

BULLETIN 270

OCTOBER, 1925

Connecticut Agricultural Experiment Station
New Haven, Connecticut

REPORT ON INSPECTION
OF
COMMERCIAL FERTILIZERS
1925

Connecticut Agricultural Experiment Station
New Haven, Connecticut

Report on Inspection
of
Commercial Fertilizers for 1925

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

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October, 1925

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Report on Inspection of Commercial Fertilizers, 1925

E. M. BAILEY,

Chemist in Charge, Analytical Laboratory.

THE FERTILIZER LAW.

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

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.

The status of cottonseed meal under the fertilizer law has been clearly stated in a bulletin¹ 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."

¹ 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 short-age 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; it cannot, however, undertake for any one individual or group, work in such volume or with such frequency that it becomes a systematic control over current purchases. This clearly invades the field of the commercial laboratory.

REGISTRATIONS.

For 1925, 61 individuals and firms registered at this Station for sale in this State 437 brands of fertilizers. As required by Statute the brands so registered are listed as follows:

American Agricultural Chemical Co., 40 West St., New York, N. Y.

Castor Pomace
Complete Potato Mixture
Crescent Complete Manure
Double A Tobacco Fertilizer
Dry Ground Fish
Farm Favorite
Fine Ground Bone
Fish and Potash
Grass and Lawn Top Dressing
Ground Tankage
High Grade Acid Phosphate
Hi-Grade Tobacco Manure
Nitrate of Soda
7% Potash Fertilizer
Pulverized Sheep Manure
Sulphate of Potash
Universal Phosphate
Bowker's Lawn and Garden Dressing
Bradley's Complete Manure for Potatoes and Vegetables
Bradley's Complete Tobacco Manure

Bradley's Corn Phosphate
 Bradley's New Method Fertilizer
 Bradley's Northland Potato Grower
 Bradley's Potato Fertilizer
 Bradley's Potato Manure
 Bradley's Superior Tobacco Compound
 Bradley's XL Superphosphate of Lime
 National Complete Tobacco Fertilizer
 National Eureka Potato Fertilizer
 National Market Garden Fertilizer
 National Potato and Corn Phosphate
 National Premier Truck Manure
 National White Ash Tobacco Grower
 National XXX Fish and Potash
 Quinnipiac Corn Manure
 Quinnipiac Fish and Potash Phosphate
 Quinnipiac Market Garden Manure
 Quinnipiac Potato Phosphate
 Quinnipiac Prime Tobacco Manure
 Quinnipiac Seed Leaf Tobacco Manure

American Cyanamid Co., 511 Fifth Ave., New York, N. Y.
 Ammo-Phos

Apothecaries Hall Co., Waterbury, Conn.

Acid Phosphate
 Animal Tankage
 Bone
 Bone and Meat Tankage
 Bone Meal
 Carbonate Potash
 Castor Pomace
 Cottonseed Meal 41%
 Double Sulphate Potash and Magnesia
 Dry Ground Fish
 Nitrate Soda
 Nitrate Soda and Potash
 Potash Muriate
 Potash Sulphate
 Precipitated Bone
 Sulphate Ammonia
 Liberty Corn and All Crops 2-8-2
 Liberty Corn and Vegetable 3-6-10
 Liberty Corn, Fruit and All Crops 2-12-4
 Liberty Fish, Bone and Potash 3-10-4
 Liberty High Grade Market Gardeners .5-8-7
 Liberty High Grade Tobacco Manure 7.5-4-7.5
 Liberty Market Gardeners Special 4-8-4
 Liberty Tobacco Special 5-4-5
 Liberty Top Dresser for Grass and Grain 10-3.5-8

Armour Fertilizer Works, 50 Broad St., New York, N. Y.

Armour's Big Crop Acid Phosphate 16%
 Armour's Big Crop Fertilizer 8-6-6
 Armour's Big Crop Fertilizer 5-8-7
 Armour's Big Crop Fertilizer 5-8-5
 Armour's Big Crop Fertilizer 4-16-4

Armour's Big Crop Fertilizer 4-6-10
 Armour's Big Crop Fertilizer 4-8-4
 Armour's Big Crop Fertilizer 3-8-4
 Armour's Big Crop Fertilizer 2-12-2
 Armour's Big Crop Tobacco Special 5-4-5
 Armour's Corn Grower 2-8-2
 Bone Meal 3-48
 Ground Tankage 9-15
 Muriate of Potash 48%
 Nitrate of Soda 18%
 Sheep Manure 1.5-1-2

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

Helmet Brand Prime Cottonseed Meal
 Monarch Brand Prime Cottonseed Meal
 Paramount Brand Good Cottonseed Meal

Atlantic Packing Co., New Haven, Conn.

Atlantic 5-8-7
 Atlantic Corn and Grain Fertilizer 2-8-2
 Atlantic Market Garden 4-8-6
 Atlantic Special 3-8-4
 Atlantic Special Tobacco Fertilizer 5-4-16
 Atlantic Special Vegetable and Potato Grower 4-8-4
 Atlantic Tobacco Grower 5-4-5
 Atlantic Tobacco Manure 5-8-6

Baker Castor Oil Co., 120 Broadway, New York, N. Y.

Castor Pomace

Barrett Co., 40 Rector St., New York, N. Y.

Arcadian Sulphate of Ammonia

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

Bartlett's Green Tree Food

Berkshire Fertilizer Co., Bridgeport, Conn.

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
 Berkshire Potato and Vegetable Phosphate
 Berkshire Tobacco Special
 Berkshire Sheep Manure
 Acid Phosphate
 Double Manure Salt
 Ground Tankage
 High Grade Sulphate Potash
 Muriate of Potash
 Nitrate of Soda
 Precipitated Bone Phosphate

F. E. Boardman, Middletown, Conn.

Boardman's Fertilizer for Potatoes and General Crops
Boardman's Tobacco Fertilizer

Bowker Fertilizer Co., 60 Trinity Place, New York, N. Y.

Bowker's All Round Fertilizer
Bowker's Fisherman's Brand Fish and Potash
Bowker's Hill and Drill Phosphate
Bowker's Market Garden Fertilizer
Bowker's Potato and Vegetable Phosphate
Bowker's Square Brand Farm and Garden Phosphate
Bowker's Sure Crop Phosphate
Stockbridge Early Crop Manure
Stockbridge Potato and Vegetable Manure
Stockbridge Premier Tobacco Grower
Stockbridge Tobacco Manure
Stockbridge Top Dressing and Forcing Manure
Stockbridge Truck Manure

Bridge's Sons, Inc., Amos D., Hazardville, Conn.

Corn, Onion and Potato and General Purpose
Special Tobacco Fertilizer

Buckeye Cotton Oil Company, Cincinnati, Ohio.

"Buckeye" 36% Protein Cottonseed Meal
"Buckeye" 41% Protein Cottonseed Meal

A. H. Case & Co., Inc., Buffalo, N. Y.

Case's Brand of Pulverized Sheep Manure

Chittenden Co., E. D., Bridgeport, Conn.

Chittenden's Castor Pomace
Chittenden's Complete Grain
Chittenden's Dry Ground Fish
Chittenden's Fine Ground Bone
Chittenden's High Grade Acid Phosphate
Chittenden's High Grade Muriate Potash
Chittenden's High Grade Potato
Chittenden's High Grade Sulphate Potash
Chittenden's High Grade Tobacco
Chittenden's Nitrate of Soda
Chittenden's Potato Special 4-8-4
Chittenden's Potato Special 4-8-6
Chittenden's Tobacco Special
Chittenden's Top Dresser 5-8-4

Clark Seed Co., Everett B., Milford, Conn.

Clark's Special Mixture for General Use
Clark's Special Mixture with 6% Potash
Clark's Superphosphate
Clark's Tip Top Brand
Acid Phosphate
Bone
Muriate of Potash
Nitrate of Soda
Tankage

Connecticut Fat Rendering & Fertilizer Corporation, West Haven, Conn.

Tankage

Consolidated Rendering Co., 40 North Market St., Boston (9), Mass.

Acid Phosphate 16%
 Castor Pomace
 Dry Ground Fish
 Ground Bone (2.5-25.18)
 Ground Bone (2.46-3)
 Muriate of Potash
 Nitrate of Soda
 Tankage 9-20
 Tankage 6-30
 Sulphate of Ammonia
 Sulphate of Potash

Davey Tree Expert Co., Kent, Ohio.

Davey Tree Food

Davis, S. P., 207 Southern Trust Bldg., Little Rock, Ark.

Beauty Brand Cottonseed Meal
 Goodluck Brand Cottonseed Meal and Cracked Screened Cottonseed Cake
 Steerboy Brand Cottonseed Meal and Cracked Screened Cake

Eastern Cotton Oil Co., Norfolk, Va.

Superior Cottonseed Meal

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

Eastern States 8-6-6
 Eastern States 5-10-5
 Eastern States 5-8-7
 Eastern States 4-8-10
 Eastern States 4-8-4
 Eastern States 3-12-3
 Eastern States Acid Phosphate
 Eastern States Fine Ground Bone
 Eastern States Formula "A" Tobacco Fertilizer
 Eastern States Formula "B" Tobacco Fertilizer
 Eastern States Formula "C" Tobacco Fertilizer
 Eastern States Ground Animal Tankage
 Eastern States Kainit
 Eastern States Muriate of Potash
 Eastern States Nitrate of Soda
 Eastern States Sulphate of Ammonia
 Sulphate of Potash

Essex Fertilizer Co., 39 North Market St., Boston, Mass.

Essex 2-8-2 for Farm and Garden
 Essex Fish Fertilizer for All Crops 3-8-4
 Essex Market Garden for Potatoes, Roots and Vegetables 4-8-4
 Essex Potato Phosphate 4-8-7 for Potatoes and Vegetables
 Essex Special Tobacco 5-4-5
 Essex Tobacco Manure 5-8-6

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

Frisbie's 5-8-7
 Frisbie's Corn and Grain Fertilizer 2-8-2
 Frisbie's Fine Bone Meal
 Frisbie's 3/50 Bone Meal
 Frisbie's 12/10 Ground Tankage
 Frisbie's Market Garden 4-8-6
 Frisbie's Special 3-8-4
 Frisbie's Special Vegetable and Potato Grower 4-8-4
 Frisbie's Tobacco Grower 5-4-5
 Frisbie's Manure 5-8-6
 Frisbie's Top Dresser 7-5-4
 Precipitated Bone

Higgins, Inc., A. W., South Deerfield, Mass.

Old Deerfield Acid Phosphate
 Old Deerfield Castor Pomace
 Old Deerfield 5-8-7 Complete Fertilizer
 Old Deerfield 4-8-4 Complete Fertilizer
 Old Deerfield Manure Salts
 Old Deerfield Muriate of Potash
 Old Deerfield Tankage

Humphreys-Godwin Co., Inc., Memphis, Tenn.

Bull Brand Cottonseed Meal 43%
 Danish Brand Cottonseed Meal 36%
 Dixie Brand Cottonseed Meal 41.12%

International Agricultural Corporation, 126 State St., Boston, Mass.

International Acid Phosphate
 International Connecticut Valley Special
 International Crop Grower
 International Economy
 International General Favorite
 International High Grade Manure
 International Ideal
 International Multiple-Strength
 International New England Special
 International Phosphate and Potash
 International Tobacco Grower
 International Tobacco Producer
 International Tobacco Special
 Bone Meal
 Castor Pomace
 Cotton Seed Meal
 Muriate of Potash
 Nitrate of Soda
 Sulphate of Ammonia
 Sulphate of Potash
 Tankage

Joynt, John, Lucknow, Ontario, Canada.

The Joynt Brand Unleached Hardwood Ashes

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

Castor Pomace

Lovitt & Co., L. B., Memphis, Tenn.

- Lovit Brand Cottonseed Meal 36%
- Lovit Brand Cottonseed Meal 41%
- Lovit Brand Cottonseed Meal 43%

Lowell Fertilizer Co., 40 North Market St., Boston, Mass.

- Lowell Animal Brand, A High Grade Manure for All Crops 3-8-4
- Lowell Bone Fertilizer, for Corn, Grain, Grass and Vegetables 2-8-2
- Lowell Potato Phosphate for Potatoes and Vegetables 4-8-7
- Lowell Tobacco Manure 5-8-6
- Lowell Tobacco 5-4-5 Tobacco, Fruits and Vines
- Lowell Top Dressing 7-5-2
- Lowell 5-8-7 for Potatoes and Vegetables
- Lowell 4-8-4 for Potatoes, Corn and Vegetables
- Lowell 4-6-10 for Potatoes and Vegetables

Mapes Formula & Peruvian Guano Co., 270 Madison Ave., New York, N. Y.

- 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 Grain Brand
- The Mapes Onion Manure
- The Mapes Potato Manure
- The Mapes Tobacco Ash Constituents
- The Mapes Tobacco Manure, Wrapper Brand
- The Mapes Tobacco Starter Improved
- The Mapes Top Dresser
- The Mapes Special Formula Tobacco Manure

Memphis Cottonseed Products Co., 1015 Falls Bldg., Memphis, Tenn.

- Durham Brand 36% Cottonseed Meal
- Durham Forty Three Cottonseed Meal

National Cottonseed Products Corp., Memphis, Tenn.

- Sun Brand Cottonseed Meal

Natural Guano Company, Aurora, Ill.

- "Sheep's Head" Pulverized Sheep Manure

New England By-Products Corp., 20 West St., Lawrence, Mass.

- Pure Bone Meal
- Ground Steam Bone

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

- New England 5-8-7 for Potatoes and Market Gardens
- New England 4-8-4 for Potatoes, Vegetables and Grass
- New England Corn Phosphate for Grain and Vegetables 2-8-2
- New England Potato Phosphate 4-8-7 for Potatoes and Vegetables
- New England Superphosphate, A High Grade Fertilizer for All Crops
3-8-4
- New England Tobacco Manure 5-8-6
- New England Tobacco 5-4-5

Nitrate Agencies Co., Baltimore, Md.

Naco Brand Acid Phosphate
 Naco Brand Dry Ground Fish
 Naco Brand Muriate of Potash
 Naco Brand Nitrapo

Olds & Whipple, Inc., Hartford, Conn.

O & W Acid Phosphate
 O & W Blue Label Tobacco Fertilizer
 O & W Castor Pomace
 O & W Complete Corn, Potato and Onion Fertilizer
 O & W Complete Tobacco Fertilizer
 O & W Dry Ground Fish
 O & W High Grade Potato Fertilizer
 O & W H. G. Starter and Potash Compound
 O & W High Grade Tobacco Starter
 O & W Precipitated Bone
 O & W Pure Bone Meal
 O & W Special Comp. Corn, Onion and Potato Fertilizer
 O & W Top Dressing for Grass
 Double Manure Salts
 H. G. Sulphate of Potash
 Nitrate of Soda

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

Groz-It Brand Pulverized Sheep Manure

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

Parmenter & Polsey 5-8-7 for Potatoes and Market Gardens
 Parmenter & Polsey 4-8-4 for Potatoes, Corn and Vegetables
 "P & P" 2-8-2 for Farm and Garden
 "P & P" Plymouth Brand for All Crops 3-8-4

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

Piedmont Bone Meal
 Harvest Brand 16% Acid Phosphate
 Harvest Brand 8-6-6
 Harvest Brand 6-8-6
 Harvest Brand 5-8-7
 Harvest Brand 5-8-5
 Harvest Brand 4-8-4
 Harvest Brand 4-6-10
 Harvest Brand 3-8-4
 Harvest Brand 2-8-2
 9% Tankage
 Muriate of Potash
 Nitrate of Soda
 Sulphate of Ammonia

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

Platco Special

Potash Marl, Inc., 13 East 40th St., New York, N. Y.

Potash-Marl

Premier Poultry Manure Co., 431 So. Dearborn St., Chicago, Ill.

Premier Brand Pulverized Poultry Manure
Premier Brand Pulverized Sheep Manure

Pulverized Manure Co., 828 Exchange Ave., Union Stock Yards, Chicago, Ill.

Wizard Brand Manure
Wizard Brand Sheep Manure

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

4-8-4 Fertilizer
Nitrate of Soda
"M. F. E." Brand Nitrate of Soda

Rogers & Hubbard Co., The, Portland, Conn.

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
Hubbard's "Bone Base" Fertilizer for Oats and Top Dressing
Hubbard's "Bone Base" Fertilizer for Seeding Down
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
5-8-7
4-8-4
Acid Phosphate
Castor Pomace
Cottonseed Meal
Garden Fertilizer
Ground Fish
Nitrate of Soda
Precipitated Bone
48% Sulphate of Potash

Royster Guano Co., F. S., 1606 Munsey Bldg., Baltimore, Md.

Royster's 16% Acid Phosphate
Royster's Bully Guano
Royster's Fine Ground Bone Meal
Royster's Quality Trucker
Royster's Top Dresser
Royster's Triumph Guano
Royster's Truckers Delight
Royster's Valley Tobacco Formula
Royster's Verbena Guano
Royster's Wrapper Brand
Muriate of Potash
Nitrate of Soda
Sulphate of Ammonia

Sanderson Fertilizer & Chemical Co., New Haven, Conn.

Sanderson's Acid Phosphate
Sanderson's Atlantic Coast Bone, Fish and Potash
Sanderson's Castor Pomace

Sanderson's Complete Tobacco Grower
Sanderson's Corn Superphosphate
Sanderson's Dry Ground Fish
Sanderson's Fine Ground Bone
Sanderson's Formula A
Sanderson's Formula B
Sanderson's Nitrate of Soda
Sanderson's Potato Manure
Sanderson's South American Sheep and Goat Manure
Sanderson's Top Dressing for Grass and Grain

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

"Swift-Sure" Bone Meal 5-5-45
"Swift-Sure" Crop Grower
"Swift-Sure" Special Tobacco Formula
"Swift Sure" Tobacco and General Use
"Swift Sure" Tobacco Starter
Acid Phosphate
Bone Meal 3-50

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

Thomas & Sons Co., I. P., Philadelphia, Pa.

I. P. Thomas 5-8-7
16% Acid Phosphate
Improved Trucker's Fertilizer 5-10-5
Muriate of Potash
Nitrate of Soda
Pure Ground Bone
Tankage
Truckers' High Grade Guano 4-8-4

Triton Oil & Fertilizer Co., 101 Beekman St., New York, N. Y.

Triton 5-8-7 Fertilizer
Triton 4-8-7 Fertilizer
Triton 4-8-4 Fertilizer
Triton 3-10-2 Fertilizer
Acid Phosphate

United States Guano Co., c/o Standard Wholesale Phosphate Acid Works, Baltimore, Md.

Standard United States 16% Acid Phosphate
Standard United States Bone Meal
Standard United States Evergreen Fish Guano
Standard United States Farmers Formula
Standard United States Fish, Bone and Potash
Standard United States Muriate of Potash
Standard United States Nitrate of Soda

**Virginia-Carolina Chemical Co. (of Delaware), Equitable Bldg., 120
Broadway (Room 2249), New York, N. Y.**

V-C Aroostook Potato Grower
V-C Champion Brand
V-C Double Owl Brand
V-C Good Luck Brand
V-C Indian Chief Brand
V-C National Brand
V-C Tip Top-Top Dresser

Vitogro Chemical Co., 38 Middle St., Lowell, Mass.

Vitogro for Flowers, Shrubs and Vegetables

Wilcox Fertilizer Works, 56 Main St., Mystic, Conn.

Wilcox 5-10-5 Fertilizer
Wilcox 5-8-7 Fertilizer
Wilcox 4-8-4 Fertilizer
Wilcox Corn Special
Wilcox Dry Ground Fish
Wilcox Fish and Potash
Wilcox Grass and Truck Fertilizer
Wilcox Potato and Vegetable Phosphate
Wilcox Top Dresser
Wilcox Tobacco Special
Acid Phosphate
Nitrate of Soda
Steamed Bone Meal

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

Woodruff's Home Mixed Fertilizer

Worcester Rendering Co., Auburn, Mass.

Prosperity Brand Complete Dressing
Prosperity Brand Corn and Grain Fertilizer
Prosperity Brand Ground Tankage
Prosperity Brand Market Garden Fertilizer
Prosperity Brand Potato and Vegetable Fertilizer
Prosperity Brand Superior Top Dressing

INSPECTION OF 1925.

During the season our agent has visited 97 towns and drawn 601 official samples of mixed fertilizers and raw materials, which number includes all the registered brands which were found on sale. These together with samples submitted by purchasers and others may be classified as follows:

CLASSIFICATION OF FERTILIZERS EXAMINED.

I. <i>Containing Nitrogen as the chief active ingredient:</i>	Number of Samples	Page
Nitrate of Soda	23	18
Sulphate of Ammonia	5	20
Castor Pomace	30	20
Cottonseed Meal	53	24
 II. <i>Containing Phosphoric Acid as the chief active ingredient:</i>		
Precipitated Bone Phosphate	10	27
Dissolved Rock Phosphate or Acid Phosphate..	24	28
 III. <i>Containing Potash as the chief ingredient:</i>		
Carbonate of Potash	7	31
Muriate of Potash	15	31
Sulphate of Potash	14	31
Double Sulphate of Potash and Magnesia	3	31
Kainit	1	31
 IV. <i>Containing Nitrogen and Potash:</i>		
Nitrate of Potash and Soda	1	35
Nitrapo	1	35
 V. <i>Containing Nitrogen and Phosphoric Acid:</i>		
Dry Ground Fish	26	35
Tankage	16	38
Ground Bone	26	40
 VI. <i>Mixed Fertilizers:</i>		
Containing Nitrogen and Phosphoric Acid	4	43
Containing Nitrogen, Phosphoric Acid and Potash	269	43
Special and Home Mixtures	46	67
 VII. <i>Miscellaneous fertilizers, amendments, waste products, etc.:</i>		
Wood Ashes	12	71
Sheep Manure, etc.	11	74
Lime, etc.	17	75
Miscellaneous	76	78
Total	690	

I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN.

NITRATE OF SODA

This salt in a pure state contains 16.47 per cent of nitrogen. Commercial grades usually contain from 15 to 16 per cent of nitrogen which is equivalent to 18.2 to 19.5 per cent of ammonia or 91 to 97 per cent of nitrate of soda.

Twenty-three samples have been analyzed and the results are given in Table I. So far as nitrogen guaranties were given no deficiencies were found. The average nitrogen content was 15.43 per cent which is equivalent to 18.76 per cent of ammonia.

At prices quoted, \$60.00 to \$85.00, nitrogen has cost from 19.2 to 27.2 cents per pound. Excluding the single high quotation, the range is 19.2 to about 25 cents. The average last year was found to be 23.3 cents.

TABLE I. ANALYSIS OF NITRATE OF SODA.

Station No.	Manufacturer or Jobber.	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
1561	American Agricultural Chemical Co., New York	Station agent. Stock of F. S. Bidwell Co., Windsor Locks	15.48	15.00
1558	Apothecaries Hall Co., Waterbury	Station agent. Stock of R. W. Hine, Cheshire	15.66	14.80
2052	Armour Fertilizer Works, New York	Station agent. Stock of F. A. Bartlett Tree Expert Co., Stamford	15.30	14.81
1517	Berkshire Fertilizer Co., Bridgeport	Station agent. Stock of T. W. Ryan, Stratford	15.46	15.00
1862	E. D. Chittenden Co., Bridgeport	Station agent. Stock of E. J. Bantle, Glastonbury	15.02	15.00
1685	Everett B. Clark Seed Co., Milford	Station agent. Stock of Jos. Adams, Southport	15.12	15.00
1583	Consolidated Rendering Co., Boston	Station agent. Stock of L. T. Frisbie Co., New Haven	15.32	15.22
1848	Consolidated Rendering Co., Boston	Station agent. Stock of A. E. Shedd, Norwich	15.50	15.00
1643	Eastern States Farmers' Exchange, Springfield	Station agent. Stock of Edge-wood Farm, North Haven	14.96	14.80
2440	International Agricultural Corp., Woburn	Station agent. Stock of Geo. Adams, West Suffield	15.40	15.00
1681	Olds & Whipple, Inc., Hartford	Station agent at factory	15.58	15.00
1527	Piedmont Mt. Airy Guano Co., Baltimore	Station agent. Stock of Light-bourn & Pond Co., New Haven	15.38	15.02
2453	Rackliffe Bros., New Britain	Station agent. Stock of The Meriden Farmers' Exchange, Meriden	15.60	15.00
2460	Rackliffe Bros., New Britain	Station agent at factory	15.20	15.00
1551	The Rogers & Hubbard Co., Portland	Station agent at factory	15.52	14.80
1749	F. S. Royster Guano Co., Baltimore	Station agent. Stock of W. S. Brown, Trumbull	15.40	15.00
1741	Sanderson Fertilizer and Chemical Co., New Haven.	Station agent at factory	15.90	15.00
1456	I. P. Thomas & Son, Philadelphia	Station agent. Stock of High-wood Vegt. Growers' Association, Highwood	15.52	15.00
1808	United States Guano Co., Baltimore	Station agent. Stock of Knowles-Lombard Co., Guilford	15.46	15.00
1814	Wilcox Fertilizer Works, Mystic	Station agent. Stock of Jordan Hardware Co., Willimantic	15.14	15.00
1029	W. R. Grace Co., New York.	American Sumatra Tobacco Co., Bloomfield	15.16	....
1368	W. R. Grace & Co., New York	American Sumatra Tobacco Co., Bloomfield	15.68	....
1247	.....	T. J. Conine, Stratford	14.76	....

SULPHATE OF AMMONIA.

Pure sulphate of ammonia contains 21.2 per cent of nitrogen but the commercial grades contain about 20.5 per cent which is equivalent to about 25 per cent of ammonia or about 97 per cent of ammonium sulphate.

Five samples were examined and results are given in Table II. All substantially met or exceeded the guaranties for nitrogen. *Prices were not quoted but 17.5 cents per pound may be taken as a fair valuation for nitrogen from this source this year.*

TABLE II. SULPHATE OF AMMONIA.

Station No.	Manufacturer or Jobber.	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
2345	Apothecaries Hall Co., Waterbury	Station agent at factory	20.94	20.56
1521	The Barrett Co., New York..	Station agent. Stock of T. W. Ryan, Stratford	20.96	20.75
1847	Consolidated Rendering Co., Boston	Station agent. Stock of A. E. Shedd, Norwich	20.46	20.50
1582	Consolidated Rendering Co., Boston	Station agent. Stock of L. T. Frisbie Co., New Haven	20.44	20.50
1905	Eastern States Farmers' Exchange, Springfield	Station agent. Stock of Henry Joy, Woodstock	20.80	20.55

CASTOR POMACE.

Castor pomace is the residue left after removing the oil from the castor bean. Because of its poisonous constituents it should be stored where farm animals cannot have access to it. While chiefly valuable for its nitrogen, it contains also about one per cent of potash and two per cent of phosphoric acid. It is used chiefly with cottonseed meal in tobacco mixtures.

Thirty samples were examined and are summarized in Table III. Thirteen were sampled by the station agent and the remainder were submitted by purchasers. Sample 1680 fell somewhat below its guaranty as did 1797. In the latter case, however, while the purchaser stated 5.50 per cent of nitrogen as

the guaranty, the registration made by the dealer claimed only 5 per cent, according to which there was no deficiency.

The average guaranty was 4.61 per cent of nitrogen and the average found was 5.02 per cent. *Ton prices, where quoted, ranged from \$23.00 to \$36.00 and nitrogen therefore cost from 23.3 to 39.7 cents per pound. If allowance is made for potash and phosphoric acid at 4 cents per pound each the cost of nitrogen is 2 to 3 cents less.*

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.
	The American Agricultural Chemical Co., New York City.			
1719	59085	R. H. Daly, Broad Brook	4.54	4.53
2023	.....	Station agent, from stock of C. F. Allen, Warehouse Pt.	5.05	4.53
	Apothecaries Hall Co., Waterbury, Conn.			
1612	.....	Station agent, from stock of J. P. Norton, Broad Brook	4.95	4.52
	Baker Castor Oil Co., New York, N. Y.			
1535	10602	American Sumatra Tobacco Co., Bloomfield	4.62	4.50
1536	4510	American Sumatra Tobacco Co., Bloomfield	5.00	4.50
1565	83732	American Sumatra Tobacco Co., Bloomfield	5.17	4.50
1566	156521	American Sumatra Tobacco Co., Bloomfield	5.39	4.50
1691	28228	American Sumatra Tobacco Co., Bloomfield	5.04	4.50
1692	13331	American Sumatra Tobacco Co., Bloomfield	5.10	4.50
1693	17135	American Sumatra Tobacco Co., Bloomfield	5.29	4.50
1839	.....	Station agent, from stock of Al- bert Wetstone, Ellington	4.94	4.50
	Berkshire Fertilizer Co., Bridgeport, Conn.			
1575	.....	Station agent at factory	4.73	4.52
2092	.....	Station agent, from stock of E. N. Austin, Suffield	4.39	4.52
	E. D. Chittenden Co., Bridgeport, Conn.			
2373	.....	Station agent, from stock of Frank Bantle, Glastonbury	5.10	4.52
	Consolidated Rendering Co., Boston, Mass.			
1585	.....	Station agent, from stock of L. T. Frisbie Co., New Haven	4.74	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.
1835	A. W. Higgins, South Deerfield, Mass.			
2360	N. Y. C. 243157	Spencer Bros., Suffield	4.70	4.52
2637	N. Y. 215118	Spencer Bros., Inc., Suffield	5.06	4.52
	.....	Station agent, from stock of Spencer Bros., Inc., Suffield ...	5.17	4.52
1917	International Agricultural Corp., Woburn, Mass.	Station agent, from stock of John Adams, East Granby	5.00	4.53
1680	Olds & Whipple, Hartford, Conn.			
1797	.....	Station agent at factory	4.70	5.00
	.....	L. Wetstone & Sons, Inc., Hart- ford	5.06	5.50
1805	Thum. 50176	Hunting Bros., East Hartford ..	4.62	....
2033	Thum.	H. E. Wells, Warehouse Point ..	5.47	4.94
2034	Thum.	H. E. Wells, Warehouse Point ..	5.43	4.94
2059	.....	E. Handel, Glastonbury	6.14	....
1555	The Rogers & Hubbard Co., Portland, Conn.	Station agent at factory	5.34	4.94
2166	Sanderson Fertilizer & Chemical Co., New Haven, Conn.	Station agent, from stock of Geo. M. Hatch, New Milford	4.69	4.53
1594	Spencer Kellogg & Sons, Inc., Buffalo, N. Y.			
1897	Kellogg Brand	John S. Leonard, Burnside	4.94	4.52
	.....	Station agent, from stock of Frank Manner, Burnside	5.41	4.52
1547	Wilcox Fertilizer Works, Mystic, Conn.	Station agent, from stock of E. N. Austin, Suffield	4.92	4.52

COTTONSEED MEAL.

Fifty-three samples of cottonseed meal have been analyzed and are summarized in Table V. The grades represented are the 36, 41 and 43 per cent protein meals. Eleven samples were submitted with no statement of guaranty but analyses show them to be of the 41 or 43 per cent grade.

Of the fifty-three samples only three were deficient by more than 0.1 per cent of nitrogen; and in only two, 1109 *Dixie*, and 1831 *Bull*, would the deficiencies exceed \$1.00 per ton reckoning nitrogen at 35 cents per pound. The average nitrogen found was 6.63 per cent and the average guaranty was 6.53 per cent. A similar computation last year showed an average of 0.15 per cent of nitrogen found over the average guaranteed. Ninety-six per cent of samples substantially met or exceeded their guaranties.

The cost per pound of nitrogen in cottonseed meal has ranged from 38.1 cents in the 36 per cent protein grade to about 35.5 cents in the higher grades. The average for all samples is 35.9 cents as compared with 39.1 cents last year.

TABLE IV. SUMMARY OF DATA ON COTTONSEED MEAL.

Grade.	Number of Samples.	Average Nitrogen. %	Average Cost per Ton.	Average Cost of Nitrogen, Cents per Pound.
36 per cent (5.76 N)	7	5.87	44.00 ¹	38.1
41 per cent (6.58 N)	24	6.65	47.24 ²	35.9
43 per cent (6.88 N)	11	6.87	45.53 ³	35.6
No guaranty	11	6.76	47.29 ⁴	35.2
Total and averages	53	6.63	47.78 ⁵	35.9

¹ Based on 4 quotations.

² " " 11 "

³ " " 11 "

⁴ " " 6 "

⁵ " " 32 "

TABLE V. ANALYSES OF COTTONSEED MEAL.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
2645	Apothecaries Hall Co., Waterbury, Conn.	Station agent at the factory	6.67	6.58
1211	Ashcraft-Wilkinson Co., Atlanta, Ga. 87085, 262241, 33852, 23612, 97202, 265348, 896992, 14638 and 31842	American Sumatra Tobacco Co., Bloomfield	6.68	....
2458	Helmet	Station agent, from stock of E. J. Bantle, Glastonbury	6.50	6.56
1829	Helmet, N. Y. C. 50088	Spencer Bros., Inc., Suffield	6.69	6.56
1830	Helmet, B & A 32917	Spencer Bros., Inc., Suffield	6.65	6.56
1834	Monarch, So. 134029	Spencer Bros., Inc., Suffield	7.07	6.88
2451	Monarch	Station agent, from stock of Spencer Bros, Inc., Suffield	6.99	6.88
2452	Paramount	Station agent, from stock of Geo. S. Phelps & Co., Thompsonville	6.00	5.76
1832	S. P. Davis, Littlerock, Ark. Steerboy	Spencer Bros., Inc., Suffield	6.92	6.88
2456	Steerboy	Station agent, from stock of Geo. T. Soule, New Milford	7.00	6.88
2457	Good Luck	Station agent, from stock of Amos D. Bridges Sons, Hazardville ..	6.64	6.50
1107	Humphreys-Godwin Co., Memphis, Tenn. Dixie, 47145	L. B. Haas & Co., Hartford	6.62	6.58
1108	Dixie, 80395	L. B. Haas & Co., Hartford	6.77	6.58
1109	Dixie, 27787	L. B. Haas & Co., Hartford	6.30	6.58
1199	Bull	E. N. & C. C. Austin, Suffield ...	6.76	6.88
1212	S. A. L. 85210	Steane, Hartman & Co., Hartford	6.58	6.58
1213	M. P. 20636	Steane, Hartman & Co., Hartford	6.71	6.58
1214	S. P. 87711	Steane, Hartman & Co., Hartford	6.60	6.58
1215	Miss. Pac. 22431	Steane, Hartman & Co., Hartford	6.55	6.58
1216	N. Y., N. H. & H. 91693	Steane, Hartman & Co., Hartford	6.93	6.58
1217	M. P. 28373	Steane, Hartman & Co., Hartford	6.78	6.58
1218	S. S. W. 13406	Steane, Hartman & Co., Hartford	6.94	6.58
1219	S. L. & S. F. 30325	Steane, Hartman & Co., Hartford	6.53	6.58
1220	A. C. L. 37142	Steane, Hartman & Co., Hartford	6.57	6.58
1445	Dixie, 13027, 10619	American Sumatra Tobacco Co., Bloomfield	6.91	6.58
1446	Dixie, 36850, 45278, 39714, 19054, 95856, 76941, S116417	American Sumatra Tobacco Co., Bloomfield	6.81	6.58
1447	Dixie, 82527, 84734, 37842, 15272, 271004, 156387, 29750, 152365, 79712, 49180	American Sumatra Tobacco Co., Bloomfield	6.82	6.58

TABLE V. ANALYSES OF COTTONSEED MEAL—*Concluded.*

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent. Nitrogen.	
			Found.	Guaranteed.
	Humphreys-Godwin Co., Memphis, Tenn.			
1472	28185, 12506, 32287, 97041, 49893, 29624, 31547, 128616, 43198	American Sumatra Tobacco Co., Bloomfield	6.86	....
1485	Dixie, 89628	Huntington Bros., Windsor	6.62	6.56
1546	Bull	Station agent, from stock of E. N. Austin, Suffield	6.87	6.88
1615	Dixie	Station agent, from stock of J. P. Norton, Broad Brook	6.78	6.58
1647	Dixie, R. & N. 12505	L. B. Haas Co., Hartford	6.56	6.58
1648	Dixie	L. B. Haas Co., Hartford	6.64	6.58
1690	Bull, 9493, Atchinson, Topeka and Santa Fe	H. C. Nelson, West Suffield	6.83	6.88
1788	Danish	C. Michel, West Suffield	6.01	5.75
1798	Dixie, 31978	L. Wetstone & Sons, Inc., Hartford	6.82	6.58
1799	Dixie, 40896	L. Wetstone & Sons, Inc., Hartford	6.81	6.58
1828	Bull, L. & N. 98374	Spencer Bros., Inc., Suffield	6.79	6.88
1831	Bull, S. S. & W. 30432	Spencer Bros., Inc., Suffield	6.60	6.88
1833	Bull, M. O. P. 36420	Spencer Bros., Inc., Suffield	7.08	6.88
1850	Dixie	Station agent, from stock of Glas- tonbury Farmers' Exchange, So. Glastonbury	6.58	6.58
2016	Dixie, W. & W. 67902	Geo. S. Phelps & Co., Thompson- ville	5.71	5.76
2357	Bull, So. R. R. 164838	Spencer Bros., Inc., Suffield	6.83	6.88
2358	Dixie, S. S. W. 24342	Spencer Bros., Inc., Suffield	6.47	6.56
1486	Dixie, 79107	Huntington Bros., Windsor	6.78	6.56
2359	Bull, So. R. R. 134354	Spencer Bros., Inc., Suffield	6.65	6.88
2388	Danish, M. C. 99380	Spencer Bros., Inc., Suffield	5.75	5.76
2389	Danish, C. Ga. 50124	Spencer Bros., Inc., Suffield	5.80	5.76
2638	Danish, Cottonseed Feed	Station agent, from stock of A. E. Hall, Wallingford	5.75	5.75
	International Agricultural Corp., Woburn, Mass.			
2462	.....	Station agent, from stock of How- ard Barriesford, West Suffield..	6.81	6.58
	Olds & Whipple, Hartford, Conn.			
1800	514937	Hunting Bros., East Hartford ..	6.55	....
1801	195396	Hunting Bros., East Hartford ..	6.62	....
	The Rogers & Hubbard Co., Portland, Conn.			
2096	.....	Station agent at factory	5.95	5.75

II. RAW MATERIALS CHIEFLY VALUABLE FOR PHOSPHORIC ACID.

PRECIPITATED BONE PHOSPHATE.

Commercial bone phosphate, obtained as a by-product in the manufacture of gelatin, consists largely of dicalcium phosphate, and the phosphorus is practically all in so-called "available" form.

Ten samples were analyzed, five of which were sampled by the station agent. Samples 2128 and 2521 did not meet the guaranty of 38 per cent total phosphoric acid although they averaged 36 per cent of available phosphoric acid. *So far as prices were quoted available phosphoric acid cost about 7 cents per pound.*

TABLE VI. ANALYSES OF PRECIPITATED BONE PHOSPHATE.

Station No.	Manufacturer or Wholesale Dealer.	Place of Sampling.	Phosphoric Acid.			
			Citrate-insoluble.	Total.	"Available."	
		Found.			Guaranteed.	
			%	%	%	
1611	<i>Sampled by Station:</i> Apothecaries Hall Co., Waterbury	J. P. Norton, Broad Brook	1.15	38.70	37.55	36.00
1577	Berkshire Fertilizer Co., Bridgeport	At factory	1.45	41.70	40.25	38.00
2128	L. T. Frisbie Co., New Haven	At factory	1.15	36.48	35.33 ¹	....
2521	L. T. Frisbie Co., New Haven	At factory	0.65	37.30	36.65 ¹	....
1677	Olds & Whipple, Inc., Hartford	At factory	0.55	38.95	38.40	38.00
1553	The Rogers & Hubbard Co., Portland	At factory	0.70	37.20	36.50	36.00
	<i>Sampled by Purchaser:</i>					
1245	82715, 93520	American Sumatra Tobacco Co., Bloomfield	0.41	39.78	39.37	....
1448	91048	American Sumatra Tobacco Co., Bloomfield	1.20	43.36	42.16	....
1449	90373	American Sumatra Tobacco Co., Bloomfield	1.14	43.70	42.56	....
1803	Olds & Whipple, Inc., Hartford	Hunting Bros., East Hartford	1.05	38.50	37.45	....

¹ Guaranty, 38 per cent total.

DISSOLVED ROCK PHOSPHATE OR ACID PHOSPHATE.

Acid phosphate is made by treating raw rock phosphate with sulphuric acid which converts the phosphorus into available forms, chiefly, of the type which is soluble in water.

Twenty-four samples were analyzed all but three of which substantially equalled or exceeded their guaranties. Sample 1588 was about 0.5 per cent low; but two other samples of the same brand were well over the guaranty of 16 per cent. Sample 1453 was considerably under 16 per cent and no other sample of the same brand could be found. Sample 2736 was low but 1813, of the same manufacture, substantially met the guaranty.

On the basis of eleven price quotations, available phosphoric acid in this raw material has cost about 7 cents per pound.

Analyses are given in Table VII.

TABLE VII. ANALYSES OF ACID PHOSPHATE.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Phosphoric Acid.				Station No.	
			Citrates Insoluble.	Total	"Available."			Guaranteed.
					Found.	%		
	<i>Sampled by Station.</i>							
1588	American Agricultural Chemical Co., New York	Geo. S. Phelps & Co., Thompsonville	0.45	15.93	15.48	16.00	1588	
1895	American Agricultural Chemical Co., New York	Geo. S. Phelps & Co., Thompsonville	0.33	16.57	16.24	16.00	1895	
2499	American Agricultural Chemical Co., New York	Lawton Miner Co., Collinsville	0.45	18.20	17.75	16.00	2499	
1559	Apothecaries Hall Co., Waterbury	J. R. Reinhard, Cheshire	0.80	17.73	16.93	16.00	1559	
2050	Armour Fertilizer Works, New York	Brower & Malone Co., Norwalk	0.18	16.34	16.16	16.00	2050	
1518	Berkshire Fertilizer Co., Bridgeport	T. W. Ryan, Stratford	0.15	16.28	16.13	16.00	1518	
1607	E. D. Chittenden Co., Bridgeport	Gunther Bros., Rockville	1.18	17.55	16.37	16.00	1607	
1688	Everett B. Clark Seed Co., Milford	W. H. Burr, Southport	0.75	18.03	17.28	16.00	1688	
1580	Consolidated Rendering Co., Boston	L. T. Frisbie Co., New Haven	0.98	18.03	17.05	16.00	1580	
1849	Consolidated Rendering Co., Boston	A. E. Shedd, Norwich	1.88	17.91	16.03	16.00	1849	
1642	Eastern States Farmers' Exchange, Springfield, Mass.	Edgewood Farm, North Haven	0.80	16.98	16.18	16.00	1642	
1904	Eastern States Farmers' Exchange, Springfield, Mass.	Henry Joy, Woodstock	0.78	16.86	16.08	16.00	1904	
1899	International Agricultural Corp., Woburn, Mass.	E. D. Bartlett, Guilford	0.38	17.10	16.72	16.00	1899	
2091	Nitrate Agencies Co., New York	E. N. Austin, Suffield	0.73	17.00	16.27	16.00	2091	

TABLE VII. ANALYSES OF ACID PHOSPHATE—Concluded.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Citra- insoluble. %	Phosphoric Acid.			
				Total.	Found.	Guaranteed.	Station No.
1682	<i>Sampled by Station:</i> Olds & Whipple, Inc., Hartford	Sampled at Factory	0.95	17.63	16.68	16.00	1682
1735								Piedmont Mt. Airy Guano Co., Balti- more, Md. ....
1550	The Rogers & Hubbard Co., Portland	Seymour Grain & Coal Co., Seymour	1.10	17.20	16.10	16.00	1735
2106	F. S. Royster Guano Co., Baltimore, Md.	Sampled at Factory	0.20	17.50	17.30	16.00	1550
1740	Sanderson Fertilizer & Chemical Co., New Haven	Hitchcock Hardware Co., Watertown	1.90	17.90	16.00	16.00	2106
1453	I. P. Thomas & Son Co., Philadelphia, Pa.	Sampled at Factory	0.28	17.85	17.57	16.00	1740
2163	Triton Oil & Fertilizer Co., New York	Highwood Vegetable Growers' Association Highwood	1.75	16.63	14.88	16.00	1453
1807	United States Guano Co., Baltimore, Md.	Paty Schwartz Co., New London	0.45	17.45	17.00	16.00	2163
1813	Wilcox Fertilizer Works, Mystic	Knowles, Lombard Co., Guilford	0.83	17.45	16.62	16.00	1807
2736	Wilcox Fertilizer Works, Mystic	Jordan Hardware Co., Willimantic	0.13	17.00	16.87	17.00	1813
		Manufacturer's sample	0.08	16.26	16.18	17.00	2736

III. RAW MATERIALS CONTAINING POTASH.

CARBONATE OF POTASH.

Pure carbonate of potash contains 68.2 per cent of actual potash (K_2O), but commercial grades will usually contain from 60 to 65 per cent.

All of the samples examined, six in number, were submitted by the purchaser and the only guaranty given was 96 per cent carbonate of potash which is equivalent to about 65.5 per cent of K_2O . The samples examined ranged from 58.5 to 67.6 per cent. Another sample, **1569**, was submitted by the American Sumatra Tobacco Co. as carbonate of potash, but there was apparently an error in sampling. The material contained only 24 per cent of potash with much phosphoric acid and was evidently a mixture of carbonate of potash and precipitated bone.

Analyses are given in Table VIII.

MURIATE OF POTASH.

The grade of this salt chiefly used for fertilizer is about 80 per cent pure and is generally guaranteed to contain from 48 to 50 per cent of actual potash (K_2O).

Fourteen samples were drawn by the station agent and one was submitted by a purchaser. Three samples, **1584**, **1687** and **1809** failed to equal their guaranties but second samples of two of these, **1846** and **2122**, were not found deficient. No second sample of **1687** was found.

On the basis of prices quoted potash from this source cost 5 cents per pound.

Analyses are given in Table VIII.

HIGH GRADE SULPHATE OF POTASH.

This material is about 90 per cent pure sulphate of potash which is equivalent to about 48 per cent of actual potash (K_2O).

Eight samples were drawn by the station agent and six were examined for purchasers. All substantially equalled or exceeded their guaranties.

Potash from this source cost, at the prices quoted, about 6 cents per pound.

Analyses are given in Table VIII.

DOUBLE SULPHATE OF POTASH AND MAGNESIA.

(Double Manure Salts.)

Only three samples were analyzed this season. All satisfied the requirement of 26 per cent of potash and contained from 10 to 14.5 per cent of magnesia.

Analyses are given in Table VIII.

KAINIT.

The one sample of kainit examined fully satisfied the guaranty. The analysis is given in Table VIII.

TABLE VIII. ANALYSES OF POTASH SALTS.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
1405	Carbonate of Potash. <i>Sampled by Purchaser:</i> A. Klipstein, New York City	American Sumatra Tobacco Co., Bloomfield	%	%	1405
1406		"	64.92	65.40	1406
1568		"	58.51	65.40	1568
1570		"	64.51	65.40	1570
1571		"	64.42	65.40	1571
1572		"	67.64	65.40	1572
		"	67.06	65.40	
1591	Muriate of Potash. <i>Sampled by Station:</i> Apothecaries Hall Co., Waterbury	Sampled at Factory	51.72	50.00	1591
2053		F. A. Bartlett Tree Expert Co., Stamford	48.38	48.00	2053
1519		T. W. Ryan, Stratford	50.34	50.00	1519
1608		Gunther Bros., Rockville	52.22	48.00	1608
1846		A. E. Shedd, Norwich	50.39	50.00	1846
1584		L. T. Frisbie Co., New Haven	49.20	50.00	1584
1687		W. H. Burr, Southport	47.99	50.00	1687
2407		B. W. Bishop, Guilford	50.55	50.00	2407
1920		E. D. Bartlett, Guilford	51.67	48.00	1920
		International Agricultural Corp., Woburn, Mass.			

TABLE VIII. ANALYSES OF POTASH SALTS—Continued.

POTAŞH SALTS

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
	Muriate of Potash—Concluded.				
	<i>Sampled by Station:</i>				
2089	Nirate Agencies Co, New York	E. N. Austin, Suffield	%	%	2089
2150	F. S. Royster Guano Co, Baltimore, Md.	Hitchcock Hardware Co, Watertown	48.99	48.00	2150
1454	I. P. Thomas & Son Co, Philadelphia, Pa.	Highwood Vegetable Growers' Association, Highwood	49.61	48.00	1454
1809	United States Guano Co., Baltimore, Md.	Knowles, Lombard Co., Guilford	50.85	50.00	1809
2122	United States Guano Co., Baltimore, Md.	Knowles, Lombard Co., Guilford	45.00 ¹	50.00	2122
			50.27	50.00	
2060	<i>Sampled by Purchaser:</i> Apothecaries Hall Co, Waterbury	Francis M. Coe, Litchfield	51.79	50.00	2060
	Sulphate of Potash.				
	<i>Sampled by Station:</i>				
1587	American Agricultural Chemical Co, New York	Geo. S. Phelps & Co., Thompsonville	47.92	48.00	1587
1610	Apothecaries Hall Co, Waterbury	J. P. Norton, Broad Brook	48.53	48.00	1610
1578	Berkshire Fertilizer Co, Bridgeport	Sampled at Factory	50.15	48.00	1578
1861	E. D. Chittenden Co, Bridgeport	E. J. Bantle, Glastonbury	48.77	48.00	1861
1581	Consolidated Rendering Co, Boston	L. T. Frisbie Co., New Haven	50.01	48.00	1581
2438	International Agricultural Corp., Woburn, Mass.	James T. Caffrey, Cromwell	50.01	50.00	2438
2433	Olds & Whipple, Inc., Hartford	Sampled at Factory	50.05	48.65	2433
1676	The Rogers & Hubbard Co., Portland	Sampled at Factory	50.39	48.00	1676

¹ Contains considerable sulphate.

TABLE VIII. ANALYSES OF POTASH SALTS—Concluded.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Station No.
			Found.	Guaranteed.	
	Sulphate of Potash—Concluded.				
	<i>Sampled by Purchaser:</i>				
2154	Berkshire Fertilizer Co., Bridgeport	Martin Noone, Suffield	49.12	48.00	2154
1450	Olds & Whipple, Inc., Hartford	American Sumatra Tobacco Co., Bloomfield	50.40	48.65	1450
1451	" " " "	" " " "	50.04	48.65	1451
1823	" " " "	" " " "	48.72	48.65	1823
1484	" " " "	Huntington Bros, Windsor	49.61	48.65	1484
1802	" " " "	Hunting Bros, East Hartford	49.53	48.00	1802
	Double Manure Salts.				
	<i>Sampled by Station:</i>				
2320	Apothecaries Hall Co., Waterbury	Sampled at Factory	28.19 ¹	26.00	2320
1579	Berkshire Fertilizer Works, Bridgeport ..	Sampled at Factory	28.46 ²	26.00	1579
1678	Olds & Whipple, Inc., Hartford	Sampled at Factory	26.38 ³	26.00	1678
	Kainit.				
	<i>Sampled by Station:</i>				
1701	Eastern States Farmers' Exchange, Springfield, Mass.	Edgewood Farm, North Haven	13.82	12.40	1701

¹ Magnesia 9.97.² Magnesia 12.25.³ Magnesia 14.50, chlorine 1.50.

IV. RAW MATERIALS CONTAINING NITROGEN AND POTASH.

Only two samples of this group of materials have been examined, both taken by the station agent.

1592. Nitrate of Soda and Potash. Apothecaries Hall Co., Waterbury. Sampled at the factory.

2088. Naco Brand, Nitrapo. Nitrate Agencies Co., New York. Sampled from stock of E. N. Austin, Suffield.

Sample **2088** was deficient in both essential ingredients.

TABLE IX. ANALYSES OF NITRATE OF SODA AND POTASH.

Station No.	1592	2088
Nitrogen:		
found	14.84	14.12
guaranteed	14.80	15.00
Equivalent to ammonia:		
found	18.04	17.17
guaranteed	18.00	18.25
Potash:		
found	13.48	14.77
guaranteed	12.00	15.00

V. RAW MATERIALS CONTAINING NITROGEN AND PHOSPHORIC ACID.

DRY GROUND FISH.

Twenty-six samples of dry ground fish were analyzed, ten of which were official samples drawn by the station agent. All of the official samples equalled or exceeded their guaranties except **1554** which was 0.32 per cent low in nitrogen and **2090** which was deficient in phosphoric acid.

In the official samples the average nitrogen found was 8.80 per cent and the average phosphoric acid 7.59 per cent. *On the basis of the prices quoted to our agent, allowing 4 cents per pound for phosphoric acid, nitrogen in this material cost about 37.7 cents per pound. A similar calculation last year showed the cost per pound to be 37.9 cents.*

Analyses are given in Table X.

TABLE X. 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.	
	<i>Sampled by Station:</i>							
1896	American Agricultural Chemical Co., New York	Geo. S. Phelps & Co., Thompsonville	%	%	%	%	%	1896
1614	Apothecaries Hall Co., Waterbury	J. P. Norton, Broad Brook	8.50	8.23	10.34	7.85	6.00	1614
1522	Berkshire Fertilizer Co., Bridgeport	T. W. Ryan, Stratford	8.61	8.20	10.47	6.30	5.00	1522
2367	E. D. Chittenden Co., Bridgeport	E. J. Bantle, Glastonbury	8.25	8.22	10.03	7.33	6.00	2367
2498	Consolidated Rendering Co., Boston	W. A. Forbes, Silver Lane	8.82	8.00	10.72	7.05	6.40	2498
2090	Nitrate Agencies Co., New York	E. N. Austin, Suffield	8.32	8.22	10.12	10.15	7.00	2090
1679	Olds & Whipple, Inc., Hartford	Sampled at Factory	9.73	9.05	11.83	5.73	7.00	1679
1554	The Rogers & Hubbard Co., Portland	Sampled at Factory	8.90	8.23	10.89	7.48	5.00	1554
1916	Sanderson Fertilizer & Chemical Co., New Haven	Sampled at Factory	9.13	9.45	11.10	8.03	6.00	1916
2188	Wilcox Fertilizer Works, Mystic	Phelps Coal Co., Glastonbury	8.56	8.23	10.41	7.53	6.00	2188
		Sampled at Factory	9.09	9.04	11.05	7.88	6.00	
	<i>Sampled by Purchaser:</i>							
943	Berkshire Fertilizer Co., Bridgeport	American Sumatra Tobacco Co., Bloomfield	8.52	8.52	10.36	8.41	6.00	943
944	" " " "	" " " "	7.81	8.52	9.50	8.62	6.00	944
957	" " " "	" " " "	8.31	8.52	10.10	7.94	6.00	957
958	" " " "	" " " "	8.15	8.52	9.91	8.10	6.00	958
959	" " " "	" " " "	8.20	8.52	9.97	8.33	6.00	959
1028	" " " "	" " " "	8.44	8.52	10.26	8.01	6.00	1028
1030	" " " "	" " " "	8.46	8.52	10.29	8.51	6.00	1030
1031	" " " "	" " " "	8.17	8.52	9.93	8.02	6.00	1031

TABLE X. ANALYSES OF DRY GROUND FISH—Concluded.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Nitrogen.		Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Station No.
			Total found.	Total guaranteed.		Total found.	Total guaranteed.	
1032			%	%	%	%	%	1032
1033	<i>Sampled by Purchaser:</i>	American Sumatra Tobacco Co.,	8.29	.....	10.08	8.12	.....	1033
1034	Berkshire Fertilizer Co., Bridgeport ..	Bloomfield	8.11	.....	9.86	8.30	.....	1034
1035	" " " "	" " " "	7.97	.....	9.69	8.38	.....	1035
1036	" " " "	" " " "	8.23	.....	10.01	8.00	.....	1036
2153	" " " "	" " " "	8.12	.....	9.87	8.15	.....	2153
1804	Olds & Whipple, Inc., Hartford	E. N. Austin, Suffield	8.38	8.23	10.19	6.85	6.00	1804
1822	Olds & Whipple, Inc., Hartford	Hunting Bros., East Hartford ..	8.48	.....	10.31	7.20	.....	1822
		American Sumatra Tobacco Co.,	8.51	.....	10.35	6.68	.....
		Bloomfield						

TANKAGE.

This material varies considerably in composition depending upon the relative amounts of bone and meat which it contains. In general products containing less than 5 per cent of nitrogen and over 15 per cent of phosphoric acid show a preponderance of bone, while those showing over 5 per cent of nitrogen and less than 15 per cent of phosphoric acid show substantial quantities of meat.

Sixteen samples were analyzed, thirteen of which were officially drawn. Of the official samples four, 1560, 1604, 2522, and 1860 averaged 4.09 per cent of nitrogen and 21.85 per cent of phosphoric acid and are, therefore, bone and meat tankages. The remainder were meat tankages and averaged 7.55 per cent of nitrogen and 9.04 per cent of phosphoric acid.

Prices vary greatly for this raw material depending upon whether it is essentially nitrogenous or phosphatic in type. Thus the approximate valuations of the two samples containing the extremes of nitrogen, assuming values of 30 cents per pound for nitrogen and 4 cents for phosphoric acid, range from \$39.00 to \$68.00 per ton.

Analyses are given in Table XI.

TABLE XI. 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.	
	<i>Sampled by Station:</i>									
1560	Apothecaries Hall Co., Waterbury	J. R. Reinhard, West Cheshire ..	4.02	3.29	4.89	24.70	20.00	50.0	50.0	1560
1590	Apothecaries Hall Co., Waterbury	Sampled at Factory	7.76	7.40	9.43	3.68	3.00	64.0	36.0	1590
2325	Armour Fertilizer Works, New York	C. A. Templeton, Waterbury ..	6.06	7.40	8.46	10.99	6.87	50.0	50.0	2325
1520	Berkshire Fertilizer Co., Bridgeport	T. W. Ryan, Stratford	6.92	7.40	8.41	11.90	6.86	50.0	50.0	1520
2134	Everett B. Clark Seed Co., Milford	Geo. S. Jennings, Southport ..	7.35	7.40	8.94	4.25	13.73	41.0	59.0	2134
1686	Everett B. Clark Seed Co., Milford	W. H. Burr, Southport	5.23	4.93	6.36	13.60	13.73	44.0	56.0	1686
1604	Conn. Fat Rendering and Fertilizer Corp., New Haven	Sampled at Factory	3.82	3.29	4.64	21.85	25.00	50.0	50.0	1604
2522	Conn. Fat Rendering and Fertilizer Corp., New Haven	Sampled at Factory	3.52	3.29	4.28	22.76	25.00	50.0	50.0	2522
1860	Consolidated Rendering Co., Boston	Burr Nurseries, Manchester ..	4.98	4.92	5.96	18.10	14.00	39.0	61.0	1860
1616	L. T. Frisbie Co., New Haven ..	Sampled at Factory	10.41	9.87	12.66	6.30	4.57	24.0	76.0	1616
1900	International Agricultural Corp., Woburn, Mass.	E. D. Bartlett, Guilford	5.33	4.93	6.48	13.95	11.00	43.0	57.0	1900
1455	I. P. Thomas & Son Co., Philadelphia, Pa.	Highwood Vegetable Growers' Association, Highwood	10.33 ¹	....	12.56	5.12	....	41.0	59.0	1455
1818	Worcester Rendering Co., Auburn, Mass.	A. E. Shedd, Norwich	7.64	5.74	9.29	11.60	10.00	37.0	63.0	1818
	<i>Sampled by Purchaser:</i>									
1118	Conn. Fat Rendering and Fertilizer Corp., New Haven	Sent from Factory	4.87	....	5.92	....	....	....	....	1118
1892	Consolidated Rendering Co., Boston	C. R. Burr & Co., Manchester ..	5.27	4.94	6.41	17.98	14.00	36.0	64.0	1892
2032	Consolidated Rendering Co., Boston	The Lyman Farm, Middlefield ..	4.88	..	5.93	14.93	....	33.0	67.0	2032

¹ Sold on unit of ammonia basis.

TABLE XII. ANALYSES OF GROUND BONE.

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 Station:</i>									
1586	American Agricultural Chemical Co., New York	F. S. Bidwell Co., Windsor Locks	2.51	2.47	3.05	26.60	22.88	61.0	39.0	1586
1557	Apothecaries Hall Co., Waterbury	R. W. Hine, Cheshire	3.56	3.29	4.33	23.20	20.00	56.0	44.0	1557
2049	Armour Fertilizer Works, New York	Harrison & Gould, Milford	2.43	2.47	2.95	25.50	22.00	55.0	45.0	2049
1576	Berkshire Fertilizer Co., Bridgeport	Sampled at Factory	2.66	2.47	3.23	26.35	20.00	56.0	44.0	1576
2133	Everett B. Clark Seed Co., Milford	Geo. S. Jennings, Southport	3.18	2.47	3.87	22.60	22.88	48.0	52.0	2133
1863	E. D. Chittenden Co., Bridgeport ..	E. J. Bantle, Glastonbury	2.54	2.47	3.09	26.80	22.00	52.0	48.0	1863
1593	Consolidated Rendering Co., Boston	Rockville Milling Co., Rockville ..	1.85	2.05	2.25	27.30	25.18	39.0	61.0	1593
1894	Consolidated Rendering Co., Boston	Willimantic Grain Co., Willimantic	3.18	2.46	3.87	23.60	22.90	42.0	58.0	1894
2406	Eastern States Farmers' Exchange, Springfield, Mass.	Newtown Grain & Coal Co., Newtown	2.61	2.47	3.17	23.50	22.88	47.5	52.5	2406
1606	L. T. Frisbie Co., New Haven	Sampled at Factory	4.31	3.28	5.24	21.65	22.00	34.0	66.0	1606
1605	L. T. Frisbie Co., New Haven	Lighthour & Pond Co., New Haven	3.24	2.46	3.94	24.75	22.90	45.0	55.0	1605
1898	International Agricultural Corp., Woburn, Mass.	Jacob Bantley, Glastonbury	2.82	2.50	3.43	26.30	22.00	63.0	37.0	1898
1915	New England By-Products Corp., Lawrence, Mass.	Peterson Hendee Co., Derby	3.86	3.75	4.69	26.45	25.00	61.0	39.0	1915
1683	Olds & Whipple, Inc., Hartford	F. T. Blush Hardware, So. Manchester	2.48	2.50	3.02	27.05	22.00	53.0	47.0	1683
1525	Piedmont-Mt. Airy Guano Co., Baltimore, Md.	Lighthour & Pond Co., New Haven	4.03	2.47	4.90	15.00	22.90	45.0	55.0	1525

TABLE XII. 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.	
2102	<i>Sampled by Station:</i> The Rogers & Hubbard Co., Portland		%	%	%	%	%	%	%	2102
1621	The Rogers & Hubbard Co., Portland		3.66	3.29	4.45	21.55	20.50	42.0	58.0	1621
2520	The Rogers & Hubbard Co., Portland		3.71	3.82	4.51	25.00	24.70	52.0	48.0	2520
1750	F. S. Royster Guano Co., Baltimore, Md.		3.76	3.82	4.57	26.30	24.70	80.0	20.0	1750
1745	Sanderson Fertilizer & Chemical Co., New Haven		3.16	2.47	3.84	26.85	22.90	66.0	34.0	1745
1909	M. L. Shoemaker & Co., Philadelphia, Pa.		2.73	2.47	3.32	25.35	22.88	59.0	41.0	1909
1458	I. P. Thomas & Son, Philadelphia, Pa.		6.39	4.51	7.77	20.45	20.00	37.0	63.0	1458
2496	U. S. Guano Co., Baltimore, Md.		2.78	2.45	3.38	24.86	23.00	50.0	50.0	2496
2184	Wilcox Fertilizer Works, Mystic		3.13	2.46	3.81	21.77	23.00	52.0	48.0	2184
	<i>Sampled by Purchaser:</i>		2.54	2.46	3.09	26.60	22.00	60.0	40.0	
1407	American Sumatra Tobacco Co., Bloomfield		2.70	....	3.28	26.02	....	46.0	54.0	1407
1819	Sanderson Fertilizer & Chemical Co., New Haven		2.85	....	3.46	25.70	....	57.0	43.0	1819

MIXED FERTILIZERS.

MIXTURES CONTAINING ONLY NITROGEN AND
PHOSPHORIC ACID.

Only four samples of this group of fertilizers were examined.

1731. Top Dressing for Grass. Olds and Whipple, Inc., Hartford. Sampled by the station agent from stock of F. T. Blish Hardware Co., So. Manchester.

2439. High Grade Tobacco Starter. Olds and Whipple, Inc., Hartford. Sampled by station agent at the factory.

2644. Ammo-Phos. American Cyanamid Co., New York. Sampled by station agent from stock of Olds and Whipple, Inc., Hartford.

1746. Swift Sure Tobacco Starter. M. L. Shoemaker and Co., Philadelphia. Sampled by station agent from stock of F. S. Bidwell & Co., Windsor Locks.

Analyses are as follows:

Station No.	1731	2439	2644	1746
	%	%	%	%
Nitrogen, found	6.43	8.61	15.80	3.27
guaranteed	5.75	8.23	16.45	3.25
Ammonia equivalent to nitrogen	7.82	10.47	19.21	3.98
Phosphoric acid, total	4.95	5.45	21.55	13.70
available, found	4.35	4.55	20.82	11.55
guaranteed	4.00	3.00	20.00	10.00

In all these samples the quality of the insoluble organic nitrogen was satisfactory as judged by the usual methods.

MIXTURES CONTAINING AMMONIA, PHOSPHORIC ACID
AND POTASH.

In Table XIII are given the analyses of two hundred and fifty-five samples of complete fertilizers, sampled by the station agent, and of fourteen sampled by purchasers, making two hundred and sixty-nine in all.

The figures in the column headed "grade" represent the guaranteed percentages of ammonia, available phosphoric acid and potash in the order named. Thus, for example, **4-8-4** means that the brand is guaranteed to contain at least 4 per cent of ammonia, 8 per cent of available phosphoric acid, and 4 per cent of potash. The figures in the analyses which correspond to these values are given in bold face type so that the comparison between the plant food guaranteed and that found on analysis can be readily made.

The essential facts concerning the inspection may be summarized as follows:

Total number of official samples	255
Samples considerably deficient:	
Deficient in one item	74
" in two items	10
" in three items	0
Total	84
Total deficiencies	94
Total guaranties made, (total samples x 3)	765
Total number of samples showing deficiencies in money value of \$1.00 per ton or more	13

This summary shows that about $1/3$ (32.9 per cent), of the total number of samples examined have failed to satisfy their guaranties in all items of plant food. Seventy-four samples were deficient in one ingredient only; ten were deficient in two ingredients; and none were deficient in all ingredients. Amounts of plant food have substantially equalled or exceeded guaranties in 87.7 per cent of the total number of guaranties made; and, when overages are balanced against shortages, samples have shown commercial values¹ substantially conforming to those required by the guaranties in about 95 per cent of the total number of samples examined.

CONCERNING GUARANTIES.

A study of the distribution of deficiencies in plant food shows that those in ammonia, phosphoric acid, and potash are about equally distributed, there being 35, 28, and 31 in the order named. While in the majority of cases analyses show that guaranties are insured by liberal overruns, yet too often there is evidence of insufficient allowance for reasonable margins of safety.

Analyses as soon as made are reported to the manufacturer, to the dealer and to the purchaser. In case of considerable deficiencies, second samples are analyzed if such have been taken or can be obtained. Thus questions arising concerning analysis or sampling may be investigated and adjusted if possible.

The following comments may be offered with reference to the samples cited.

2312. A. A. C. Co's National Market Garden Fertilizer. This was guaranteed 4.00 per cent potash and 3.66 per cent was found. The manufacturer obtained 3.76 per cent on a duplicate portion of our sample.

2327. A. A. C. Co's Quinnipiac Market Garden Manure. Guaranteed 7 per cent potash. We reported 6.65 per cent whereas the manufacturer found 6.79 per cent in a duplicate portion of our sample.

1773. Armour's Big Crop Fertilizer 5-8-7. Our report showed this sample to be low in ammonia and in available phos-

¹Ammonia has been reckoned at 20.6¢ per pound; and available phosphoric acid and potash at 4¢ per pound each.

phoric acid. Checks by the manufacturer substantially agreed with our figures.

2099. Royster's Bully Guano. Guaranteed 5 per cent potash. Our report showed 4.66 potash and the manufacturer's check showed 4.88 per cent. Rechecks by us showed 4.53 and 4.51 per cent.

1857. Bowker's Stockbridge Truck Manure. Analysis showed this to be a 4-8-6 instead of a 4-8-7 brand as tagged. The manufacturer questioned the sampling but no error was found in the inspection report. A second sample of the same brand substantially conformed to guaranty in two ingredients but was deficient in potash.

DEFICIENCIES IN MONEY VALUE.

Thirteen samples show shortages in money value in excess of \$1.00 per ton, such shortages being duly balanced against any overruns shown, and reckoning ammonia, available phosphoric acid and potash at the values previously cited (p. 44). In all these cases second samples were secured if possible and analyzed if obtained. A summary of deficient brands is given in Table XIV.

TABLE XIV. BRANDS SHOWING COMMERCIAL DEFICIENCIES.

No.	Brand.	Approximate deficiency in money value per ton.
2495 } 1773 } 1857 }	Armour's Big Crop 5-8-7	\$1.20 ¹
2371 } 2526 }	Bowker's Stockbridge Truck Manure	1.16 ²
2411 }	Chittenden's Potato Special 6% Potash	2.17 ¹
2416 }	Chittenden's Top Dresser 4% Potash	3.03
1903 }	Davey Tree Food	1.09
2442 }	Eastern States 5-8-7	3.24 ²
2083 }	International Tobacco Producer	1.77 ²
2511 }	Lowell Top Dressing 7-5-2	1.10 ²
2149 }	Piedmont Mt. Airy Harvest Brand 8-6-6	3.30 ³
2497 }	Royster's Valley Tobacco Formula	1.59
	U. S. Guano Co. Standard U. S. Farmer's Formula	3.26

¹ Based on average of two samples

² Second sample not deficient. Average of two not deficient.

³ Second sample not deficient.

Attention has already been directed to the fact that these samples showing considerable commercial deficiencies constitute but 5 per cent of the total number of samples examined. If these data are incorporated with similar data for the previous four years we shall gain some conception of what purchasers of mixed fertilizers have received for their money during the five year period. It appears from Table XV that in this interval 1276 official samples have been analyzed, and that 1155 (90.5 per cent) samples have substantially met or have exceeded the com-

mercial valuations represented by their guaranties. A few manufacturers, of whose goods less than 10 samples have been examined in this stated period, are not included in the summary. The products of a given manufacturer are more adequately judged on the basis of a period of years; but in order to recognize improvement, if made, the comparative figures for the past year are given separately.

TABLE XV. COMMERCIAL DEFICIENCIES 1921-1925 INCLUSIVE.

Manufacturer.	Total number of samples.	Number equaling or exceeding guaranties in money value.	Per cent in 5-yr. period.	Per cent in 1925.
American Agricultural Chemical Co.	218	207	95	100
Apothecaries Hall Co.	39	39	100	100
Armour Fertilizer Works	55	39	71	75
Atlantic Packing Co.	37	33	89	100
Berkshire Fertilizer Co.	40	40	100	100
Boardman, F. E.	10	10	100	100
Bowker Fertilizer Co.	71	63	89	93
Bridges, A. D. & Sons	10	10	100	100
Chittenden, E. D. Co.	34	30	88	63
Clark, E. B. Seed Co.	23	21	91	100
Coe-Mortimer Co., The	30	27	90	...
Eastern States Farmers' Exchange	49	41	84	90
Essex Fertilizer Co.	35	34	97	100
Frisbie, L. T. Co.	57	47	83	100
International Agricultural Corp...	46	41	89	92
Lowell Fertilizer Co.	51	43	84	89
Mapes Fertilizer and Peruvian Guano Co.	65	64	99	100
New England Fertilizer	42	39	93	100
Nitrate Agencies Co.	14	11	79	...
Olds & Whipple, Inc.	29	29	100	100
Parmenter & Polsey Fertilizer Co.	19	18	95	100
Piedmont Mt. Airy Guano Co. ..	19	11	58	90
Rogers & Hubbard Co., The	67	65	97	100
Royster, F. S. Guano Co.	37	27	73	86
Sanderson Fertilizer and Chemical Co.	41	39	95	100
Shoemaker, M. L. & Co.	13	13	100	100
Springfield Rendering	22	20	91	100
Virginia-Carolina Chemical Co...	45	42	93	100
Wilcox Fertilizer Works	41	38	93	100
Worcester Rendering Co.	17	14	82	100
Total	1,276	1,155	91	95

THE "NEW ENGLAND STANDARD NINE."

Of the two hundred and fifty-five official samples of complete fertilizers, less than one-half (113) have fallen in the "Standard Nine" group; but if grades closely corresponding thereto are

included the number is somewhat over one-half (133). Last year it was found that about 36 per cent of the samples examined fell exactly in these nine grades whereas this year the proportion is 44 per cent. As was the case last year, the largest number of samples have fallen in the grades 4-8-4, 5-4-5, and 5-8-7.

In the following summary the "Standard Nine" grades are indicated in full face type.

Grade.	No. of Samples.
0-12-6	0
2-12-4	2
3-10-3	5
3-10-4	6
3-10-6	0
4-7-5	1
4-8-4	32
4-8-5	1
4-8-6	10
4-8-7	10
5-4-4	0
5-4-5	29
5-8-6	3
5-8-7	28
8-6-6	6
Total	133

QUALITY OF THE INSOLUBLE ORGANIC NITROGEN.

The accepted methods of evaluating the insoluble organic nitrogen in fertilizers determines the proportion which is "active." Thus activity values of under 50 per cent by the so-called alkaline method and 80 per cent by the so-called neutral method are taken as indicating inferior forms of nitrogenous materials. In several brands examined during the past season values somewhat less than these just given have been found; but in all these cases the percentages of water-soluble nitrogen plus the active insoluble nitrogen exceeded or closely approximated the nitrogen guaranties and the question of quality was not raised.

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i> American Agricultural Chemical Co., New York.			
2020	Complete Potato Mixture	3-8-4	Glenbrook
2029	Crescent Complete Manure	2-8-3	Bloomfield
2028	Double A Tobacco Fertilizer	5-4-5	Bloomfield
2024	Farm Favorite	2-10-2	Farmington
2027	Fish and Potash	3-10-3	Granby
2022	Grass and Lawn Top Dressing	6-6-4	Warehouse Point ..
2025	7% Potash Fertilizer	4-8-7	New Britain
2018	Universal Phosphate	1-8-2	North Haven
2331	Bowker's Lawn and Garden Dressing ...	3-9-2	Hartford
2306	Bradley's Complete Manure for Potatoes and Vegetables	4-8-7	Bethel
2311	Bradley's Complete Tobacco Manure ...	5-4-5	Glastonbury
2021	Bradley's Corn Phosphate	2-10-2	Bethel
2019	Bradley's New Method Fertilizer	1-8-2	Meriden
2315	Bradley's Northland Potato Grower	4-8-4	Colchester
2026	Bradley's Potato Fertilizer	2-8-3	Canaan
2304	Bradley's Potato Manure	3-8-4	Meriden
1624	Bradley's XL Superphosphate of Lime ..	3-10-4	Thompsonville ...
2500	Bradley's XL Superphosphate of Lime ...	3-10-4	Simsbury
2314	National Complete Tobacco Fertilizer ...	5-4-5	South Windsor ..
2307	National Eureka Potato Fertilizer	4-8-4	Danbury
2312	National Market Garden Fertilizer	3-8-4	Wallingford
2308	National Potato and Corn Phosphate ...	2-8-3	Danbury
2310	National Premier Truck Manure	4-8-7	Warehouse Point ..
2309	National White Ash Tobacco Grower ...	7-3-7	Warehouse Point ..
2313	National XXX Fish and Potash	3-10-3	Wallingford
2321	Quinnipiac Corn Manure	2-10-2	South Norwalk ...
2327	Quinnipiac Market Garden Manure	4-8-7	New London
2326	Quinnipiac Potato Phosphate	2-8-3	New London
2329	Quinnipiac Prime Tobacco Manure	7-3-7	Manchester
2330	Quinnipiac Seed Leaf Tobacco Manure ..	5-4-5	Gaylordsville
Apothecaries Hall Co., Waterbury.			
1619	Liberty Corn and All Crops 2-8-2	2-8-2	Middletown
1618	Liberty Corn, Fruit and All Crops, 2-12-4.	2-12-4	Middletown
2322	Liberty Corn and Vegetable, 3-6-10	3-6-10	Greenwich
1609	Liberty Fish, Bone and Potash, 3-10-4 ...	3-10-4	Broad Brook
1622	Liberty Market Gardener's Special, 4-8-4.	4-8-4	Cheshire
1623	Liberty High Grade Market Gardener's, 5-8-7	5-8-7	West Cheshire ...
2492	Liberty High Grade Market Gardener's, 5-8-7	5-8-7	Middletown

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.	
%	%	%	%	%	%	%	%	%	%	%	
1.14	0.35	0.62	0.46	2.57	3.12	0.83	9.06	8.23	3.93	3.93	2020
0.13	0.71	0.55	0.58	1.97	2.40	0.88	9.15	8.27	3.01	3.01	2029
0.38	0.71	0.17	2.95	4.21	5.12	0.28	4.40	4.12	0.44	5.08	2028
0.14	1.00	0.48	0.36	1.98	2.41	0.61	10.55	9.94	2.80	2.80	2024
0.36	1.09	0.45	0.55	2.45	2.98	0.82	10.50	9.68	3.20	3.20	2027
1.68	2.56	0.23	0.57	5.04	6.13	0.33	6.70	6.37	3.99	3.99	2022
0.43	1.67	0.61	0.52	3.23	3.93	1.10	8.90	7.80	6.66	6.66	2025
0.06	0.43	0.63	0.62	1.74	2.11	0.90	9.00	8.10	2.07	2.07	2018
0.42	0.26	0.33	1.57	2.58	3.14	1.54	11.30	9.76	2.06	2.06	2331
0.42	1.73	0.61	0.53	3.29	4.00	0.94	8.66	7.72	6.90	6.90	2306
0.40	0.69	0.07	2.98	4.14	5.03	0.26	4.21	3.95	0.47	5.49	2311
0.05	0.84	0.57	0.34	1.80	2.19	0.63	10.58	9.95	2.33	2.33	2021
0.16	0.36	0.39	0.39	1.30	1.58	0.80	8.92	8.12	2.25	2.25	2019
0.41	1.26	0.50	1.00	3.17	3.85	0.61	8.46	7.85	4.05	4.05	2315
0.07	0.69	0.48	0.60	1.84	2.24	0.78	8.65	7.87	3.06	3.06	2026
0.18	1.35	0.42	0.52	2.47	3.00	0.79	8.69	7.90	3.79	3.79	2304
0.15	1.48	0.49	0.44	2.56	3.11	0.72	10.55	9.83	3.85	3.85	1624
0.12	1.43	0.55	0.43	2.53	3.08	0.70	10.80	10.10	3.63	3.63	2500
0.44	0.70	0.18	2.82	4.14	5.03	0.26	4.53	4.27	0.41	5.44	2314
0.54	1.67	0.47	0.55	3.23	3.93	0.66	8.57	7.91	4.24	4.24	2307
0.52	1.00	0.32	0.60	2.44	2.97	0.66	9.06	8.40	3.66	3.66	2312
0.15	0.66	0.54	0.58	1.93	2.35	0.68	8.46	7.78	3.05	3.05	2308
0.54	1.70	0.57	0.55	3.36	4.09	0.99	8.93	7.94	7.12	7.12	2310
0.55	0.71	0.43	4.29	5.98	7.27	0.29	3.88	3.59	0.60	7.50	2309
0.32	1.25	0.27	0.66	2.50	3.04	0.58	10.67	10.09	3.38	3.38	2313
0.04	0.76	0.51	0.35	1.66	2.02	0.63	10.62	9.99	2.04	2.04	2321
0.81	1.83	0.11	0.61	3.36	4.09	0.39	8.59	8.20	6.65	6.65	2327
0.14	0.57	0.45	0.56	1.72	2.09	0.49	8.41	7.92	2.78	2.78	2326
0.58	0.64	0.23	4.47	5.92	7.20	0.31	4.08	3.77	0.69	7.61	2329
0.51	0.69	0.00	2.93	4.13	5.02	0.20	4.53	4.33	0.52	5.36	2330
1.11	0.27	0.22	0.52	2.12	2.58	1.56	10.11	8.55	3.31	3.31	1619
0.03	1.24	0.41	0.14	1.82	2.21	1.32	13.70	12.38	4.16	4.16	1618
0.83	1.55	0.14	0.32	2.84	3.45	0.64	7.22	6.58	10.82	10.82	2322
0.04	1.56	0.79	0.21	2.60	3.16	0.90	11.15	10.25	4.02	4.02	1609
0.89	2.02	0.21	0.30	3.42	4.16	1.20	9.40	8.20	4.35	4.35	1622
0.92	2.84	0.22	0.14	4.12	5.01	0.88	9.08	8.20	6.85	6.85	1623
0.97	2.83	0.23	0.13	4.16	5.06	0.90	9.15	8.25	6.78	6.78	2492

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
Apothecaries Hall Co., Waterbury—Con.			
2323	Liberty High Grade Tobacco Manure ...	7-5-4-7-5	East Windsor
1617	Liberty Tobacco Special, 5-4-5	5-4-5	Middletown
2324	Liberty Top Dresser Grass and Grain, 10-3-5-8	10-3-5-8	East Windsor
1613	Liberty Top Dresser	7-8-3	Broad Brook
Armour Fertilizer Works, New York.			
1625	Armour's Big Crop Fertilizer, 3-8-4	3-8-4	Thompsonville ...
2055	Armour's Big Crop Fertilizer, 4-6-10	4-6-10	Ansonia
2047	Armour's Big Crop, 4-8-4	4-8-4	Milford
2048	Armour's Big Crop, 5-8-5	5-8-5	Milford
2058	Armour's Big Crop Tobacco Special	5-4-5	Thompsonville ...
2054	Armour's Corn Grower, 2-8-2	2-8-2	Danbury
2495	Armour's Big Crop Fertilizer, 5-8-7	5-8-7	Ansonia
1773	Armour's Big Crop Fertilizer, 5-8-7	5-8-7	Wallingford
Atlantic Packing Co., New Haven.			
2355	Atlantic, 5-4-16	5-4-16	Glastonbury
2056	Atlantic Corn and Grain Fertilizer, 2-8-2..	2-8-2	Waterbury
2328	Atlantic Market Garden, 4-8-6	4-8-6	Silver Lane
2057	Atlantic Special Vegetable and Potato Grower, 4-8-4	4-8-4	Waterbury
2356	Atlantic Tobacco Grower, 5-4-5	5-4-5	Glastonbury
2352	Atlantic Tobacco Manure, 5-8-6	5-8-6	Silver Lane
2639	Atlantic Special, 3-8-4	3-8-4	Waterbury
F. A. Bartlett Tree Expert Co., Stamford.			
1842	Bartlett's Green Tree Food	6-8-4	Sampled at Factory
Berkshire Fertilizer Co., Bridgeport.			
2351	Berkshire Complete Fertilizer	3-8-3	Waterbury
1843	Berkshire Complete Tobacco	5-4-5	Suffield
1844	Berkshire Economical Grass Fertilizer ..	10-3-8	Suffield
2350	Berkshire Grass Special	7-2-4	Waterbury
2348	Berkshire Long Island Special	5-8-7	Suffield
1840	Berkshire Market Garden	4-8-4	Milford
1841	Berkshire Potato and Vegetable Phos- phate	2-8-4	Southport
2347	Berkshire Tobacco Special	7-4-7	Suffield
F. E. Boardman, Middletown.			
2354	Boardman's Fertilizer for Potatoes and General Crops	4-7-4	Sampled at Factory
2353	Boardman's Tobacco Fertilizer	4-7-4	Sampled at Factory

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.50	1.18	0.56	3.82	6.06	7.37	0.26	5.84	5.58	1.44	8.65	2323
0.08	1.22	0.32	2.82	4.44	5.40	0.30	6.45	6.15	0.93	4.61	1617
7.19	0.00	0.25	1.08	8.52	10.36	3.07	7.95	4.88	8.88	8.88	2324
1.89	3.71	0.01	0.15	5.76	7.00	0.63	8.90	8.27	3.50	3.50	1613
0.04	1.69	0.38	0.53	2.64	3.21	0.78	9.13	8.35	3.86	3.86	1625
1.10	1.27	0.28	0.61	3.26	3.96	0.43	6.85	6.42	10.07	10.07	2055
0.72	1.34	0.33	0.86	3.25	3.95	0.28	8.40	8.12	4.48	4.48	2047
0.40	1.76	0.96	0.81	3.93	4.78	0.55	8.70	8.15	4.98	4.98	2048
0.60	0.16	0.02	3.33	4.11	5.00	0.45	5.10	4.65	0.47	5.78	2058
0.04	1.13	0.33	0.62	2.12	2.58	0.61	8.60	7.99	3.06	3.06	2054
0.99	1.68	0.38	0.80	3.85	4.68	0.83	8.88	8.05	6.68	6.68	2495
0.92	1.72	0.62	0.60	3.86	4.69	0.48	8.25	7.77	7.29	7.29	1773
1.49	1.01	0.30	1.49	4.29	5.22	3.48	9.85	6.37	0.82	16.71	2355
0.02	0.89	0.20	0.56	1.67	2.03	0.65	8.65	8.00	2.19	2.19	2056
0.88	1.04	0.36	0.89	3.17	3.85	0.46	9.05	8.59	6.08	6.08	2328
0.69	1.36	0.43	0.80	3.28	3.99	0.70	8.95	8.25	4.27	4.27	2057
1.05	0.75	0.62	1.75	4.17	5.07	0.33	5.45	5.12	0.37	5.52	2356
1.27	1.39	0.50	0.81	3.97	4.83	0.83	9.33	8.50	0.66	6.17	2352
0.54	1.00	0.34	0.70	2.58	3.14	0.75	9.45	8.70	4.01	4.01	2639
0.22	4.50	0.22	0.72	5.66	6.88	3.07	9.65	6.58	4.67	4.67	1842
0.08	1.74	0.17	0.98	2.97	3.61	0.60	9.20	8.60	3.82	3.82	2351
0.00	0.75	0.59	3.56	4.90	5.96	0.38	4.68	4.30	0.66	5.43	1843
1.97	3.73	0.38	2.11	8.19	9.96	4.83	9.78	4.95	9.30	9.30	1844
4.49	0.56	0.00	1.11	6.16	7.49	1.78	6.00	4.22	4.25	4.25	2350
1.40	1.74	0.04	1.32	4.50	5.47	0.63	9.00	8.37	8.84	8.84	2348
1.01	1.31	0.19	0.95	3.46	4.21	1.03	9.08	8.05	4.89	4.89	1840
0.07	0.87	0.21	0.61	1.76	2.14	1.15	9.40	8.25	4.57	4.57	1841
0.27	2.03	0.20	3.94	6.44	7.83	0.15	4.90	4.75	1.01	6.75	2347
0.70	1.32	0.23	1.42	3.67	4.46	0.73	8.65	7.92	4.43	4.43	2354
0.48	1.22	0.21	1.83	3.74	4.55	0.25	7.90	7.65	1.34	5.12	2353

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
Bowker Fertilizer Co., New York.			
2365	Bowker's All Round Fertilizer	3-8-4	New Canaan
2375	Bowker's Hill and Drill Phosphate	3-10-4	Hazardville
1645	Bowker's Fisherman's Brand Fish and Potash	3-10-3	Yalesville
1644	Bowker's Market Garden Fertilizer	4-8-4	Yalesville
2494	Bowker's Market Garden Fertilizer	4-8-4	New Canaan
1858	Bowker's Potato and Vegetable Phosphate	2-8-3	Meriden
2349	Bowker's Square Brand Farm and Garden Phosphate	2-10-2	Willimantic
1867	Bowker's Sure Crop Phosphate	1-8-2	Willimantic
2370	Stockbridge Potato and Vegetable Manure	4-6-10	Willimantic
2376	Stockbridge Premier Tobacco Grower ...	7-3-7	West Suffield ...
1626	Stockbridge Tobacco Manure	5-4-5	Thompsonville ...
2366	Stockbridge Top Dressing and Forcing Manure	6-6-4	Meriden
1857	Stockbridge Truck Manure	4-8-7	Yalesville
2493	Stockbridge Truck Manure	4-8-7	Milldale
Amos D. Bridge's Sons, Inc., Hazardville.			
1859	Corn, Onion, Potato and General Purpose Fertilizer	4-8-4	Sampled at Factory
2640	Special Tobacco Fertilizer	5-4-5	Sampled at Factory
E. D. Chittenden Co., Bridgeport.			
1636	Chittenden's Complete Grain, 3% Potash	2-8-3	Rockville
2369	Chittenden's High Grade Potato	5-8-7	Glastonbury
2368	Chittenden's High Grade Tobacco	6-3-7.5	Glastonbury
2372	Chittenden's Potato Special, 4% Potash ..	4-8-4	Bloomfield
2371	Chittenden's Potato Special, 6% Potash ..	4-8-6	Bloomfield
2526	Chittenden's Potato Special, 6% Potash ..	4-8-6	Abington
2374	Chittenden's Tobacco Special, 5% Potash ..	5-4-5	Glastonbury
2411	Chittenden's Top Dresser, 4% Potash ...	6-8-4	Glastonbury
Everett B. Clark Seed Co., Milford.			
1638	Clark's Special Mixture for General Use.	4-8-4	Branford
1637	Clark's Special Mixture with 6% Potash..	4-8-6	Branford
1865	Clark's Super Phosphate	5-8-7	Sampled at Factory
1864	Clark's Tip Top Brand	5-10-5	Orange
1868	Clark's Tip Top Brand	5-10-5	Allingtown
Davey Tree Expert Co., Kent, Ohio.			
2416	Davey Tree Food	7-8-3	Greenwich

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.23	1.21	0.44	0.58	2.46	2.99	0.85	9.00	8.15	4.27	4.27	2365
0.58	1.03	0.22	0.77	2.60	3.16	0.85	10.93	10.08	3.06	4.15	2375
0.55	0.83	0.42	0.56	2.36	2.87	0.70	10.46	9.76	2.99	2.99	1645
0.44	1.71	0.48	0.52	3.15	3.83	0.93	8.93	8.00	4.87	4.87	1644
0.39	1.72	0.57	0.51	3.19	3.88	0.78	8.98	8.20	3.98	3.98	2494
0.08	0.72	0.49	0.56	1.85	2.25	0.72	8.60	7.88	3.11	3.11	1858
0.31	0.72	0.11	0.52	1.66	2.02	0.53	11.18	10.65	2.54	2.54	2349
0.00	0.32	0.28	0.28	0.88	1.07	0.50	8.50	8.00	2.12	2.12	1867
0.62	1.55	0.41	0.52	3.10	3.77	0.50	6.70	6.20	10.25	10.25	2370
0.17	0.83	0.61	4.33	5.94	7.22	0.35	4.10	3.75	0.72	7.24	2376
0.49	0.69	0.00	2.90	4.08	4.96	0.33	4.63	4.30	0.31	5.30	1626
1.81	2.50	0.22	0.55	5.08	6.18	0.43	6.55	6.12	3.79	3.79	2366
0.47	1.64	0.56	0.51	3.18	3.87	0.93	9.10	8.17	6.04	6.04	1857
0.48	1.68	0.67	0.53	3.36	4.09	1.14	8.96	7.82	6.75	6.75	2493
1.23	1.14	0.17	0.96	3.50	4.26	1.28	10.10	8.82	0.90	4.54	1859
0.14	1.10	0.78	2.24	4.26	5.18	0.60	5.85	5.25	0.98	6.10	2640
0.10	0.74	0.35	0.40	1.59	1.93	0.78	8.76	7.98	3.18	3.18	1636
0.72	2.39	0.21	0.59	3.91	4.75	0.45	9.40	8.95	6.70	6.70	2369
0.14	2.73	0.44	2.07	5.38	6.54	0.15	4.25	4.10	0.44	8.36	2368
0.84	1.54	0.03	0.72	3.13	3.81	0.73	8.73	8.00	4.51	4.51	2372
0.69	1.45	0.13	0.57	2.84	3.45	0.65	9.08	8.43	5.38	5.38	2371
0.67	1.53	0.76	0.64	2.96	3.60	0.65	8.85	8.20	5.38	5.38	2526
0.25	2.55	0.14	1.28	4.22	5.13	0.35	5.13	4.78	2.23	5.47	2374
0.57	2.85	0.13	0.59	4.14	5.03	0.50	9.00	8.50	4.71	4.71	2411
0.06	1.99	0.22	1.23	3.50	4.26	2.40	10.70	8.30	1.70	4.19	1638
0.06	1.92	0.37	1.05	3.40	4.13	1.35	9.85	8.50	6.42	6.74	1637
0.75	2.14	0.38	0.72	3.99	4.85	1.05	9.48	8.43	6.48	6.48	1865
0.82	2.22	0.37	0.86	4.27	5.19	1.22	10.63	9.41	2.54	4.81	1864
....	....	....	....	4.03	4.90	0.90	10.84	9.94	....	5.89	1868
0.03	2.37	0.81	2.13	5.34	6.49	4.15	12.85	8.70	3.56	3.56	2416

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
Eastern States Farmers' Exchange, Springfield, Mass.			
1706	Eastern States 3-12-3	3-12-3	Newtown
1775	Eastern States 3-12-3	3-12-3	South Windsor ...
1705	Eastern States 4-8-10	4-8-10	Danbury
1641	Eastern States 5-8-7	5-8-7	North Haven
1903	Eastern States 5-8-7	5-8-7	Woodstock
1902	Eastern States 5-10-5	5-10-5	Woodstock
2405	Eastern States 8-6-6	8-6-6	Danbury
2413	Eastern States Formula A Tobacco Fertilizer	6.5-4.2-5.5	Ellington
2415	Eastern States Formula B	6-4-5.2	Warehouse Point .
2414	Eastern States Formula C Tobacco Fertilizer	6.5-4.2-5.5	Glastonbury
Essex Fertilizer Co., Boston.			
1700	Essex 2-8-2 Farm and Garden	2-8-2	Wallingford
1639	Essex Fish Fertilizer for All Crops, 3-8-4	3-8-4	Wallingford
1640	Essex Market Garden for Potatoes, Roots and Vegetables, 4-8-4	4-8-4	Wallingford
2412	Essex Special Tobacco, 5-4-5	5-4-5	Rockville
L. T. Frisbie Co., New Haven.			
1703	Frisbie's 5-8-7	5-8-7	Danbury
2124	Frisbie's 5-8-7	5-8-7	Wethersfield
1704	Frisbie's Corn and Grain Fertilizer, 2-8-2	2-8-2	Danbury
2130	Frisbie's Market Garden, 4-8-6	4-8-6	Winsted
2126	Frisbie's Special, 3-8-4	3-8-4	New Britain
2125	Frisbie's Special Vegetable and Potato Grower, 4-8-4	4-8-4	Wethersfield
2132	Frisbie's Tobacco Grower, 5-4-5	5-4-5	Thompsonville ..
2131	Frisbie's Tobacco Manure, 5-8-6	5-8-6	Windsor Locks ..
2127	Frisbie's Top Dresser, 7-5-4	7-5-4	Sampled at Factory
A. W. Higgins, South Deerfield, Mass.			
2145	Old Deerfield 4-8-4 Complete Fertilizer ..	4-8-4	Madison
2144	Old Deerfield 5-8-7 Complete Fertilizer ..	5-8-7	Madison
International Agricultural Corp., Woburn, Mass.			
2409	International Conn. Valley Special	7-6-5	Glastonbury
1684	International Conn. Valley Special	7-6-5	Manchester
2436	International Economy	2-8-2	Guilford
2437	International General Favorite	3-8-6	Cromwell

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.37	1.48	0.41	0.28	2.54	3.09	0.70	12.78	12.08	3.62	3.62	1706
0.55	1.41	0.36	0.56	2.88	3.50	0.23	12.83	12.60	3.37	3.37	1775
0.53	2.12	0.61	0.65	3.91	4.75	0.75	9.60	8.95	8.29	8.29	1705
0.81	2.09	0.29	0.66	3.85	4.68	0.40	8.70	8.30	7.12	7.12	1641
....	....	....	....	3.49	4.24	0.53	8.83	8.30	6.56	6.56	1903
0.06	2.87	0.75	0.43	4.11	5.00	0.88	11.05	10.17	5.30	5.30	1902
0.10	4.65	0.86	0.71	6.32	7.68	0.35	6.90	6.55	6.80	6.80	2405
0.74	0.59	0.60	3.38	5.31	6.46	0.28	6.83	6.55	1.14	5.92	2413
0.52	0.98	0.52	3.00	5.02	6.10	0.23	5.38	5.15	1.42	6.66	2415
0.19	1.08	1.28	2.90	5.45	6.63	2.30	6.88	4.58	0.49	5.59	2414
0.08	0.84	0.26	0.54	1.72	2.09	0.77	8.84	8.07	2.18	2.18	1700
0.06	1.48	0.32	0.72	2.58	3.14	0.88	9.00	8.12	4.61	4.61	1639
0.38	1.48	0.58	0.91	3.35	4.07	0.78	9.13	8.35	4.31	4.31	1640
1.48	0.16	0.22	1.88	3.74	4.55	0.65	5.70	5.05	1.65	5.55	2412
0.64	1.91	0.67	0.80	4.02	4.89	0.70	9.63	8.93	6.93	6.93	1703
0.69	1.97	0.56	0.80	4.02	4.89	0.78	9.43	8.65	6.88	6.88	2124
0.04	0.83	0.27	0.54	1.68	2.04	0.63	8.65	8.02	1.99	1.99	1704
1.05	0.95	0.53	0.77	3.30	4.01	0.65	9.23	8.58	6.02	6.02	2130
0.50	1.03	0.42	0.73	2.68	3.26	0.75	9.48	8.73	4.37	4.37	2126
0.19	1.91	0.53	0.63	3.26	3.96	0.60	9.13	8.53	4.24	4.24	2125
0.50	1.25	0.63	1.75	4.13	5.02	0.25	5.23	4.98	0.36	5.61	2132
1.27	1.39	0.77	0.79	4.22	5.13	0.68	9.25	8.57	0.62	6.08	2131
1.67	2.73	0.52	0.72	5.64	6.86	0.40	6.00	5.60	4.48	4.48	2127
0.69	1.40	0.30	1.00	3.39	4.12	1.56	9.05	7.49	5.32	5.32	2145
0.78	1.47	0.73	1.19	4.17	5.07	2.43	10.15	7.72	6.81	6.81	2144
0.10	2.40	0.21	3.06	5.77	7.02	0.83	7.00	6.17	0.57	5.58	2409
0.00	2.51	0.29	2.90	5.70	6.93	0.20	6.28	6.08	0.52	5.27	1684
0.07	1.26	0.16	0.44	1.93	2.35	0.25	8.28	8.03	2.53	2.53	2436
0.08	1.42	0.53	0.42	2.45	2.98	0.30	8.58	8.28	6.24	6.24	2437

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
International Agricultural Corp., Woburn, Mass.—Continued.			
1659	International High Grade Manure	4-6-10	Manchester
2503	International High Grade Manure	4-6-10	Warehouse Point .
2410	International Multiple Strength, 10-8-10..	10-8-10	Glastonbury
1658	International New England Special	2-12-4	Manchester
1635	International Tobacco Grower	5-6-7	Manchester
2502	International Tobacco Grower	5-6-7	Warehouse Point .
2442	International Tobacco Producer	5-4-5	Hazardville
2678	International Tobacco Producer	5-4-5	Broad Brook
1634	International Tobacco Special	7-3-7	Manchester
Lowell Fertilizer Co., Boston, Mass.			
1657	Lowell Animal Brand, A High Grade Manure for All Crops, 3-8-4	3-8-4	Suffield
1707	Lowell Bone Fertilizer for Corn, Grain, Grass and Vegetables, 2-8-2	2-8-2	Southbury
1708	Lowell Potato Phosphate for Potatoes and Vegetables, 4-8-7	4-8-7	Southbury
2087	Lowell 4-6-10, Potatoes and Vegetables ..	4-6-10	Moosup
1710	Lowell 4-8-4 for Potatos, Corn and Vegetables	4-8-4	Warehouse Point .
2082	Lowell 5-8-7 for Potatoes and Vegetables	5-8-7	Warehouse Point .
2084	Lowell Tobacco 5-4-5 for Tobacco, Fruits and Vines	5-4-5	Manchester
2083	Lowell Top Dressing, 7-5-2	7-5-2	Manchester
2498	Lowell Top Dressing, 7-5-2	7-5-2	Warehouse Point .
Mapes Formula and Peruvian Guano Co., New York.			
1655	The Mapes Connecticut Valley Special ..	6-4-7	Hartford
1653	The Mapes Corn Manure	3-8-3	Hartford
1699	The Mapes General Tobacco Manure ...	5-4-5	Hartford
1654	The Mapes General Truck Manure	5-8-5	Hartford
1662	The Mapes General Use Manure	3-6-4	Meriden
2435	The Mapes Onion Manure	4-6-4	Hartford
1661	The Mapes Potato Manure	4-7-5	Meriden
1918	The Mapes Tobacco, Ash Constituents ..	1-4-15	East Granby
2441	The Mapes Special Formula Tobacco Manure	6-4-3	Hartford
1702	The Mapes Tobacco Manure Wrapper Brand	7.5-2-10.5	Ellington
1656	The Mapes Tobacco Starter, Improved ..	5-6-1	Windsor Locks ..
2434	The Mapes Top Dresser	10-4-2	Hartford

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.00	1.76	0.88	0.50	3.14	3.82	0.43	7.15	6.72	9.10	9.10	1659
0.06	1.86	0.48	0.67	3.07	3.73	0.40	7.53	7.13	9.52	9.52	2503
0.20	5.19	0.09	2.78	8.26	10.04	0.40	8.35	7.95	1.18	10.34	2410
0.36	0.62	0.24	0.36	1.58	1.92	0.45	12.50	12.05	4.18	4.18	1658
0.06	1.98	0.19	2.20	4.43	5.39	0.20	5.69	5.49	0.74	7.08	1635
0.10	1.86	0.14	2.04	4.14	5.03	0.31	6.04	5.73	1.69	7.51	2502
0.11	1.84	0.13	1.66	3.74	4.55	0.15	3.99	3.84	1.30	5.42	2442
....	....	....	....	4.10	4.98	0.23	4.25	4.02	....	5.05	2678
0.10	2.48	0.29	2.91	5.78	7.03	0.28	3.78	3.50	0.56	6.86	1634
0.00	1.39	0.34	0.74	2.47	3.00	0.85	8.97	8.12	4.38	4.38	1657
0.19	0.66	0.49	0.57	1.91	2.32	0.75	8.64	7.89	2.13	2.13	1707
0.84	1.14	0.77	0.81	3.56	4.33	1.24	9.00	7.76	7.78	7.78	1708
0.13	2.02	0.61	0.66	3.42	4.16	0.78	7.23	6.45	10.81	10.81	2087
0.73	1.02	0.62	0.87	3.24	3.94	1.00	9.18	8.18	4.40	4.40	1710
0.80	1.75	0.85	1.03	4.43	5.39	1.33	9.33	8.00	7.00	7.00	2082
1.55	0.10	0.35	2.11	4.11	5.00	0.70	5.73	5.03	1.14	5.59	2084
0.00	5.28	0.00	0.08	5.36	6.52	0.10	5.74	5.64	2.46	2.46	2083
0.00	5.81	0.00	0.11	5.92	7.20	0.53	5.21	4.68	2.07	2.07	2498
2.14	0.33	0.72	1.76	4.95	6.02	0.63	5.15	4.52	0.78	9.30	1655
0.12	0.70	0.38	1.04	2.24	2.72	1.75	10.70	8.95	2.88	3.52	1653
1.93	0.39	0.75	1.46	4.53	5.51	1.54	5.26	3.72	0.54	5.69	1699
1.14	1.17	0.33	1.20	3.84	4.67	0.75	8.78	8.03	4.13	5.50	1654
0.77	0.90	0.23	0.92	2.82	3.43	0.73	8.68	7.95	0.35	4.90	1662
1.29	1.18	0.22	0.95	3.64	4.43	1.38	8.48	7.10	0.07	5.19	2435
1.13	1.10	0.23	0.96	3.42	4.16	1.00	9.33	8.33	4.65	5.36	1661
0.09	0.18	0.25	0.50	1.02	1.24	1.23	6.00	4.77	0.88	15.15	1918
1.80	0.37	0.86	1.61	4.64	5.64	1.68	5.75	4.07	0.62	5.85	2441
2.14	0.39	1.22	2.45	6.20	7.54	1.90	5.10	3.20	0.78	11.46	1702
1.33	1.23	0.28	1.31	4.15	5.05	1.98	9.60	7.62	1.18	2.55	1656
4.90	1.84	0.48	1.03	8.25	10.03	0.93	6.20	5.27	0.35	3.13	2434

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
New England Fertilizer Co., Boston.			
1660	New England Corn Phosphate for Grain and Vegetables, 2-8-2	2-8-2	Rockville
2081	New England Corn Phosphate for Grain and Vegetables, 2-8-2	2-8-2	Meriden
1913	New England 5-8-7 for Potatoes and Market Garden	5-8-7	Meriden
2509	New England 5-8-7 for Potatoes and Market Garden	5-8-7	Rockville
1709	New England 4-8-4 for Potatoes, Vegetables and Grass	4-8-4	Meriden
1912	New England Potato Phosphate 4-8-7 for Potatoes and Vegetables	4-8-7	Plainville
1663	New England Superphosphate, A High Grade Fertilizer for All Crops, 3-8-4 ...	3-8-4	Plainville
2444	New England Tobacco, 5-4-5	5-4-5	Warehouse Point .
2443	New England Tobacco Manure, 5-8-6 ...	5-8-6	Warehouse Point .
Olds & Whipple, Inc., Hartford.			
1919	O & W Blue Label Brand Tobacco Fertilizer	6-3-6	Glastonbury
1910	O & W Complete Corn, Potato and Onion Fertilizer	4-8-4	South Manchester
1730	O & W Complete Tobacco Fertilizer ...	5-4-5	South Manchester
1732	O & W High Grade Potato Fertilizer ...	5-8-7	Silver Lane
1914	O & W High Grade Starter and Potash Compound	5-4-15	South Windsor ...
1911	O & W Special Complete Corn, Onion and Potato Fertilizer	3-8-2	South Manchester
Parmenter & Poley, Boston, Mass.			
2643	P & P Farm and Garden, 2-8-2	2-8-2	Stafford Springs ..
2146	P & P Plymouth Rock Brand for All Crops, 3-8-4	3-8-4	Stafford Springs ..
2642	P & P Potato and Market Garden, 5-8-7..	5-8-7	Stafford Springs ..
Piedmont Mt. Airy Guano Co., Baltimore, Md.			
2097	Harvest Brand, 2-8-2	2-8-2	Guilford
1528	Harvest Brand, 3-8-4	3-8-4	New Haven
1736	Harvest Brand, 4-8-4	4-8-4	Seymour
2510	Harvest Brand, 4-8-4	4-8-4	Guilford
1771	Harvest Brand, 4-6-10	4-6-10	New Haven
1526	Harvest Brand, 5-8-5	5-8-5	New 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.	
%	%	%	%	%	%	%	%	%	%	%	
0.13	1.09	0.32	0.44	1.98	2.41	0.70	7.98	7.28	2.10	2.10	1660
0.09	0.78	0.28	0.64	1.79	2.18	0.72	8.57	7.85	2.37	2.37	2081
0.77	1.85	0.26	0.96	3.84	4.67	0.80	8.95	8.15	7.34	7.34	1913
0.83	1.51	0.89	0.92	4.15	5.05	1.59	8.83	7.24	7.43	7.43	2509
0.31	1.48	0.61	0.92	3.32	4.04	0.93	9.23	8.30	4.23	4.23	1709
0.79	0.95	0.73	0.70	3.17	3.85	1.10	9.58	8.48	7.14	7.14	1912
0.23	1.21	0.32	0.64	2.40	2.92	0.68	8.58	7.90	3.97	3.97	1663
1.66	0.10	0.34	2.18	4.28	5.20	0.63	5.50	4.87	1.62	5.37	2444
1.58	0.14	0.55	2.10	4.37	5.31	1.43	9.83	8.40	1.82	6.18	2443
1.11	0.02	0.24	4.02	5.39	6.55	0.38	3.90	3.52	0.58	7.36	1909
1.24	1.24	0.00	0.88	3.36	4.09	0.93	9.55	8.62	4.72	4.72	1910
1.09	0.04	0.26	2.94	4.33	5.26	0.45	5.40	4.95	0.49	5.95	1730
0.51	2.08	0.65	1.18	4.42	5.37	1.20	10.18	8.98	0.66	7.80	1732
1.47	0.80	0.17	1.82	4.26	5.18	0.60	5.48	4.88	1.30	16.12	1914
1.58	0.00	0.20	0.94	2.72	3.31	1.23	11.20	9.97	2.60	2.60	1911
0.38	0.33	0.53	0.76	2.00	2.43	0.63	8.78	8.15	2.02	2.02	2643
0.22	1.19	0.26	0.70	2.37	2.88	0.75	8.89	8.14	4.32	4.32	2146
0.84	1.68	0.81	0.94	4.27	5.19	1.35	9.08	7.73	7.50	7.50	2642
0.05	0.97	0.59	0.39	2.00	2.43	0.70	8.85	8.15	3.93	3.93	2097
0.14	2.12	0.50	0.42	3.18	3.87	0.50	9.00	8.50	4.00	4.00	1528
0.00	2.34	0.64	0.36	3.34	4.06	0.82	8.18	7.36	3.90	3.90	1736
0.07	2.25	0.52	0.46	3.30	4.01	1.02	8.25	7.23	3.94	3.94	2510
0.08	2.06	0.67	0.36	3.17	3.85	0.50	7.00	6.50	9.77	9.77	1771
0.12	2.38	0.75	0.83	4.08	4.96	0.98	9.70	8.72	5.19	5.19	1526

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
Piedmont Mt. Airy Guano Co., Baltimore, Md.			
2143	Harvest Brand, 5-8-7	5-8-7	Torrington
2139	Harvest Brand, 8-6-6	8-6-6	Seymour
2511	Harvest Brand, 8-6-6	8-6-6	Guilford
2641	Harvest Brand, 6-8-6	6-8-6	Rockville
Frank S. Platt Co., New Haven.			
1733	Platco Special	4-8-6	Sampled at Factory
Rackliffe Bros. Co., New Britain.			
2459	Rackliffe 4-8-4 Fertilizer	4-8-4	Southington
The Rogers & Hubbard Co., Portland.			
1742	4-8-4	4-8-4	Hartford
2142	5-8-7	5-8-7	Wethersfield
1743	Garden Fertilizer	2-8-4	Hartford
1627	Hubbard's "Bone Base" Fertilizer for Oats and Top Dressing	10-3-8	Talcottville
1620	Hubbard's "Bone Base" Fertilizer for Seeding Down	3-5-6	Sampled at Factory
2519	Hubbard's "Bone Base" Fertilizer for Seeding Down	3-5-6	Sampled at Factory
2085	Hubbard's "Bone Base" Soluble Corn and General Crops Manure	3-8-6	Norwich
2086	Hubbard's "Bone Base" Soluble Potato Manure	6-8-5	Cromwell
2103	Rogers & Hubbard's All Soils, All Crops Brand	4-10-4	Ellington
2147	Rogers & Hubbard's Climax Tobacco Brand	5-4-5	Granby
2104	Rogers & Hubbard's Corn and Grain Fer- tilizer	1-10-3	Willimantic
2101	Rogers & Hubbard's High Potash Fertil- izer	3-8-10	Branford
2107	Rogers & Hubbard's Potato Fertilizer ...	2-10-4	New Britain
2095	Rogers & Hubbard's Tobacco Grower Vegetable Formula	6-4-4	Burnside
F. S. Royster Guano Co., Baltimore, Md.			
2099	Royster's Bully Guano	2-8-5	Trumbull
2105	Royster's Quality Trucker	4-8-7	Waterbury
2100	Royster's Triumph Guano	3-8-3	Thompsonville ...
2098	Royster's Trucker's Delight	4-8-4	Plainville
2513	Royster's Trucker's Delight	4-8-4	Granby
2149	Royster's Valley Tobacco Formula	5-4-5	Granby
2148	Royster's Wrapper Brand	7-3-7	Granby

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.11	2.86	0.55	0.38	3.90	4.74	1.10	8.94	7.84	7.71	7.71	2143
0.14	5.32	0.58	0.54	6.58	8.00	0.70	7.10	6.40	5.48	5.48	2139
0.00	4.00	0.68	0.59	5.27	6.41	0.90	6.83	5.93	10.14	10.14	2511
0.14	3.97	0.56	0.35	5.02	6.10	0.75	9.35	8.60	0.76	4.91	2641
1.62	0.12	0.73	0.78	3.25	3.95	1.38	9.65	8.27	2.33	6.17	1733
1.71	0.11	0.48	1.11	3.41	4.14	1.53	9.70	8.17	4.51	4.51	2459
0.18	1.90	0.59	0.62	3.29	4.00	2.64	10.85	8.21	4.33	4.33	1742
2.26	1.06	0.52	0.58	4.42	5.37	2.28	10.60	8.32	6.75	6.75	2142
0.10	0.90	0.43	0.46	1.89	2.30	2.65	11.20	8.55	4.54	4.54	1743
8.29	0.00	0.00	0.41	8.70	10.58	2.48	8.00	5.52	7.35	8.58	1627
0.43	0.18	0.50	1.71	2.82	3.43	4.05	11.60	7.55	7.14	7.14	1620
0.61	0.06	0.21	1.67	2.55	3.10	6.33	13.05	6.72	6.01	6.01	2519
1.23	0.07	0.38	0.81	2.49	3.03	2.55	10.83	8.28	5.84	5.84	2085
2.17	1.18	0.98	0.63	4.96	6.03	1.88	10.80	8.92	0.47	5.00	2086
0.26	2.00	0.61	0.61	3.48	4.23	3.13	12.88	9.75	4.58	4.58	2103
1.20	0.14	0.27	2.55	4.16	5.06	0.60	6.00	5.40	0.86	5.65	2147
0.02	0.13	0.33	0.44	0.92	1.12	1.23	11.60	10.37	3.21	3.21	2104
0.04	1.31	0.69	0.60	2.64	3.21	3.25	11.25	8.00	10.67	10.67	2101
0.09	0.55	0.64	0.54	1.82	2.21	2.97	12.91	9.94	4.50	4.50	2107
1.25	0.09	0.19	3.56	5.09	6.19	0.90	5.33	4.43	0.35	4.21	2095
0.15	0.92	0.00	0.54	1.61	1.96	1.33	9.70	8.37	4.66	4.66	2099
0.08	2.07	0.07	0.96	3.18	3.87	0.90	9.55	8.65	7.17	7.17	2105
0.11	1.47	0.11	0.79	2.48	3.02	1.40	9.60	8.20	3.17	3.17	2100
0.11	2.04	0.16	0.70	3.01	3.66	1.05	9.40	8.35	3.99	3.99	2098
0.12	1.83	0.23	1.02	3.20	3.89	1.60	9.59	7.99	4.14	4.14	2513
0.35	0.87	0.06	2.47	3.75	4.56	0.23	4.30	4.07	0.44	5.21	2149
0.38	1.47	0.70	3.56	6.11	7.43	0.30	3.80	3.50	0.56	7.92	2148

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
Sanderson Fertilizer and Chemical Co., New Haven.			
2155	Sanderson's Atlantic Coast Bone, Fish and Potash	3-10-3	Guilford
1748	Sanderson's Complete Tobacco Grower..	5-4-5	Manchester
2141	Sanderson's Corn Superphosphate	2-8-3	Hamden
1747	Sanderson's Formula A	4-8-4	Guilford
2121	Sanderson's Formula B	4-8-6	Bloomfield
2140	Sanderson's Potato Manure	3-8-4	Hamden
2164	Sanderson's Top Dressing Grass and Grain	6-6-4	Unionville
M. L. Shoemaker & Co., Philadelphia.			
2158	Shoemaker's "Swift-Sure" Special Tobacco Formula	4-8-5	New Milford
1751	Shoemaker's "Swift-Sure" Tobacco and General Use	3-10-3	New Milford
Springfield Rendering Co., Springfield, Mass.			
1767	Springfield Animal Brand, 3-8-4	3-8-4	Thompsonville ...
1769	Springfield Market Garden Grower and Top Dresser, 5-8-7	5-8-7	Hazardville
2461	Springfield Tobacco Special, 5-4-5	5-4-5	Thompsonville ...
1768	Springfield Spec. Potato, Onion and Vegetable, 4-8-4	4-8-4	Hazardville
I. P. Thomas & Son, Philadelphia, Pa.			
1457	I. P. Thomas, 5-8-7	5-8-7	Highwood
1459	Truckers' High Grade Guano, 4-8-4	4-8-4	Highwood
1556	Improved Truckers' Fertilizer	5-10-5	Highwood
2129	Improved Truckers' Fertilizer	5-10-5	Highwood
Triton Oil and Fertilizer Co., New York City.			
2162	Triton 3-10-2 Fertilizer	3-10-2	New London
2159	Triton 4-8-4 Fertilizer	4-8-4	New London
2160	Triton 4-8-7 Fertilizer	4-8-7	New London
2161	Triton 5-8-7 Fertilizer	5-8-7	New London
U. S. Guano Co., Baltimore, Md.			
2183	Standard United States Evergreen Fish Guano	4-8-4	Plantsville
2497	Standard United States Farmers' Formula	8-6-6	New Britain
2455	Standard United States Fish, Bone and Potash	5-8-7	Plantsville

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.31	1.09	0.57	0.56	2.53	3.08	0.88	10.75	9.87	3.36	3.36	2155
0.43	0.68	0.24	2.85	4.20	5.11	0.30	4.63	4.33	0.51	5.27	1748
0.12	0.74	0.50	0.52	1.88	2.29	0.80	8.80	8.00	3.26	3.26	2141
0.49	1.09	0.61	0.48	3.27	3.98	0.75	9.01	8.26	4.00	4.00	1747
0.71	1.07	0.22	1.36	3.36	4.09	1.03	9.95	8.92	0.56	5.94	2121
0.19	1.35	0.46	0.50	2.50	3.04	0.75	8.80	8.05	3.93	3.93	2140
1.49	2.50	0.25	0.57	4.81	5.85	0.43	6.80	6.37	3.84	3.84	2164
1.12	0.08	0.43	1.89	3.52	4.28	2.58	11.10	8.54	1.26	5.57	2158
0.98	0.07	0.46	1.07	2.58	3.14	3.90	14.45	10.55	1.37	3.72	1751
0.03	1.60	0.45	0.56	2.64	3.21	0.50	8.89	8.39	4.21	4.21	1767
0.81	1.89	0.53	0.81	4.04	4.91	0.55	9.23	8.68	7.39	7.39	1769
1.24	0.09	0.41	2.24	3.98	4.84	1.08	6.90	5.82	0.61	5.52	2461
0.70	1.44	0.60	0.60	3.34	4.06	0.65	9.01	8.36	4.12	4.12	1768
1.24	2.02	0.18	0.61	4.05	4.92	1.23	10.94	9.71	6.77	6.77	1457
1.02	1.20	0.34	0.55	3.11	3.78	1.32	9.08	7.76	4.23	4.23	1459
1.20	1.72	0.13	0.72	3.77	4.58	1.15	11.88	10.73	4.66	5.04	1556
1.21	1.69	0.40	0.72	4.02	4.89	1.10	11.93	10.83	4.96	4.96	2129
0.42	1.50	0.00	0.80	2.72	3.31	0.10	10.80	10.70	2.41	2.41	2162
0.54	1.26	0.48	1.24	3.52	4.28	0.88	8.62	7.74	4.17	4.17	2159
0.48	1.32	0.82	0.80	3.42	4.16	0.88	9.03	8.15	6.47	6.47	2160
0.81	2.06	0.24	0.87	3.98	4.84	1.28	9.78	8.50	7.00	7.00	2161
0.26	2.24	0.23	1.06	3.79	4.61	1.88	10.00	8.12	2.15	3.54	2183
0.10	5.02	0.13	0.25	5.50	6.69	1.18	9.30	8.12	6.54	6.54	2497
0.15	3.24	0.22	0.41	4.02	4.89	0.58	9.30	8.72	7.05	7.05	2455

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i> Virginia-Carolina Chemical Co., New York City.		
1766	V-C Aroostook Potato Grower	5-8-7	North Haven
2157	V-C Champion Brand	4-8-4	North Haven
2165	V-C Double Owl Brand	4-8-6	North Haven
1765	V-C Good Luck Brand	3-10-5	North Haven
1770	V-C Indian Chief Brand	5-4-5	Glastonbury
2182	V-C National Brand	4-8-10	North Haven
2156	V-C Tip Top Top Dresser	6-8-4	North Haven
	Wilcox Fertilizer Co., Mystic.		
1810	Wilcox 4-8-4 Fertilizer	4-8-4	Willimantic
1816	Wilcox 5-8-7 Fertilizer	5-8-7	Norwich
2187	Wilcox 5-10-5 Fertilizer	5-10-5	Sampled at Factory
2191	Wilcox Corn Special	3-10-4	Ellington
2512	Wilcox Corn Special	3-10-4	Sampled at Factory
1811	Wilcox Fish and Potash	3-8-3	Willimantic
2186	Wilcox Grass and Truck Fertilizer	5-8-4	Sampled at Factory
1812	Wilcox Potato and Vegetable Phosphate	4-8-6	Willimantic
2190	Wilcox Tobacco Special	5-4-5	Ellington
2189	Wilcox Top Dresser	8-6-6	Sampled at Factory
	S. D. Woodruff & Sons, Orange.		
1772	Woodruff's Home Mixture	4-8-6	North Haven
	Worcester Rendering Co., Auburn, Mass.		
2192	Prosperity Complete Dressing, 6-6-3	6-6-3	Putnam
2193	Prosperity Corn and Grain Fertilizer	2-8-2	Putnam
1817	Prosperity Market Garden Fertilizer	5-8-7	Norwich
1815	Prosperity Potato and Vegetable	4-8-4	Norwich
1845	Prosperity Potato and Vegetable, 4-8-4..	4-8-4	Norwich
2185	Prosperity Superior Top Dressing	8-6-6	North Stonington.

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

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.	
%	%	%	%	%	%	%	%	%	%	%	
0.14	2.92	0.52	0.26	3.84	4.67	1.35	9.70	8.35	7.32	7.32	1766
0.19	2.17	0.46	0.25	3.07	3.73	1.05	9.25	8.20	4.12	4.12	2157
0.10	2.66	0.53	0.19	3.48	4.23	1.23	8.85	7.62	6.22	6.22	2165
0.12	1.60	0.57	0.21	2.50	3.04	1.80	11.93	10.13	4.66	5.43	1765
0.23	0.63	0.19	2.86	3.91	4.75	0.45	4.76	4.31	0.45	6.22	1770
0.00	2.78	0.43	0.22	3.43	4.17	1.46	9.00	7.54	10.92	10.92	2182
0.13	4.19	0.45	0.29	5.06	6.15	1.38	9.05	7.67	4.11	4.11	2156
1.83	0.19	0.66	0.75	3.43	4.17	0.85	9.20	8.35	4.36	4.36	1810
1.95	0.09	0.80	1.40	4.24	5.15	2.30	10.65	8.35	5.41	6.95	1816
2.01	0.10	0.76	1.12	3.99	4.85	2.23	11.83	9.60	5.15	5.15	2187
1.26	0.12	0.38	0.71	2.47	3.00	0.45	10.30	9.85	3.27	3.27	2191
0.84	0.60	0.50	0.70	2.64	3.21	0.50	10.38	9.88	3.23	3.23	2512
1.46	0.18	0.60	0.84	3.08	3.74	0.58	9.02	8.44	3.69	3.69	1811
1.18	2.02	0.10	0.87	4.17	5.07	0.10	9.00	8.90	4.42	4.42	2186
1.65	0.09	0.67	0.76	3.17	3.85	1.35	9.45	8.10	2.43	6.16	1812
1.05	0.22	0.49	4.48	6.24	7.59	0.13	6.05	5.92	0.76	6.90	2190
3.31	0.08	1.10	2.53	7.02	8.53	1.15	7.53	6.38	5.65	6.04	2189
1.16	0.02	0.03	1.86	3.07	3.73	1.55	9.48	7.93	6.18	6.18	1772
2.36	0.12	1.09	1.37	4.94	6.01	0.83	7.03	6.20	3.27	3.27	2192
0.54	0.88	0.36	0.52	2.30	2.80	0.68	8.70	8.02	2.30	2.30	2193
1.06	1.50	0.77	0.88	4.21	5.12	0.65	8.63	7.98	6.49	6.49	1817
0.86	1.38	0.51	0.84	3.59	4.36	0.75	9.60	8.85	4.54	4.54	1815
0.65	1.47	0.33	0.78	3.23	3.93	0.60	9.20	8.60	4.81	4.81	1845
2.09	0.17	2.46	1.74	6.46	7.85	1.13	7.90	6.77	4.84	4.84	2185

TABLE XIII. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Purchaser:</i>			
American Agricultural Chemical Co., New York City			
2043	Double A Tobacco Fertilizer, 173,839	5-4-5	Granby
2044	Double A Tobacco Fertilizer, 75,100	5-4-5	Granby
2045	Double A Tobacco Fertilizer, 7,301	5-4-5	Granby
2046	Double A Tobacco Fertilizer, 571,689	5-4-5	Granby
1718	Quinnipiac Seed Leaf Tobacco Manure ..	.....	Broad Brook
1649	Quinnipiac Prime Tobacco Manure, 63,858	7-3-7	Hartford
Apothecaries Hall Co., Waterbury.			
641	Fertilizer, 8-4-5 (Light)	8-4-5	Buckland
642	Fertilizer, 8-4-5 (Dark)	8-4-5	Buckland
Eastern States Farmers' Exchange, Springfield, Mass.			
2557	5-10-5 Fertilizer	5-10-5	Saybrook
2065	Eastern States, 5-8-7	5-8-7	Farmington
L. T. Frisbie Co., New Haven.			
2424	Frisbie's 5-8-7	5-8-7	Manchester
The Rogers & Hubbard Co., Portland.			
1595	Rogers & Hubbard Tobacco Grower Vegetable Formula	6-4-4	Burnside
923	Seeding Down Fertilizer .....	.....	Sent from Factory
1795	.....	.....	Hartford

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

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.	
%	%	%	%	%	%	%	%	%	%	%	
....	4.24	5.15	0.35	4.90	4.55	....	4.62	2043
....	4.36	5.30	0.43	5.68	5.25	....	4.65	2044
....	4.13	5.02	0.45	4.63	4.18	....	4.99	2045
....	4.23	5.14	0.40	4.43	4.03	....	5.03	2046
....	4.14	5.03	0.27	4.23	3.96	0.40	4.84	1718
....	5.91	7.19	0.38	3.70	3.32	0.54	6.80	1649
....	6.70	8.15	....	....	....	....	....	641
....	6.32	7.68	....	....	....	....	....	642
....	3.30	4.01	....	11.16	....	....	5.00	2557
....	4.78	5.81	0.35	7.89	7.54	....	7.98	2065
....	3.92	4.90	0.75	9.60	8.85	....	7.05	2424
....	5.11	6.21	0.92	5.30	4.38	....	4.32	1595
....	5.68	12.60	6.92	....	....	923
....	5.05	6.14	0.45	6.25	5.80	....	6.83	1795

SPECIAL MIXTURES AND HOME MIXTURES.

Forty-six samples of home mixed goods and fertilizers mixed by manufacturers according to special formulas required by the purchasers have been analyzed and are reported in Table XVI.

Only three of these were sampled by the station agent.

TABLE XVI. ANALYSES OF SPECIAL MIXTURES AND HOME MIXTURES.

Station No.	Manufacturer.	Place of Sampling.	Total nitrogen.	Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.	
					Citrate-insoluble.	Total.	So-called "available."	As sulfate.	Total.		
			%	%	%	%	%	%	%		
1774	<i>Sampled by Station:</i> Eastern States Farmers' Exchange, Springfield, Mass.	L. W. Newberry, So. Windsor	6.00	7.29	0.45	6.60	6.15	1.13	8.63	1774	
1523		T. W. Ryan, Stratford	4.82	5.86	0.65	8.03	7.38	....	7.71	1523	
1524		T. W. Ryan, Stratford	4.12	5.01	0.93	10.68	9.75	....	6.09	1524	
1222	<i>Sampled by Purchaser:</i> Formula A	American Sumatra Tobacco Co., Bloomfield	5.36	6.52	0.23	4.94	4.71	0.16	6.22	1222	
1399		Formula A	"	5.24	6.37	0.18	4.54	4.36	....	6.08	1399
1422		Formula A	"	5.39	6.55	0.18	4.78	4.60	0.32	6.11	1422
1353		Formula AA	"	6.92	8.41	0.46	3.91	3.45	0.29	1.09	1353
1401		Formula AA	"	7.02	8.53	0.46	3.98	3.52	....	1.13	1401
1223		Formula B	"	5.74	6.98	0.28	4.53	4.25	0.15	6.95	1223
1400		Formula B	"	5.59	6.80	0.19	5.42	5.23	....	7.03	1400
1423		Formula B	"	5.22	6.35	0.19	5.04	4.85	0.28	6.20	1423
1573		Formula C	"	6.16	7.49	0.30	5.08	4.78	0.27	6.57	1573
1420		Formula D	"	5.31	6.46	1.22	6.10	4.88	0.20	6.07	1420
1421		Formula F	"	5.20	6.32	1.38	6.64	5.26	0.16	4.94	1421
1473		Formula G	"	5.86	7.12	0.26	4.12	3.86	0.40	5.37	1473
1452		Formula H	"	4.80	5.84	0.20	5.19	4.99	0.54	7.65	1452
1574		Formula H	"	5.19	6.31	0.28	5.58	5.30	0.43	5.48	1574
1474		Formula I	"	5.26	6.40	0.24	4.80	4.56	0.37	6.19	1474
1537		Formula J	"	5.80	7.05	0.28	6.04	5.76	....	7.20	1537
1696		Formula K	"	5.97	7.26	0.25	5.70	5.45	0.25	7.02	1696
1697	Formula N	"	5.42	6.59	0.28	5.45	5.17	0.44	8.07	1697	

MIXED FERTILIZERS

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

Station No.	Manufacturer.	Place of Sampling.	Total nitrogen.	Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.	
					Citrate-insoluble.	Total.	So-called, available.	As sulfate.		Total.
1698	<i>Sampled by Purchaser:</i> Formula O	American Sumatra Tobacco Co., Bloomfield	7.06	8.58	0.73	4.85	4.12	0.57	1.36	1698
1601	Old Formula	"	5.88	7.15	0.20	5.90	5.70	....	4.07	1601
2116	.....	George Bostick, Sr., Thompsonville	5.86	7.12	0.23	5.18	4.95	0.40	7.66	2116
2117	.....	W. J. Burgess, Thompsonville	4.20	5.11	0.28	4.53	4.25	....	4.41	2117
2118	.....	James T. Burgess, Thompsonville	5.93	7.21	0.15	5.55	5.40	....	6.93	2118
2014	.....	O. W. Murphy, Collinsville	1.20	1.46	3.43	11.60	8.17	....	3.25	2014
2015	.....	O. W. Murphy, Collinsville	4.92	5.98	0.88	5.65	4.77	....	3.72	2015
2197	Apothecaries Hall Co., Waterbury	Fred Hoffman, Ellington	6.25	7.60	0.78	4.54	3.76	1.66	7.79	2197
2198	Apothecaries Hall Co., Waterbury	Fred Hoffman, Ellington	3.37	4.10	0.70	8.60	7.90	....	4.44	2198
2361	Apothecaries Hall Co., Waterbury	Stamford Mason's Supply Co., Stamford	3.34	4.06	1.09	9.68	8.59	....	4.07	2361
2364	Apothecaries Hall Co., Waterbury	W. J. Burgess, Thompsonville	5.65	6.87	0.30	5.78	5.48	....	9.09	2364
2196	Berkshire Fertilizer Co., Bridgeport	Fred Hoffman, Ellington	6.02	7.32	0.18	4.20	4.02	0.66	7.89	2196
2318	Berkshire Fertilizer Co., Bridgeport	Louis Grouboush, Suffield	4.20	5.11	0.63	5.18	4.55	....	5.70	2318
2319	Berkshire Fertilizer Co., Bridgeport	Neland Loomis, Suffield	4.94	6.01	0.85	6.05	5.20	....	3.74	2319
1906	Everett B. Clark Seed Co., Milford	Angelo Cerrone, Northford	4.83	5.87	1.86	10.40	8.54	....	7.31	1906

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

Station No.	Manufacturer.	Place of Sampling.	Total nitrogen.	Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.
					Citrate-insoluble.	Total.	As muriate.	Total.	
1893	<i>Sampled by Purchaser:</i> L. T. Frisbie Co., New Haven	C. R. Burr & Co., Manchester	3.85	4.68	0.68	9.13	....	6.83	1893
2035	Olds & Whipple, Inc., Hartford	H. E. Wells, Warehouse Point	5.50	6.69	1.10	6.00	....	12.00	2035
2036	Olds & Whipple, Inc., Hartford	H. E. Wells, Warehouse Point	5.38	6.54	1.15	5.95	....	11.79	2036
2037	Olds & Whipple, Inc., Hartford	H. E. Wells, Warehouse Point	4.60	5.59	1.20	9.93	....	8.14	2037
2385	The Rogers & Hubbard Co., Portland	A. N. Shepard & Son, Hartford	4.95	6.02	0.83	5.55	....	4.19	2385
2386	The Rogers & Hubbard Co., Portland	A. N. Shepard & Son, Hartford	4.91	5.97	0.88	5.63	....	4.33	2386
2387	The Rogers & Hubbard Co., Portland	A. N. Shepard & Son, Hartford	5.24	6.37	0.73	5.64	....	4.67	2387
1820	Sanderson Fertilizer & Chemical Co., New Haven	American Sumatra Tobacco Co., Bloomfield	3.34	4.06	1.08	9.80	....	5.19	1820
1821	Sanderson Fertilizer & Chemical Co., New Haven	American Sumatra Tobacco Co., Bloomfield	1.92	2.33	1.03	9.13	....	3.16	1821
2110	Wilcox Fertilizer Co., Mystic	E. C. Pendleton, Norwich	5.14	6.25	0.55	9.50	0.52	7.26	2110

VII. MISCELLANEOUS FERTILIZERS, AMENDMENTS AND WASTE PRODUCTS.

WOOD ASHES.

Twelve samples of wood ashes, chiefly Canadian products, have been analyzed. All were of good quality. Nine contained over 6 per cent of potash and eleven contained over 5 per cent. Besides potash, wood ashes contain from 1.5 to 2.5 per cent of phosphoric acid and probably 30 per cent or more of lime which contribute to their value as a fertilizer and a soil amendment, but as a source of potash at \$5.00 per unit they are expensive.

Analyses are given in Table XVII.

TABLE XVII. ANALYSES OF WOOD ASHES.

Station No.	Manufacturer.	Purchaser.	Phosphoric acid.	Water-soluble potash.
	<i>Sampled by Station:</i>		%	%
1776	John Joynt, Lucknow, Canada	Gordon Scholes, Warehouse Point	1.68	6.25
1901	" "	Harry Zera, Suffield	2.10	6.22
	<i>Sampled by Purchaser:</i>			
1633	John Joynt, Lucknow, Canada	The Allied Tobacco Company, Hartford	1.73	6.41
1722	" "	" "	2.15	4.79
1907	" "	" "	1.75	6.16
1908	" "	" "	2.38	6.65
1675	" "	F. R. & R. M. Goodrich, Portland	2.15	5.60
1598	" "	Hatheway & Steane, Inc., Hartford	2.50	6.75
1599	" "	" "	2.25	6.50
1669	" "	" "	2.20	6.18
2317	" "	" "	2.13	5.26
1796	" "	L. Wetstone & Sons, Hartford	1.98	5.97

TABLE XVIII. ANALYSES OF

Station No.	Manufacturer or Brand.	Place of Sampling.
<i>Sampled by Station:</i>		
2305	American Agricultural Chemical Co., New York City	Morrison & Dunham, Bethel
2051	Armour Fertilizer Works, New York City	F. A. Bartlett Tree Expert Co., Stamford
2123	Berkshire Fertilizer Co., Bridgeport	Factory
1866	Case's Brand. A. H. Case & Co., Inc., Buffalo, N. Y.	W. L. Thorpe, North Haven
1652	Sheep's Head. Natural Guano Co., Aurora, Illinois	Cadwell & Jones, Hartford
1728	Groz-It. Pacific Manure & Fertilizer Co., San Francisco, Cal.	Meech & Stoddard, Inc., Middletown
1725	Premier Poultry Manure. Premier Poultry Manure Co., Chicago, Illinois	Lightbourn & Pond, New Haven
1726	Premier Sheep Manure. Premier Poultry Manure Co., Chicago, Illinois	Lightbourn & Pond, New Haven
1729	Wizard Brand Manure. The Pulverized Manure Co., Chicago, Illinois	W. W. Hunt & Co., Hartford
1734	Wizard Brand Sheep Manure. The Pulverized Manure Co., Chicago, Illinois	F. H. Liggett & Co., Stamford
1744	So. American Sheep and Goat Manure. Sanderson Fertilizer & Chemical Co., New Haven..	G. W. Thorpe, West Cheshire

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.			
%	%	%	%	%	%	%	%	%	
1.96	2.38	1.75	....	....	0.78	0.75	2.03	2.00	2305
1.39	1.69	1.50	....	....	0.98	1.00	3.19	2.00	2051
2.10	2.55	2.18	1.85	1.00	1.93	....	3.30	2.00	2123
2.15	2.61	1.21	....	....	1.95	1.25	1.63	1.00	1866
2.52	3.06	2.73	1.72	1.00	1.90	1.25	2.27	2.00	1652
1.68	2.04	1.82	0.71	0.75	0.88	1.25	2.79	3.00	1728
5.21	6.33	6.00	2.75	2.50	2.93	2.75	1.42	1.30	1725
2.62	3.19	3.00	1.25	1.00	1.45	1.50	1.91	2.00	1726
1.94	2.36	2.10	0.78	1.00	0.95	....	1.78	1.00	1729
2.38	2.89	2.43	1.35	1.25	1.53	....	2.56	2.00	1734
1.30	1.58	1.50	....	....	0.90	1.00	3.21	2.50	1744

SHEEP MANURE, ETC.

Analyses of eleven samples of sheep and other farm manures, all sampled by the station agent, are given in Table XVIII. All guaranties for nitrogen and potash were substantially met or exceeded; and there were no notable deficiencies in phosphoric acid.

The character of the nitrogen in sheep manure is shown by analyses of several brands sampled in 1924. Nitrogen distribution was determined as shown in the subjoined summary.

Sample No.	Total Nitrogen. %	Insoluble Organic Nitrogen. %	Active Insoluble Organic Nitrogen (Alkaline Method). %	Per cent Active. %
22982	2.47	1.96	0.62	31.4
22983	2.07	1.85	0.66	35.8
22986	1.30	1.12	0.37	33.6
22991	1.33	1.12	0.45	40.2
23457	1.81	1.76	0.39	22.2

These figures show that organic nitrogen insoluble in water comprises the greater part of the total nitrogen; and that from 20 to 40 per cent of the insoluble nitrogen is "active" by one of the conventional methods for determining its activity. This parallels rather closely field experiments which have shown that only about one-third of the nitrogen in manure is recovered in the first year's crop and that its full quota of plant food is not utilized except over a period of years. It is recognized, however, that the value of farm manures is not confined to the commercial value of the nitrogen, phosphorus and potash which they contain. Their chief value perhaps lies in the fact that they serve as conditioners and as culture media for the growth of beneficial soil bacteria.

LIME, ETC.

Seventeen samples of liming materials, chiefly limestone, have been analyzed and are summarized in Table XIX. A discussion on the classification and uses of lime was given in our report last year.¹

Sample 2362 was carbide residue about which information as to its utilization was asked. This material is the residue obtained in the manufacture of acetylene gas. It is useful as a source of lime for agricultural purposes if it is dry and otherwise in good mechanical condition. It should be exposed to the air to dispel traces of acetylene gas which would be injurious to seed. If applied to the soil 2 or 3 weeks before planting there should be no danger. The sample examined contained 47.3 per cent of lime (CaO), and had apparently been well exposed as the calcium was largely in the air-slaked condition.

¹ Conn. Exp. Sta., Bull. 261, p. 92 (1924).

TABLE XIX. ANALYSES OF

Station No.	Manufacturer or Brand.	Sampled by.
	<i>Ground Limestone, Etc.</i>	
	Manufacturer Unknown.	
1567	65016	American Sumatra Tobacco Co., Bloomfield ..
	Coe Lime Works, Northford.	
960	Ground Limestone	Sidney Edwards, Middletown
1204	Ground Limestone	Sidney Edwards, Middletown
1460	Ground Limestone	J. S. Owens, Ext. Agronomist, Storrs
1532	Ground Limestone	J. S. Owens, Ext. Agronomist, Storrs
2302	Ground Limestone	Sidney Edwards, Middletown
2501	Ground Limestone	Station Agent from Factory, Northford
	Farnam Cheshire Lime Co., Farnams, Mass.	
2346	Agricultural Lime	Station Agent from E. Delage & Sons, Plain- ville
	Grangers Mfg. Co., West Stockbridge, Mass.	
620	Agricultural Limestone ...	J. W. Alsop, Avon
621	Agricultural Limestone ...	Conn. Sumatra Tobacco Co., Buckland
1404	Agricultural Limestone ...	Winchell Smith, Farmington
1694	Agricultural Limestone ...	American Sumatra Tobacco Co., Bloomfield ..
1695	Agricultural Limestone ...	American Sumatra Tobacco Co., Bloomfield ..
2301	Ground Limestone	Sidney Edwards, Middletown
2454	Agricultural Limestone ...	Station Agent from J. F. Raven Hardware Co., Meriden
	<i>Miscellaneous.</i>	
2362	Carbide residue	N. Y., N. H. & H. R. R., New Haven
2398	Waste Lime	J. B. Tinker, Canaan

MISCELLANEOUS.

Seventy-six samples of miscellaneous material have been analyzed, most of which need no individual discussion.

This number includes thirteen samples submitted by the Tobacco Experiment Station which have been examined in some detail and are reported upon in Table XX.

There are included also, nine samples of check fertilizers in the cooperative program of the Royster Guano Co., and thirty samples of check cottonseed meals in a similar program of the American Oil Chemists' Society. The complete list is as follows:

Raw materials for Tobacco Station	13
Check fertilizers	9
Check cottonseed meals	30
Potash marl	1
Tobacco stems, dust, etc.	13
Soil	3
Other miscellaneous	7
	<hr/>
Total	76

TABLE XX. ANALYSES OF MATERIAL SUBMITTED BY TOBACCO STATION.*

Materials.	Water and Undetermined.	Organic Matter.	Nitrogen.	Phosphorus Pentoxide (P ₂ O ₅).	Potassium Oxide (K ₂ O).	Calcium Oxide (CaO).	Magnesium Oxide (MgO).	Iron and Aluminum Oxides (Fe ₂ O ₃ & Al ₂ O ₃).	Sulphur Trioxide (SO ₃).	Sodium Oxide (Na ₂ O).	Chlorine (Cl).	Silica (SiO ₂).
	%	%	%	%	%	%	%	%	%	%	%	%
Cottonseed Meal	6.75	86.87 ¹	6.72	2.64	1.98	0.27	1.07	0.06	.....	.....	0.00	0.13
Castor Pomace	7.50	86.85 ¹	5.01	1.47	0.55	0.88	0.67	0.19	.....	.....	0.08	1.03
Sodium Nitrate	48.54 ²	.....	15.46	.....	.....	.....	.....	.....	.....	35.66	0.34	.....
Precipitated Bone	.....	.....	.....	38.32 ³	.....	.....	.....	.....	.....	.....	.....	.....
Potassium Sulphate	2.87 ⁴	.....	.....	.....	50.09	0.11	1.25	0.33	43.32	0.02 ⁵	1.75	0.05
Potassium Carbonate	36.43 ⁶	.....	.....	.....	62.73	.....	.....	.....	.....	.....	0.84	.....
Tankage	8.45	78.20 ¹	9.51	4.53	0.20	5.10	0.29	0.60	2.60	.....	0.31	1.27
Ammonium Sulphate	19.85	.....	20.78	.....	.....	.....	.....	.....	59.37	.....	.....	.....
Dry Ground Fish	7.57	73.52 ²	9.16	7.33 ⁷	0.60	8.01	0.35	0.39	2.84	.....	0.28	1.38
Double Manure Salts	9.74 ¹	.....	.....	.....	27.36	1.17	10.28	0.86	46.27	0.94 ²	1.68	2.08
Trona Potash	1.03 ⁴	.....	.....	.....	60.94	0.00	0.04	0.11	0.27	2.49 ³	45.10 ⁸	0.20
Urea	.....	.....	46.20 ⁹	.....	.....¹¹	.....	.....	.....	.....	.....	.....	.....
Green Sand Marl	7.43 ⁴	.....	.....	1.25 ¹⁰	6.59 ¹¹	1.75	3.82	26.50	0.88	0.48	.....	49.86

* Analyses by Mr. H. J. Fisher.

¹ The nitrogen given in next column is included here, it being principally in organic form.² Of this, 44.14% is oxygen.³ 37.73% available.⁴ Loss on ignition.⁵ By difference.⁶ Mostly CO₂.⁷ 5.58% available.⁸ Oxygen equivalent to chlorine 10.18%.⁹ Urea 99.03%.¹⁰ 0.35% available.¹¹ Water-soluble potash 0.10%.

1727. Potash Marl. Potash Marl, Inc., New York. Sampled by station agent, stock of Lightbourn and Pond, New Haven.

Analysis:

Available phosphoric acid 0.45 per cent; total phosphoric acid 1.33 per cent. The material was guaranteed 0.25 and 1 per cent of available and total phosphoric acid respectively.

Only phosphoric acid is guaranteed. The material contains, or may contain, 6 per cent or more of potash but it is largely or entirely insoluble in water. The product was quoted at \$43.00 per ton but the plant food in it cannot be valued at over \$5.00. We have no information that its worth as an amendment justifies the extra cost.

922. Tobacco Stems, unground, submitted by W. A. Henry & Sons, Wallingford.

933. Tobacco Dust, ground, submitted by Edw. Eggert, Hartford.

2555, 2556. Tobacco Dust, submitted by S. D. Woodruff Sons, Orange.

955. Tobacco Stems, ground, submitted by the Everett B. Clark Seed Co., Milford.

2558. Tobacco Butts, 2559 Tips, 2560 Tips, 2561 Middle leaf, 2562 Middle leaf, 2563 Tips, 2564 Butts, 2565 Middle leaf. Submitted by Dr. Anderson, Tobacco Station, Windsor, for determinations of moisture only.

Analyses of these tobaccos are given in the following tabulation.

ANALYSES OF TOBACCO.

Sta. No.	Moisture.	Nitrogen.	Phosphoric.	Potash.	Nicotine.
	%	%	%	%	%
922	30.50	1.41	0.38	5.82	....
933	....	2.71	0.43	2.83	1.03
2555	....	1.96	....	2.14	....
2556	....	1.84	....	1.61	....
955	....	1.48	....	6.01	....
2558	27.29
2559	24.91
2560	23.71
2561	26.99
2562	28.27
2563	20.01
2564	23.47
2565	21.24

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Fine Ground Bone	6, 41
Fish and Potash	6, 48
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