes Top Dresser.....	10-4-2	Hartford.....
<b>A. G. Markham &amp; Co., Springfield, Mass.</b>			
7281	4-8-4.....	4-8-4	Stafford Springs.....
7282	5-8-7.....	5-8-7	Stafford Springs.....
<b>New England Fertilizer Co., Boston, Mass.</b>			
7271	New England Complete Manure 4-6-10.....	4-6-10	Meriden.....
6978	New England Corn Phosphate 2-10-2.....	2-10-2	Rockville.....
6980	New England Market Garden Manure 5-8-7..	5-8-7	Meriden.....
6979	New England Potato and Vegetable Manure 4-8-4.....	4-8-4	Chester.....
6986	New England Superphosphate, A High Grade Fertilizer for All Crops 3-8-4.....	3-8-4	Unionville.....
7404	New England Tobacco Manure 5-4-5.....	5-4-5	Unionville.....
7273	New England Top Dressing 7-6-5.....	7-6-5	Chester.....

## 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.	
%	%	%	%	%	%	%	%	%	%	%	
0.05	0.61	0.47	0.60	1.73	2.10	1.08	10.06	8.98	2.35	2.35	7261
0.20	2.02	0.36	0.73	3.31	4.02	0.80	8.38	7.58	4.11	4.11	7258
0.25	2.92	0.57	0.56	4.30	5.23	0.35	8.58	8.23	6.83	6.83	7416
1.00	2.06	0.51	0.77	4.34	5.28	0.70	8.83	8.13	4.90	6.82	7262
0.25	2.02	0.35	0.71	3.33	4.05	0.91	8.35	7.44	7.42	7.42	7259
0.94	0.86	0.29	2.17	4.26	5.18	0.20	5.10	4.90	1.06	5.74	7267
1.32	2.98	0.83	0.75	5.88	7.15	0.80	7.08	6.28	3.35	4.99	7266
0.12	1.47	0.57	0.47	2.63	3.20	0.74	13.07	12.33	2.50	3.20	6681
0.12	2.71	0.77	0.71	4.31	5.24	0.75	11.02	10.27	5.14	5.35	6680
0.00	2.62	1.02	0.68	4.32	5.25	0.88	11.05	10.17	5.13	5.13	7417
3.63	0.77	1.25	1.06	6.71	8.16	0.61	6.95	6.34	6.27	6.27	6682
1.86	0.14	0.42	2.58	5.00	6.08	1.13	6.55	5.42	0.58	8.07	6984
0.72	1.38	0.13	0.48	2.71	3.29	1.60	11.18	9.58	2.41	3.22	6897
1.71	0.10	0.42	2.45	4.68	5.69	1.38	6.03	4.65	0.39	5.95	6985
0.73	2.93	0.17	0.34	4.17	5.07	0.93	9.35	8.42	4.72	5.67	6898
1.06	1.23	0.03	0.32	2.64	3.21	0.83	8.55	7.72	3.02	4.54	6976
1.03	1.96	0.03	0.33	3.35	4.07	0.70	7.75	7.05	0.23	4.49	7263
0.82	2.08	0.06	0.36	3.32	4.04	1.25	10.68	9.43	4.95	4.95	6896
0.62	2.97	0.19	0.39	4.17	5.07	1.08	11.93	10.85	7.21	7.21	7257
0.49	0.08	0.18	0.65	1.40	1.70	1.85	6.93	5.08	0.70	15.35	7264
2.72	0.02	0.33	0.55	3.62	4.40	1.73	7.88	6.15	0.82	17.04	7274
2.65	0.15	0.00	4.02	6.82	8.29	1.53	5.63	4.10	0.88	11.76	7405
1.51	1.88	0.24	1.13	4.76	5.79	2.08	8.73	6.65	0.27	1.71	6977
5.19	2.51	0.17	0.40	8.27	10.05	0.45	7.45	7.00	0.25	2.66	7256
0.37	1.50	0.78	0.71	3.36	4.00	0.83	8.55	7.72	4.10	4.10	7281
0.44	2.37	0.67	0.76	4.24	5.15	0.90	8.92	8.02	7.02	7.02	7282
0.16	1.98	0.47	0.75	3.36	4.09	0.69	6.60	5.91	9.97	9.97	7271
0.04	0.63	0.49	0.49	1.65	2.01	1.07	10.38	9.31	1.98	1.98	6978
0.15	2.81	0.53	0.67	4.16	5.06	0.70	8.38	7.68	7.21	7.21	6980
0.26	2.00	0.46	0.70	3.42	4.16	0.75	8.65	7.90	4.02	4.02	6979
0.07	1.41	0.48	0.75	2.71	3.29	1.05	8.89	7.84	4.02	4.02	6986
0.88	0.88	0.28	2.20	4.24	5.15	0.45	5.33	4.88	1.39	6.07	7404
0.00	5.14	0.31	0.09	5.54	6.74	0.58	7.33	6.75	5.16	5.16	7273



TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i>		
	<b>Old Deerfield Fertilizer Co., So. Deerfield, Mass.</b>		
7277	Old Deerfield 5-8-7.....	5-8-7	Suffield.....
7276	Old Deerfield 7-4-7.....	7-4-7	Suffield.....
	<b>Olds &amp; Whipple, Inc., Hartford</b>		
6975	O & W Complete Market Garden Fertilizer..	4-8-4	So. Manchester.....
7280	O & W Complete Tobacco Fertilizer.....	5-4-5	E. Windsor Hill.....
6982	O & W Grain and General Crop Fertilizer....	2-9-3	Sampled at factory..
6890	O & W Grass Fertilizer.....	6-6-4	So. Manchester.....
6981	O & W High Grade Vegetable and Potato Fertilizer.....		
		5-8-7	Wethersfield.....
6983	O & W High Grade Starter and Potash Com- pound.....	5-4-15	Burnside.....
6964	O & W Tobacco Fertilizer Blue Label Brand.	6-3-6	Manchester.....
	<b>Parmenter &amp; Polsey, Boston, Mass.</b>		
7403	P & P A. A. Brand 5-8-7.....	5-8-7	Plainville.....
7534	P & P Corn and Vegetable 4-8-4.....	4-8-4	Plainville.....
7278	P & P Maine Potato Fertilizer 4-6-10.....	4-6-10	Wallingford.....
7406	P & P Plymouth Rock Brand for All Crops 3-8-4.....	3-8-4	Hartford.....
	<b>Piedmont Mt. Airy Guano Co., Baltimore, Md.</b>		
7275	Piedmont 4-6-10 Fertilizer.....	4-6-10	Seymour.....
6972	Piedmont 5-8-7 Fertilizer.....	5-8-7	Seymour.....
6971	Piedmont 8-6-6 Fertilizer.....	8-6-6	Seymour.....
7334	Piedmont Plow Brand.....	2-8-2	Guilford.....
7279	Piedmont Unexcelled Guano.....	4-8-4	Plantsville.....
	<b>Frank S. Platt Co., New Haven.</b>		
6961	Platco Special.....	5-8-7	Sampled at factory..
	<b>Rackliffe Bros. Co., New Britain.</b>		
7175	4-8-4 Rackliffe Brand.....	4-8-4	Sampled at factory..
7176	5-8-7 Rackliffe Brand.....	5-8-7	Sampled at factory..
	<b>The Rogers &amp; Hubbard Co., Portland.</b>		
7272	4-8-4.....	4-8-4	Willimantic.....
7439	5-8-7.....	5-8-7	Norwich.....
6836	Garden Fertilizer.....	2-8-4	Hartford.....
6820	Hubbard's "Bone Base" Fertilizer for Seeding Down.....		
		3-5-6	Sampled at factory..
6818	Hubbard's "Bone Base" Oats and Top Dressing.....	10-3-8	Higganum.....

## 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.	
%	%	%	%	%	%	%	%	%	%	%	
0.79	1.30	1.24	0.62	3.95	4.80	0.98	9.43	8.45	6.96	6.96	7277
0.89	0.41	1.49	3.39	6.18	7.51	0.15	5.28	5.13	0.97	7.74	7276
0.63	2.02	0.18	0.69	3.52	4.28	0.40	8.83	8.43	4.20	4.20	6975
0.03	1.08	0.08	3.09	4.28	5.20	0.38	5.03	4.65	0.31	5.54	7280
0.44	0.88	0.01	0.60	1.93	2.35	0.60	10.18	9.58	3.41	3.41	6982
2.40	2.46	0.19	0.11	5.16	6.27	0.50	6.90	6.40	4.86	4.86	6899
0.96	2.20	0.20	1.08	4.44	5.40	0.68	8.90	8.22	0.66	7.08	6981
1.09	0.86	0.26	2.01	4.22	5.13	0.45	5.40	4.95	1.02	16.12	6983
0.17	1.18	0.37	3.42	5.14	6.25	0.23	3.95	3.72	0.40	6.90	6964
0.16	2.66	0.51	0.75	4.08	4.96	0.40	8.65	8.25	6.57	6.57	7403
0.00	2.02	0.31	0.86	3.19	3.88	0.75	8.06	7.31	4.00	4.00	7534
0.33	2.09	0.39	0.69	3.50	4.26	0.57	6.53	5.96	9.83	9.83	7278
0.10	1.30	0.56	0.71	2.67	3.25	1.10	8.95	7.85	4.03	4.03	7406
0.00	2.50	0.20	0.54	3.24	3.04	1.00	7.45	6.45	9.67	9.67	7275
0.09	2.91	0.51	0.46	3.97	4.83	1.25	9.33	8.08	6.60	6.60	6972
0.22	5.13	0.44	0.36	6.15	7.48	0.85	7.70	6.85	6.17	6.17	6971
0.04	0.82	0.39	0.43	1.68	2.04	1.83	10.05	8.22	2.79	2.79	7334
0.06	2.22	0.33	0.58	3.19	3.88	1.14	9.03	7.89	4.24	4.24	7279
0.38	2.66	0.52	0.60	4.16	5.06	1.15	9.23	8.08	6.97	6.97	6961
0.18	1.30	0.88	0.76	3.12	3.79	0.58	8.63	8.05	3.80	3.80	7175
1.33	1.27	0.63	0.79	4.02	4.89	0.80	9.48	8.68	6.70	6.70	7176
0.04	2.38	0.46	0.42	3.30	4.01	0.38	8.65	8.27	4.09	4.09	7272
0.00	3.42	0.51	0.34	4.27	5.19	0.28	8.43	8.15	7.16	7.16	7439
0.10	0.82	0.61	0.42	1.95	2.37	0.60	8.63	8.03	4.35	4.35	6836
0.09	0.21	0.32	2.06	2.68	3.26	5.35	12.03	6.68	6.92	6.92	6820
7.75	0.08	0.48	0.15	8.46	10.29	1.98	8.48	6.50	5.06	8.31	6818

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
<b>The Rogers and Hubbard Co., Portland.</b>			
7265	Hubbard's "Bone Base" Soluble Corn and General Crops.....	3-8-6	Branford.....
7543	Hubbard's "Bone Base" Soluble Corn and General Crops Manure.....	3-8-6	Fair Haven.....
6966	Hubbard's "Bone Base" Soluble Potato Manure.....	6-8-5	Willimantic.....
7183	Hubbard's "Bone Base" Soluble Tobacco Manure.....	6-8-10	New Milford.....
6846	R & H All Soils All Crops Fertilizer.....	4-10-4	Ellington.....
7182	R & H Climax Tobacco Brand.....	5-4-5	New Milford.....
6822	R & H Corn and Grain Fertilizer.....	1-10-3	New Britain.....
6841	R & H High Potash Fertilizer.....	3-8-10	New Britain.....
6821	R & H Potato Fertilizer.....	2-10-4	New Britain.....
6826	R & H Tobacco Grower Vegetable Formula..	6-4-4	Ellington.....
<b>F. S. Royster Guano Co., Baltimore, Md.</b>			
7333	Royster's Gem Guano.....	2-12-4	Watertown.....
6840	Royster's Quality Trucker.....	4-8-7	New Canaan.....
6839	Royster's Rational Guano.....	1-9-4	New Canaan.....
6842	Royster's Spearhead Guano.....	3-8-4	Thompsonville.....
7332	Royster's Top Dresser.....	7-6-5	Plainville.....
6838	Royster's 5% Truck Guano.....	5-8-7	New Canaan.....
7480	Royster's 5% Truck Guano.....	5-8-7	Canton.....
6837	Royster's Trucker's Delight.....	4-8-4	New Canaan.....
7337	Royster's Valley Tobacco Guano 5-4-5.....	5-4-5	So. Windsor.....
<b>M. L. Shoemaker &amp; Co., Philadelphia, Pa.</b>			
7585	"Swift-Sure" Special 4-8-5.....	4-8-5	New Milford.....
6931	"Swift-Sure" Tobacco and General Use 3-10-3.	3-10-3	New Milford.....
<b>Springfield Rendering Co., Springfield, Mass.</b>			
7329	Springfield Animal Brand 3-8-4.....	3-8-4	Thompsonville.....
7359	Springfield Market Garden Grower and Top Dresser 5-8-7.....	5-8-7	Stafford Springs.....
7360	Springfield Special Potato, Onion and Vegetable 4-8-4.....	4-8-4	Stafford Springs.....
7442	Springfield 4-8-7.....	4-8-7	Suffield.....
<b>I. P. Thomas &amp; Son, Philadelphia, Pa.</b>			
7173	Economy Fertilizer 3-12-3.....	3-12-3	North Haven.....
7350	I. P. Thomas 5-8-7.....	5-8-7	North Haven.....
7355	Long Island Special 4-8-7.....	4-8-7	Ansonia.....
7349	Tip Top Superphosphate 3-10-6.....	3-10-6	North Haven.....

## 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.	
%	%	%	%	%	%	%	%	%	%	%	
0.07	0.80	0.96	0.81	2.64	3.21	2.25	9.83	7.58	6.63	6.63	7265
.....	.....	.....	.....	2.61	3.17	1.02	9.88	8.86	6.66	6.66	7543
1.06	2.12	1.04	0.88	5.10	6.20	1.99	9.88	7.89	0.70	4.97	6966
1.04	1.91	1.19	0.86	5.00	6.08	2.28	10.65	8.37	0.86	10.33	7183
0.17	2.02	0.44	0.71	3.34	4.06	0.50	10.72	10.22	4.33	4.33	6846
1.30	0.04	0.13	2.81	4.28	5.20	0.23	4.40	4.17	0.58	5.57	7182
0.15	0.35	0.27	0.44	1.21	1.47	0.50	10.60	10.10	3.79	3.79	6822
0.08	1.22	0.45	0.67	2.42	2.94	0.48	8.76	8.28	10.79	10.79	6841
0.06	0.37	0.55	0.66	1.64	1.99	0.56	10.49	9.93	4.05	4.05	6821
1.37	0.09	0.32	3.64	5.42	6.59	0.75	5.43	4.68	0.43	4.08	6826
0.13	0.98	0.12	0.51	1.74	2.11	1.18	13.30	12.12	4.02	4.02	7333
0.00	2.12	0.48	0.64	3.24	3.94	0.50	8.73	8.23	7.03	7.03	6840
0.07	0.46	0.00	0.32	0.85	1.03	1.12	9.91	8.79	4.03	4.03	6839
0.09	1.76	0.28	0.62	2.75	3.34	0.65	8.78	8.13	4.44	4.44	6842
0.78	3.00	0.84	0.91	5.53	6.72	0.68	7.03	6.35	5.02	5.02	7332
0.06	2.54	0.55	0.76	3.91	4.75	0.68	8.68	8.00	6.70	6.70	6838
0.03	2.60	0.72	0.63	3.98	4.84	0.63	8.78	8.15	6.63	6.63	7480
0.11	2.09	0.38	0.60	3.18	3.87	0.47	8.39	7.92	3.85	3.85	6837
0.44	0.94	0.29	2.47	4.14	5.03	0.25	4.50	4.25	0.57	5.03	7337
0.71	0.65	0.25	1.53	3.14	3.82	1.63	10.10	8.47	0.64	5.28	7585
0.18	1.72	0.09	0.88	2.87	3.49	0.87	10.51	9.64	0.15	3.15	6931
0.33	1.14	0.77	0.32	2.56	3.11	1.08	8.98	7.90	3.93	3.93	7329
0.38	2.27	0.73	0.77	4.15	5.05	0.78	9.06	8.28	7.05	7.05	7359
0.37	1.65	0.84	0.44	3.30	4.01	1.33	8.88	7.55	4.07	4.07	7360
0.47	1.53	0.77	0.57	3.34	4.06	1.25	9.05	7.80	6.90	6.90	7442
0.53	1.62	0.26	0.43	2.84	3.45	1.88	13.92	12.04	3.00	3.00	7173
0.33	2.69	0.50	0.69	4.21	5.12	2.13	10.33	8.20	5.97	6.79	7350
0.51	2.20	0.29	0.60	3.60	4.38	1.75	10.08	8.33	7.31	7.31	7355
0.26	1.80	0.14	0.50	2.70	3.28	1.80	11.93	10.13	5.34	6.02	7349

TABLE XII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
<b>I. P. Thomas &amp; Son, Philadelphia, Pa.</b>			
7357	7% Guano.....	7-6-5	Milford.....
6829	Thomas Tobacco Grower.....	5-4-5	Talcottville.....
6828	Truckers' High Grade Guano 4-8-4.....	4-8-4	Talcottville.....
7174	Victor Potash Fertilizer 2-8-5.....	2-8-5	Ansonia.....
<b>Triton Oil and Fertilizer Co., New York</b>			
7356	Triton 4-8-4 Fertilizer.....	4-8-4	Milford.....
7358	Triton 4-8-7 Fertilizer.....	4-8-7	New London.....
<b>United States Guano Co., Baltimore, Md.</b>			
7435 <sup>1</sup>	4-8-10.....	4-8-10	North Haven.....
7434	5-8-5.....	5-8-5	North Haven.....
7354	Standard United States Mammoth Potato Grower.....	2-8-10	North Haven.....
7352	Standard United States Royal Potato Grower.	4-8-7	North Haven.....
<b>Virginia-Carolina Chemical Co., New York.</b>			
6938	V. C. Aroostook Potato Grower.....	5-8-7	New Britain.....
7444	V-C Fairway Fertilizer.....	8-6-5	Danbury.....
6937	V-C XXXX Fish and Potash.....	4-8-4	New Britain.....
7481	V-C XXXX Fish and Potash.....	4-8-4	Danbury.....
<b>Wilcox Fertilizer Co., Mystic.</b>			
7437	Wilcox Corn Special.....	3-10-4	Willimantic.....
7436	Wilcox General Vegetable Phosphate.....	4-8-6	Ellington.....
7440	Wilcox High Grade Fish and Potash.....	4-8-4	Sampled at factory..
7461	Wilcox Potato Fertilizer.....	5-8-7	Norwich.....
7438	Wilcox Special 4-8-4 Fertilizer.....	4-8-4	Willimantic.....
6932	Wilcox 7-6-5 Top Dresser.....	7-6-5	Ellington.....
<b>S. D. Woodruff &amp; Sons, Orange.</b>			
6930	Woodruff's Home Mixed Fertilizer.....	4-8-6	Sampled at factory..
<b>Worcester Rendering Co., Auburn, Mass.</b>			
7454	Prosperity Brand Complete Dressing.....	6-6-4	Groton.....
7451	Prosperity Brand Corn and Grain Fertilizer..	2-10-2	Colchester.....
7453	Prosperity Brand Market Garden Fertilizer..	5-8-7	Norwich.....
7452	Prosperity Brand Potato and Vegetable Fertilizer.....	4-8-4	Colchester.....
<b>Wm. P. Young, Pottstown, Pa.</b>			
6941	Young's Formula, A Complete Fertilizer.....	8-7-6	Mfg's sample.....

<sup>1</sup> See note page 59.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—*Concluded.*

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.56	4.00	0.57	0.79	5.92	7.20	1.70	8.33	6.63	4.76	5.33	7357
0.22	0.39	0.26	3.25	4.12	5.01	2.83	10.40	7.57	1.17	6.54	6829
0.56	2.06	0.22	0.59	3.43	4.17	1.56	9.58	8.02	3.82	4.30	6828
0.08	1.34	0.09	0.43	1.94	2.36	1.45	9.70	8.25	5.06	5.51	7174
0.44	1.48	0.72	0.86	3.50	4.26	0.58	8.68	8.10	3.91	3.91	7356
0.08	2.02	0.54	0.67	3.31	4.02	0.63	9.65	9.02	7.24	7.24	7358
0.13	1.12	0.07	0.57	1.89	2.30	1.18	9.23	8.05	9.04	9.04	7435
0.25	3.12	0.00	0.68	4.05	4.92	0.88	9.25	8.37	5.02	5.02	7434
0.19	0.96	0.00	0.55	1.70	2.07	1.18	9.90	8.72	8.69	8.69	7354
0.12	2.57	0.10	0.84	3.63	4.41	1.30	9.20	7.90	6.72	6.72	7352
0.02	2.88	0.51	0.67	4.08	4.96	0.88	9.13	8.25	6.72	6.72	6938
0.08	3.68	0.59	1.94	6.29	7.65	0.75	7.48	6.73	5.74	5.74	7444
0.00	2.22	0.42	0.36	3.00	3.65	1.08	9.24	8.16	3.53	3.53	6937
0.22	2.06	0.73	0.47	3.48	4.23	0.98	9.28	8.30	4.00	4.00	7481
1.25	0.06	0.56	0.50	2.37	2.88	0.68	11.13	10.45	4.49	4.49	7437
1.75	0.10	0.63	0.80	3.28	3.99	0.83	9.35	8.52	6.56	6.56	7436
1.64	0.21	0.67	0.66	3.18	3.87	0.63	8.51	7.88	3.28	4.14	7440
1.13	1.46	0.90	0.62	4.11	5.00	0.78	8.78	8.00	6.30	6.98	7461
0.92	1.22	0.67	0.46	3.27	3.98	0.55	8.93	8.38	4.05	4.05	7438
1.86	1.70	0.75	1.08	5.39	6.55	0.78	7.18	6.40	4.15	4.83	6932
1.42	0.14	0.47	2.09	4.12	5.01	1.68	8.51	6.83	5.67	7.00	6930
0.27	3.34	1.10	0.42	5.13	6.24	0.70	7.38	6.68	4.27	4.27	7454
0.00	0.89	0.49	0.30	1.68	2.04	1.07	10.25	9.18	2.09	2.09	7451
1.26	1.08	1.07	1.07	4.48	5.45	0.80	9.30	8.50	7.48	7.48	7453
0.24	1.80	0.80	0.49	3.33	4.05	0.60	8.43	7.83	4.20	4.20	7452
0.60	5.04	0.21	0.89	6.74	8.19	0.60	7.98	7.38	8.02	8.02	6941

## SPECIAL MIXTURES AND HOME MIXTURES.

A considerable number of samples of this type of fertilizers are examined each year for individual purchasers or others interested. For the most part such samples are drawn and submitted by the persons interested, in which case the Station is responsible only for the analysis of the material as received. The Station agent does sample such stock in some instances upon request of purchasers.

Thirty-nine samples in this group have been analyzed during the year and the results are given in Table XV.

## VIII. MISCELLANEOUS FERTILIZERS, AMENDMENTS AND OTHER MATERIALS.

## SHEEP MANURE, ETC.

Seventeen samples of sheep manure and other farm manures were analyzed. While such materials do not contain large amounts of plant food (about 130 pounds to the ton usually), they have some further agricultural value as amendments and as culture media for soil bacteria.

Analyses are given in Table XVI.

## LIME.

Twenty-one samples of liming materials have been analyzed during the year. Samples have been drawn and submitted largely by purchasers. Lime is not classed as a fertilizer under the fertilizer law of this State and no registration is required.

Analyses are given in Table XVII.

TABLE XV. ANALYSES OF SPECIAL MIXTURES 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.	As sulfate.	Total.		
			%	%	%	%	%	%	%	
	<i>Sampled by Station:</i>									
7458	Corn Fertilizer.....	Cornelius Ahearn, Stratford.....	2.62	3.19	0.90	9.70	8.80	5.78	7458	
7457	Top Dressing.....	Cornelius Ahearn, Stratford.....	3.28	3.99	1.50	9.95	8.45	5.28	7457	
7479	Berkshire Chemical Co., Bridgeport.....	F. W. Buckland, Hillstown.....	5.82	7.08	0.20	4.70	4.50	5.75	7479	
7460	Tobacco Mixture.....	Edwards & Brewer Inc., Hockanum.....	5.82	7.08	0.30	4.28	3.98	6.16	7460	
7459	Tobacco Mixture.....	Fred Getto, Glastonbury.....	5.94	7.22	0.40	3.53	3.13	7.94	7459	
7422	International Agricultural Corp., Boston, Mass.....	David Hastings, Suffolk.....	3.54	4.30	0.08	1.30	1.22	8.54	7422	
7441	Olds & Whipple, Inc., Hartford.....	L. W. Newberry, So. Windsor...	5.77	7.02	0.25	6.30	6.05	8.43	7441	
7498	Olds & Whipple, Inc., Hartford.....	Arthur Manning, Manchester....	6.06	7.37	0.98	5.65	4.67	5.95	7498	
7496	The Rogers & Hubbard Co., Portland.....	Arthur Manning, Manchester....	5.73	6.97	0.85	4.78	3.93	5.78	7496	
7456	Corn Fertilizer.....	T. W. Ryan, Stratford.....	2.70	3.28	0.63	10.68	10.05	6.13	7456	
7455	Top Dressing.....	T. W. Ryan, Stratford.....	4.02	4.89	0.55	8.48	7.93	8.04	7455	
	<i>Sampled by Purchaser:</i>									
7293	American Agricultural Chemical Co., New Haven..	Michael Davis, Suffolk.....	4.12	5.01	0.33	4.53	4.20	5.12	7293	
7640	Apothecaries Hall Co., Waterbury.....	M. E. Thompson, Ellington.....	5.09	6.19	0.29	6.08	5.79	6.16	7640	



TABLE XV. ANALYSES OF SPECIAL MIXTURES 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 muriate.	Total.	
			%	%	%	%	%	%	%
	<i>Sampled by Purchaser:</i>								
6359	Formula AA	American Sumatra Tobacco Co., Bloomfield	9.86	11.99	0.82	4.29	.....	0.95	6359
6210	Formula A	American Sumatra Tobacco Co., Bloomfield	5.90	7.17	0.46	4.39	.....	5.48	6210
6307	Formula A	American Sumatra Tobacco Co., Bloomfield	5.69	6.92	0.56	4.91	.....	5.07	6307
6308	Formula B	American Sumatra Tobacco Co., Bloomfield	5.40	6.57	0.91	5.82	.....	7.49	6308
6309	Formula C	American Sumatra Tobacco Co., Bloomfield	4.93	5.99	1.56	5.77	.....	7.81	6309
6850	Formula C	American Sumatra Tobacco Co., Bloomfield	4.88	5.93	1.20	5.90	.....	8.10	6850
6360	Formula D	American Sumatra Tobacco Co., Bloomfield	5.82	7.08	0.20	4.16	.....	5.79	6360
6361	Formula E	American Sumatra Tobacco Co., Bloomfield	5.90	7.17	0.69	5.24	.....	.....	6361
6851	Formula E	American Sumatra Tobacco Co., Bloomfield	5.82	7.08	0.58	5.05	.....	5.80	6851
5533	Fall Tobacco Bed Fertilizer	American Sumatra Tobacco Co., Bloomfield	5.32	6.47	0.92	5.97	0.74	5.74	5533
7131	Tobacco Bed Starter	American Sumatra Tobacco Co., Bloomfield	7.00	8.51	3.08	9.40	.....	.....	7131

TABLE XV. ANALYSIS OF SPECIAL MIXTURES 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.	
			%	%	%	%	%	%	%
7511	<i>Sampled by Purchaser:</i> Armour Fertilizer Works, New York.	Mrs. Ruth P. Bartlett, East Windsor.	3.55	4.32	0.28	5.40	5.12	4.85	7511
5449	.....	Allan J. Bartlett, Greenwich. ....	5.95	7.23	3.57	11.54	7.97	3.02	5449
6953	.....	Daigle Bros., Marion. ....	3.88	4.72	.....	10.60	.....	8.78	6953
6423	.....	Joseph E. Drepeau, New Milford.	4.16	5.06	0.15	5.36	5.21	6.03	6423
7040	L. T. Frisbie Co., New Haven.	A. E. Plant & Sons, Branford. ....	4.22	5.13	0.98	9.25	8.27	6.86	7040
6803	.....	L. B. Haas & Co. Inc., Hartford.	5.28	6.42	.....	8.90	.....	12.52	6803
7039	.....	A. E. Plant & Sons, Branford. ....	3.95	4.80	0.54	10.59	10.05	5.30	7039
7492	.....	Paul Liebman, Ellington. ....	4.26	5.18	0.70	9.30	8.60	5.98	7492
7043	.....	Henry E. Wells, Warehouse Point	5.15	6.26	0.18	6.43	6.25	13.12	7043
7044	.....	Henry E. Wells, Warehouse Point	5.36	6.52	0.18	6.15	5.97	13.43	7044
7229	.....	Henry P. Smith, Glastonbury. ....	6.17	7.50	1.03	4.75	3.72	6.05	7229
7045	.....	Henry E. Wells, Warehouse Point	5.13	6.24	0.28	6.30	6.02	7.75	7045
7046	.....	Henry E. Wells, Warehouse Point	3.76	4.57	0.38	7.83	7.45	4.52	7046
6988	.....	I. D. Woodworth, Hartford. ....	5.90	7.17	0.53	4.25	3.72	4.21	6988
6670	.....	Walter Scott, Niantic. ....	6.68	8.12	0.63	6.93	6.30	6.72	6670

TABLE XVI. ANALYSES OF

Station No.	Manufacturer or Brand.	Place of Sampling.
	<i>Sampled by Station:</i>	
6763	Pulverized. American Agricultural Chemical Co., New York.....	Geo. S. Phelps & Co., Thompsonville.....
6876	Liberty. Apothecaries Hall Co., Waterbury.....	F. B. Newton, Plainville.....
6812	Armour Fertilizer Works, New York	F. C. Benjamin, Danbury....
6742	Berkshire Chemical Co., Bridgeport	F. S. Bidwell Co., Windsor Locks.....
6673	Case Brand Pulverized. A. H. Case & Co., Buffalo, N. Y.....	Frank Libner & Son, Norwalk
7340	Corenco. Consolidated Rendering Co., Boston, Mass.....	Dennis Grain Mill, Stafford Springs.....
7093	Davey Shredded Cattle Manure Davey Tree Expert Co., Kent, Ohio	R. E. Landis, Sound Beach...
6901	"Sheepshead" Pulverized. Natural Guano Co., Aurora, Ill.....	Cadwell & Jones, Hartford...
6738	Groz-It. Pacific Manure & Fertilizer Co., San Francisco, Cal.....	W. S. Eaton, Plainville.....
6905	Premier Brand Poultry Manure. Premier Poultry Manure Co., Chicago, Ill.....	Lightborn & Pond, New Haven
6906	Premier Brand Sheep Manure. Premier Poultry Manure Co., Chicago, Ill.....	Lightborn & Pond Co., New Haven.....
6895	Wizard Brand Pulverized Sheep Manure. The Pulverized Manure Co., Chicago, Ill.....	S. P. Strople, New Britain....
6917	Wizard Brand Cattle Manure. The Pulverized Manure Co., Chicago Ill.....	S. P. Strople, New Britain....
6920	Wonder Grower Brand Pulverized Sheep Manure. Rocky Mountain Fertz. Co., Helena, Mont.....	C. W. Lines Co., New Britain.
7180	F. S. Royster Guano Co., Baltimore Md.....	W. S. Brown, Trumbull.....
6819	Toro. S. D. Woodruff & Sons, Orange.....	Gabriel Dadio, Highwood....
	<i>Sampled by Purchaser:</i>	
5192	.....	S. D. Woodruff & Sons, Orange

## 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.			
%	%	%	%	%	%	%	%	%	
1.45	1.76	1.75	....	....	1.03	0.50	2.41	2.00	6763
1.30	1.58	1.80	....	....	0.77	1.00	2.24	2.00	6876
1.58	1.92	1.50	....	....	1.10	1.00	3.22	2.00	6812
3.12	3.79	3.00	....	....	....	....	....	....	6742
2.28	2.77	1.21	3.63	1.00	3.94	1.25	1.07	1.00	6673
1.38	1.68	1.50	0.63	....	0.78	0.50	2.68	2.00	7340
1.88	2.29	1.00	1.00	1.00	1.25	1.00	2.16	1.00	7093
2.38	2.89	2.73	....	0.25	2.13	1.25	2.82	2.00	6901
1.54	1.87	1.82	....	....	1.13	1.25	2.81	3.00	6738
4.89	5.95	6.00	2.48	2.50	2.60	2.75	1.28	1.30	6905
2.00	2.43	2.00	....	0.80	0.85	1.00	2.02	2.00	6906
1.75	2.13	2.43	....	1.25	1.45	....	2.67	2.00	6895
1.88	2.29	2.10	1.02	1.00	1.20	....	1.79	1.00	6917
1.77	2.15	2.43	....	....	1.13	1.20	2.83	2.00	6920
1.83	2.22	....	0.60	1.00	0.70	....	2.14	2.00	7180
1.58	1.92	1.94	....	1.00	1.08	....	3.14	2.00	6819
1.73	2.10	....	....	....	1.28	....	3.55	....	5192

TABLE XVII. ANALYSES OF

Station No.	Manufacturer or Brand.	Sampled by.
6353	<b>Coe Lime Works, Northford.</b>	
6662	Limestone.....	Sidney Edwards, Middletown.....
6708	Limestone.....	M. F. Morgan.....
	Limestone.....	New Haven County Farm Bureau.....
	<b>The Connecticut Agstone Co., Danbury.</b>	
7599	Lime.....	Stephen H. Brown, Woodbury.....
7147	Ground Limestone.....	Raymond Clapp, New Haven Farm Bureau....
	<b>Conn. Lime Co., Canaan.</b>	
7003	Hydrated Lime.....	Woodbury Coop. Assoc., Woodbury.....
	<b>Grangers Mfg. Co., West Stockbridge, Mass.</b>	
5072	Hydrated Lime.....	Hatheway & Steane, Inc., Hartford.....
6709	Limestone.....	New Haven County Farm Bureau.....
6916	Limestone.....	Chas. R. Treat, Orange.....
	<b>Kelly Island Lime &amp; Transport Co., Cleveland, Ohio</b>	
7600	Hydrated Builders Lime.....	B. A. Brown, Storrs.....
	<b>Miller Lime Products Corp., West Stockbridge, Mass.</b>	
7002	Limestone.....	Woodbury Coop. Assoc., Woodbury.....
7473	Monarque Brand Agricultural Lime.....	Station agent from stock of H. F. Joy, Woodstock
7472	Monarque Brand Agricultural Lime.....	Station agent from stock of H. F. Joy, Woodstock
5137	Lime.....	C. N. Herold, New Canaan.....
7004	Hydrated Lime.....	Woodbury Coop. Assoc., Woodbury.....
7601	Hydrated Builders Lime.....	B. A. Brown, Storrs.....
	<b>Warner-Miller Co., New Haven.</b>	
7146	Hydrated Lime.....	Raymond Clapp. New Haven Farm Bureau....
	<b>U. S. Gypsum Co., Genoa, Ohio.</b>	
7410	Ivory Finishing Lime.....	P. J. Anderson, Windsor.....
	<b>Manufacturer Unknown.</b>	
5901	Limestone.....	Robert Coe, Durham.....
7021	Hydrated Lime.....	Mr. Putnam, Sharon.....
7388	Lime.....	J. E. Phelps, Suffield.....

## 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.								
%	%	%	%	%	%	%	%	%	%	%	
54.17	.....	0.72	.....	54.89	.....	92.00	75.00	63.00	53.00	51.00	6353
52.70	.....	0.73	.....	53.43	.....	89.00	72.00	62.50	54.50	51.50	6662
52.67	.....	0.96	.....	53.63	.....	89.00	69.00	58.00	48.00	42.50	6708
38.22	.....	6.39	.....	44.61	.....	.....	.....	.....	.....	.....	7599
38.28	.....	6.96	.....	45.24	.....	96.00	87.00	79.00	67.00	63.00	7147
47.78	.....	22.82	.....	70.60	.....	78.00	46.00	31.00	21.00	19.00	7003
53.84	.....	3.61	.....	57.45	.....	.....	.....	.....	.....	.....	5072
40.20	.....	7.15	.....	47.35	.....	97.50	85.50	72.00	54.00	43.50	6709
52.51	.....	1.39	.....	53.90	.....	100.00	100.00	99.00	91.00	87.50	6916
47.26	.....	31.99	.....	79.25	.....	100.00	100.00	99.50	99.30	98.50	7600
39.21	.....	10.69	.....	49.90	.....	100.00	92.00	84.00	74.00	70.50	7002
40.92	36.87	9.85	13.72	50.77	.....	100.00	92.50	84.00	72.00	53.00	7473
38.38	36.87	11.14	13.72	49.52	.....	100.00	93.00	84.50	75.00	63.00	7472
43.92	.....	30.74	.....	74.66	1.42	89.00	59.00	49.00	42.00	40.00	5137
48.53	.....	32.14	.....	80.67	.....	100.00	100.00	99.50	95.50	93.50	7004
44.98	.....	26.11	.....	71.09	.....	94.50	94.00	94.00	93.80	89.00	7601
42.78	.....	27.46	.....	70.24	.....	92.00	61.00	48.00	28.00	23.00	7146
47.04	.....	31.80	.....	78.84	.....	100.00	100.00	99.00	96.00	92.00	7410
.....	.....	.....	.....	.....	.....	92.50	75.00	64.00	54.00	51.00	5901
47.43	.....	32.88	.....	80.31	.....	.....	.....	.....	.....	.....	7021
47.02	.....	31.72	.....	78.74	.....	100.00	100.00	99.50	93.00	72.00	7388

## OTHER MISCELLANEOUS MATERIALS.

Thirty-four samples of miscellaneous materials have been examined for fertilizer ingredients, and are summarized in the following Table, XVIII.

## COLLABORATIVE WORK.

The laboratory has continued to collaborate in the check meal program of the American Oil Chemists' Society, and in a similar program of check fertilizer analyses sponsored by the F. S. Royster Guano Co. Thirty samples of cottonseed meal were analyzed for nitrogen; and twelve samples of mixed fertilizers were analyzed for nitrogen, phosphoric acid and potash.

TABLE XVIII. MISCELLANEOUS MATERIALS.

No.	Material	Nitrogen	Phosphoric acid	Potash	Remarks
6079	Ashes from factory refuse (American Brass Co.)	....	0.18	0.14	Small amount of scrap metal sifted out before analysis.
5985	Ash from Grape Pomace	....	5.74	18.62	As received 45.8% water, 17.9% ash, 36.3% organic matter. Probably not over 40 lbs. plant food in a ton.
6664	Chicken Manure	6.35	1.82	1.15	As received 54.8% water, 5.3% ash, 39.9% organic matter.
6817	Chicken Manure	6.35	1.83	1.20	As received 25.6% water, 41.5% ash, 32.9% organic matter.
7250	Cottonseed Hulls	0.61	....	....	
6349	Garbage Waste (Dept. of Parks, Bridgeport)	1.54	....	....	
6106	Humus (Abington)	1.54	....	....	
6107	Humus (Abington)	1.03	....	....	
5640	Locust Meal (Dried and ground locusts from Argentine)	7.68	1.67	0.98	Contained 3.3% insoluble organic nitrogen which was about 60% "active" by usual methods. Contained iron and small amount of copper.
5003	Mineral	....	....	....	Sandstone with particles of pyrites.
6832	Mineral	....	....	....	
5193	Nitrogen base goods. (Olds & Whipple, Inc.)	9.33	....	....	Contained 8% insoluble organic nitrogen 75% of which was "active," by usual laboratory methods.
6351	Peat Moss	0.92	trace	1.07	As received 16% water, 1.6% ash, 82.4% organic matter. Oat straw on same water basis contains about 0.6% N., 0.3% P <sub>2</sub> O <sub>5</sub> , and 1.8% K <sub>2</sub> O.



TABLE XVIII. MISCELLANEOUS MATERIALS—Concluded.

No.	Material	Nitrogen	Phosphoric acid	Potash	Remarks
5116	Sewage Sludge (dried)	0.51	.....	.....	.....
6350	Sewage Sludge (Dept. of Parks, Bridgeport)	0.40	.....	.....	As received 82.4% water, 3.5% ash, 14.1% organic matter. One ton contains not over 10 lbs. of plant food. A trace of chloride.
7567	Soil	.....	.....	.....	.....
7568	Soil	.....	.....	.....	.....
6929	Soot (Flue deposit from incinerator)	0.06	.....	.....	.....
7165	Sulphate of ammonia	0.20	1.45	1.20	Not sulphate of ammonia; probably potassium sulphate.
5879	Swamp humus (Warehouse Point)	0.66	.....	.....	As received 69.5% water, 6.2% ash, 24.3% organic matter.
5880	Swamp humus (Windsor)	2.41	.....	.....	As received 11.9% water, 8.3% ash, 79.8% organic matter. Useful as an absorbent and conditioner. Amount of plant food small and slowly available in such material.
7194	Swamp Muck (West Suffield)	0.23	.....	.....	As received 87.5% water, 3.2% ash, 9.3% organic matter.
6425	Tobacco Dust	2.30	0.46	2.29	.....
6546	Tobacco Dust	0.98	0.46	1.47	.....
7606	Tobacco Dust	3.38	0.60	2.90	.....
5220	Tobacco Stems	2.31	0.50	8.37	.....
5308	Tobacco Stems	2.31	0.57	4.33	.....
5309	Tobacco Stems	3.02	0.68	7.79	Nicotine 1.01% Nicotine 0.05%
5990	Tobacco Stems	2.87	.....	8.64	.....
6208	Tobacco Stems	2.91	0.65	8.93	.....
6302	Tobacco Stems	2.67	0.52	4.79	.....
6357	Tobacco Stems	2.66	0.43	4.77	.....
6424	Tobacco Stems	2.14	0.43	3.48	.....
6547	Tobacco Sweepings	1.58	0.61	2.03	.....

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