

H. G. M. Jacobson

Bulletin 331

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COMMERCIAL FERTILIZERS
REPORT FOR 1931



Connecticut
Agricultural Experiment Station
New Haven

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E. M. BAILEY

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Connecticut
Agricultural Experiment Station
New Haven

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COMMERCIAL FERTILIZERS REPORT FOR 1931

THE FERTILIZER LAW IN CONNECTICUT

Fertilizer control in this State probably dates from 1869 when an "Act to Prevent Fraud in the Manufacture and Sale of Fertilizers" was approved by the General Assembly on July 8, and became effective on August 1 of that year. This law provided that commercial manures sold or kept for sale, if in packages of 50 pounds or over, should bear a special name or trademark, the name and place of business of the manufacturer or seller, the true analysis or specification of chemical elements and their several amounts, and the quantity of fertilizer in the package. A fine of \$10 for each 100 pounds of fertilizer sold in violation of these provisions, or for stating an analysis claiming 5% or more of any fertilizer ingredient than was contained in the package, was provided. The act did not apply to fish or pomace, or to any fertilizer made essentially from fish, or to any other commercial manure sold at a price not exceeding 1 cent per pound. The Secretary of the Board of Agriculture was authorized to procure the analysis of any fertilizer sold in the State and to prosecute any persons violating the provisions of the act. One-half of the fines imposed went to the State and one-half to the prosecutor.

At the winter meeting of the Connecticut Board of Agriculture held in Middletown January 11 to 14, 1870, the Secretary called attention to the recently enacted statute which he was directed to make public.

It is interesting to note in this connection that in 1856 Professor Samuel W. Johnson addressed the Connecticut State Agricultural Society at considerable length on the subject of "Frauds in Commercial Manures" and that he served as chemist to this Society and to its successor, the State Board of Agriculture, for many years. No doubt his activities formed the background for the enactment of this law.

The law was revised in some particulars in 1875 and in 1881, but no important revision was made until 1882. This act "Concerning Commercial Fertilizers" was considerably more comprehensive in scope than any of the previous acts. The first section of the new law is of particular interest because of its bearing upon

NOTE. Analyses were made by Messrs. Nolan, Mathis and Walden; microscopic examinations by Mr. Shepard and Miss Yale; inspection and sampling by Mr. Churchill; and compilations largely by Mrs. Vosburgh.

the recent concerted movement in the industry and among control officials to bring about a uniform and simplified method of stating fertilizer analyses for purposes of tagging the trade packages. It was provided that each package should bear a statement giving, among other information, the chemical composition of the fertilizer *in terms and manner approved by the Connecticut Agricultural Station*. In accordance with this provision the Station made the following announcement:*

"A statement of the percents of nitrogen, phosphoric acid (P_2O_5) and potash (K_2O), and of their several states or forms, will be satisfactory in most cases. Other ingredients may be named if desired.

"In all cases the percent of nitrogen must be stated. Ammonia may also be given when actually present in ammonia salts, and 'ammonia' equivalent to total nitrogen may likewise be stated.

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

"Insoluble phosphoric acid may be stated or omitted.

"In case of bone, fish, tankage, dried meat, dried blood, etc., the chemical composition may take account of the two ingredients, nitrogen and phosphoric acid.

"For potash salts give always the percent of potash (potassium oxide); that of sulphate of potash or muriate of potash may also be stated.

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

It is evident that fertilizer tags bearing the information required or permitted by the above announcement might become quite formidable documents to the average consumer, and such indeed was the case. Statements of composition became so complicated that erroneous inferences as to plant food present were sometimes drawn and difficulty and confusion in interpreting labels resulted. This led many States where similar provisions were in force to restrict the items that should be named, and we find in various fertilizer laws of later years items of composition required or permitted on tags or labels qualified by such phrases as "and no other ingredients shall be named" or words of like import. Our own fertilizer law as amended in 1919 includes this restrictive measure. It provides for the statement of nitrogen, equivalent ammonia, available phosphoric acid, total phosphoric acid and water soluble potash, prefaced by the restriction "only these items shall be given". This is a considerable curtailment of items formerly allowable, and it appears to permit of the interpretation that not

*Report for 1883, p. 12.

all of the items even now named in the law need necessarily be given, but that no more than these may be stated. The present law further provides that "methods of the Association of Official Agricultural Chemists in force at the time shall be followed in all statements of guaranties, sampling and analytical work required in connection with administering the law".

For a number of years the Association of Official Agricultural Chemists has been formulating definitions of terms and materials and striving to bring about greater uniformity in the expression and interpretation of results for fertilizers. The Association has made several regulations that bear upon the question of uniformity in the labeling of these products. It has been announced (1) that the "grade" of a fertilizer shall represent the minimum guaranty of its plant food expressed in terms of nitrogen, available phosphoric acid and water-soluble potash, and that the items shall be given in that order; and (2) that "statements of guaranty" for mixed fertilizers shall be in whole numbers.

In May of this year fertilizer control officials of the New England States, New York, Delaware, New Jersey, Maryland, Pennsylvania, Virginia and West Virginia, met with agronomists of these States and with representatives of the fertilizer industry at a conference held in New York. At this meeting the control officials adopted the following resolution after the various questions involved had been thoroughly discussed:

"Inasmuch as there is a strong desire and need for uniformity in enforcement of fertilizers laws:

"It is hereby resolved that the Fertilizer Control Officials of the following States: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Delaware, New Jersey, Maryland, Pennsylvania, Virginia and West Virginia, in conference held in New York, May 20, 1931, favor the adoption of the following method of procedure in the registration of fertilizers and the administration of fertilizer laws:

"On and after January 1, 1932, applications for registrations for mixed fertilizers shall include only guarantees for minimum percentages of N, available P_2O_5 , and water-soluble K_2O ; and that all sacks or attached cards be labeled accordingly.

"Further, that trade or brand names shall include the formula grade in terms and order of N, available P_2O_5 , and water-soluble K_2O ; and it is recommended that these formula grades as well as guaranteed analyses shall be expressed in whole numbers or units, as, for example, 4-8-4, meaning 4 per cent N, 8 per cent available P_2O_5 , and 4 per cent water-soluble K_2O .

"In States requiring same, this may be supplemented by guarantees for total P_2O_5 , active and water-soluble N. Change in date of effectiveness being contingent on legislative action."

It was agreed that the control officials in each of the several States represented would issue as soon as possible following this conference, regulations for the respective States that would conform, as closely as local statutes would permit, to the joint resolution there adopted. Accordingly on June 25 this Station issued the following announcement:

"In view of the resolution passed by the Fertilizer Control Officials of the thirteen Northeastern States favoring (1) the statement of 'grade' as a part of the brand name of mixed fertilizers, e.g. XX Potato Manure 4-8-4; (2) that the significance of 'grade' shall be nitrogen, available phosphoric acid, and water-soluble potash, and in that order, e.g. XX Potato Manure 4-8-4 meaning 4% nitrogen (not 4% ammonia), 8% available phosphoric acid and 4% water-soluble potash; (3) that statements of grade and of guaranteed analysis shall be in whole numbers; and (4) that statements of guaranties shall include only minimum percentages of nitrogen, available phosphoric acid and water-soluble potash; and inasmuch as these recommendations are in accord with rules adopted by the Association of Official Agricultural Chemists, which rules are required by Sec. 5 of the Connecticut fertilizer law to be followed in administering the act; this Station will, on and after Jan. 1, 1932, observe the foregoing procedure and urge its adoption by all concerned with the manufacture, sale and distribution of fertilizers and by those charged with the dissemination of information concerning fertilizers and fertilizer problems.

"In accordance with this understanding and acceptance of terms and procedure this Station will expect (1) that mixed fertilizers offered for registration for the year 1932 and thereafter will carry as a part of the brand name, whenever possible, the grade of the mixture; (2) that the statement of the grade will be in whole numbers; (3) that the significance of the numerals expressing the grade, and the order of them, will be nitrogen (not ammonia), available phosphoric acid and water-soluble potash; (4) that the statement of guaranteed analysis will give the percentages, in whole numbers only, of nitrogen, available phosphoric acid and water-soluble potash, and in that order; and (5), that tags or stencils upon bags will agree with the registration.

"In the case of mixtures in which phosphoric acid is derived from sources (e.g. bone and tankage), in which available phosphoric acid cannot be adequately evaluated by present analytical methods, total phosphoric acid may be stated in the guaranteed analysis, and the statement of grade may be omitted. In the statement of grade, total phosphoric acid may not be substituted for available."

While this regulation applies to *mixed* fertilizers only, it is recommended that guaranties for raw materials follow the spirit of the ruling so far as may be. Nitrogenous raw materials, for example, should be guaranteed in terms of nitrogen, but not necessarily in whole numbers; bone and tankage should show guaranties expressed in terms of nitrogen and total phosphoric acid rather than ammonia and bone phosphate of lime as formerly.

In the case of mixed fertilizers in which the phosphoric acid is derived from materials such as bone, in which present analytical methods do not adequately evaluate available phosphoric acid, it was regarded as advisable to omit the statement of grade and allow total phosphoric to be given in the guaranteed analysis, preferably instead of available, but if desired, in addition to it. In any case the qualifying phrase, "All the phosphoric acid is derived from bone", is permitted.

The new plan is effective January 1, 1932, and it is felt that the simplification will be a benefit and aid to consumers and manufacturers of fertilizers and to officials charged with the enforcement of fertilizer control laws.

REGISTRATIONS

For 1931, 71 firms and individuals registered at this Station for sale in this State 424 brands of fertilizers. As required by statute the brands so registered are listed as follows:

American Agricultural Chemical Co., New Haven Sales Dept., New Haven, Conn.

AA Double Strength Tobacco Fertilizer
 AA Top Dresser
 AA Superphosphate 16%
 AAC Aroostook Potato Manure
 AAC Castor Pomace
 AAC Complete General Fertilizer
 AAC Double A Tobacco Fertilizer
 AAC Dry Ground Fish
 AAC General Crop Fertilizer
 AAC Grass and Lawn Top Dressing
 AAC Hi-Grade Tobacco Manure
 AAC Monarch Fertilizer
 AAC Muriate of Potash
 AAC Nitrate of Soda
 AAC Peerless Potato Manure
 AAC Prolific 10% Potash Fertilizer
 AAC Pulverized Sheep and Goat Manure
 AAC Special Ground Bone
 AAC Sulfate of Ammonia
 AAC Sulfate of Potash
 AAC Tobacco Starter
 Agrico
 Agrico for Aroostook
 Agrico for Corn
 Agrico for New England
 Agrico for Trees and Shrubs
 Agrico for Truck
 Bowker's All Round Fertilizer
 Bowker's Market Garden Fertilizer
 Bowker's Stockbridge Early Crop Manure
 Bowker's Stockbridge Hill and Drill Fertilizer
 Bowker's Stockbridge Tobacco Manure
 Bradley's Blood, Bone and Potash
 Bradley's Complete Tobacco Manure
 Bradley's Northland Potato Grower
 Bradley's Potato Manure
 Bradley's XL Superphosphate of Lime
 National Complete Tobacco Fertilizer
 Sanderson's Complete Tobacco Grower
 Sanderson's Corn Superphosphate
 Sanderson's Formula A
 Sanderson's Formula B

American Cyanamid Company, 535 Fifth Ave., New York City.

Aero Brand Cyanamid
 Ammo-Phos A
 Ammo-Phos B
 Ammo-Phos-Ko No. 1

Registrations

Ammo-Phos-Ko No. 2-A
Ammo-Phos-Ko No. 3
Ammo-Phos-Ko No. 4

Anglo-Chilean Nitrate Sales Corp., 120 Broadway, New York City.

Champion Brand Chilean Nitrate of Soda
Standard Chilean Nitrate of Soda

Apothecaries Hall Co., Waterbury, Conn.

Bone Meal 2.46%
Bone Meal 3.29%
Bone and Meat Tankage
Carbonate of Potash
Castor Pomace
Cotton Hull Ashes
Cotton Seed Meal
Dry Ground Fish
Liberty Corn and All Crops, 2-8-2
Liberty Corn, Fruit and All Crops, 2-12-4
Liberty Fertilizer, 8-16-8
Liberty Fertilizer, 10-16-14
Liberty Fish, Bone & Potash, 3-8-3
Liberty High Grade Market Gardeners, 5-8-7
Liberty High Grade Tobacco Manure, 7-3-7
Liberty Onion Special (Potash as Sulphate), 4-8-7
Liberty Potato & General Crops, 4-8-10
Liberty Potato & Market Gardeners Special, 4-8-4
Liberty Special Fertilizer for Fruit, 7-8-6
Liberty Special Fertilizer for Lawns, etc.
Liberty Tobacco Special (Cotton Seed Meal Base), 5-3-5
Liberty Tobacco Starter, 5-4-14
Liberty Top Dresser for Grass & Grain, 10-3½-8
Muriate of Potash
Nitrate of Potash
Nitrate of Soda
Nitrate of Soda & Potash
Precipitated Bone
Sheep Manure
Sulfate of Ammonia
Sulfate of Potash
Sulfate of Potash & Magnesia
Super Phosphate (Acid Phosphate)
Tankage

Armour Fertilizer Works, 10 East 40th St., New York City.

Armour's Big Crop Fertilizers—Bone Meal 3-48
Armour's Big Crop Fertilizers 2-12-4
Armour's Big Crop Fertilizers 3-8-4
Armour's Big Crop Fertilizers 4-6-10
Armour's Big Crop Fertilizers 4-8-4
Armour's Big Crop Fertilizers 4-16-4
Armour's Big Crop Fertilizers 5-8-7
Armour's Big Crop Fertilizers 7-11-10
Armour's Big Crop Fertilizers 8-6-6
Armour's Big Crop Fertilizers 10-16-14
Armour's Big Crop Fertilizers—16% Superphosphate

Armour's Big Crop Fertilizers—20% Superphosphate
 Armour's Big Crop Tobacco Special 5-3-5
 Armour's Big Crop Tobacco Special 7-3-7
 Armour's Special Turf Fertilizer
 Castor Pomace
 Cotton Seed Meal
 Sheep & Goat Manure
 Vert

Ashcraft-Wilkinson Co., Atlanta, Ga.

Helmet
 Monarch
 Paramount

Associated Chemical Co., Baltimore, Md.

"Associated" Fine Bone Meal
 "Associated" Nitrate of Soda
 "Associated" Sheep Manure
 "Associated" Sulfate of Ammonia

Associated Seed Growers, Inc., New Haven, Conn.

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

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

Castor Pomace

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

Arcadian Nitrate of Soda
 Arcadian Sulfate of Ammonia
 Sulfate of Ammonia

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

Bartlett Green Tree Food

Berkshire Chemical Co., Bridgeport, Conn.

Berkshire Castor Pomace
 Berkshire Complete Fertilizer
 Berkshire Complete Tobacco Fertilizer
 Berkshire Dry Ground Fish
 Berkshire Economical Grass Fertilizer
 Berkshire Fine Ground Bone
 Berkshire Grass Special Fertilizer
 Berkshire High Grade Tobacco Fertilizer
 Berkshire Long Island Special Fertilizer
 Berkshire Market Garden Fertilizer
 Berkshire Sheep Manure
 Berkshire Superphosphate
 Berkshire Tobacco Special Fertilizer

Registrations

Berkshire Tobacco Starter Fertilizer
Berkshire Truck Fertilizer
Carbonate of Potash
Ground Cotton Boll Ashes
Nitrate of Potash

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

Corn, Onion, Potato, and General Purpose
Special Tobacco Fertilizer

F. W. Brode Corp., Memphis, Tenn.

"Owl Brand" Cotton Boll or Cottonseed Hull Ashes

C. E. Buell, Inc., Boston, Mass.

Two-in-One Peat-Poultry Manure

Central Chemical Co., Inc., Hagerstown, Md. (Branch office, Bridgeport, Conn.)

Dry Ground Fish
Gro-All 5-10-5
Gro-All Garden Brand
Gro-All High Grade Potato
Gro-All High Grade Potato & Onion
Gro-All Onion Brand
Gro-All Potato Special
Gro-All Tobacco Special
Gro-All Tobacco Starter
Gro-All Wrapper Brand

Connecticut Fat Rendering and Fertilizer Corp., West Haven, Conn.
Tankage

Consolidated By-Product Co., 30th and Race Sts., Philadelphia, Pa.
Consolidated Bone Meal

Consolidated Rendering Co., Boston, Mass.

Castor Pomace
Corenco Sheep Manure
Dry Ground Fish
Ground Bone
Sulfate of Ammonia
Superphosphate 16%
Superphosphate 20%
Tankage 6-30
Tankage 9-20

Davey Tree Expert Co., Kent, Ohio.

Davey Tree Food
Davey Shredded Cattle Manure

Eastern States Farmers' Exchange, Springfield, Mass.

Eastern States 0-14-6
 Eastern States 2-12-6
 Eastern States 4-8-8
 Eastern States 4-10-6
 Eastern States 4-12-4
 Eastern States 4-16-20
 Eastern States 4-20-16
 Eastern States 6-8-6
 Eastern States 6-15-9
 Eastern States 6-18-6
 Eastern States 8-4-8 Tobacco
 Eastern States 8-16-16
 Eastern States 8-16-16—Potash from Sulfate
 Eastern States 10-5-10—Tobacco
 Eastern States Calurea
 Eastern States Cotton Hull Ashes
 Eastern States Dry Ground Fish
 Eastern States Fish Mixture
 Eastern States Ground Animal Tankage
 Eastern States Ground Steamed Bone
 Eastern States Kainit
 Eastern States Muriate of Potash
 Eastern States Nitrate of Potash
 Eastern States Precipitated Bone
 Eastern States Sulfate of Ammonia
 Eastern States Sulfate of Potash
 Eastern States 16% Superphosphate
 Eastern States Urea
 Eastern States 7-5-17 supplement Tobacco Fertilizer

Ed. Eggert, Hartford, Conn.

Diamond "EE" Cotton Hull Ashes

Essex Fertilizer Co., Boston, Mass.

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

Ford Motor Co., Dearborn, Michigan.

Ford Ammonium Sulfate

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

Frisbie's 3-10-6
 Frisbie's 5-8-7 (S)
 Frisbie's 5-10-5
 Frisbie's Corn & Grain Fertilizer 2-10-2
 Frisbie's Fine Bone Meal
 Frisbie's Market Garden 5-8-7
 Frisbie's Special 3-8-4
 Frisbie's Special Vegetable & Potato Grower 4-8-4
 Frisbie's Tobacco Grower 5-3-5
 Frisbie's Tobacco Grower 7-3-7
 Frisbie's Top Dresser 8-6-6

Registrations

Goulard & Olena, Inc., 140 Liberty St., New York City.

Acid Phosphate
G & O Ground Bone
G & O No-Filler Lawn & Garden
G & O Sheep Manure
J. B. Green's Formula

The Grasselli Chemical Co., Inc., Cleveland, Ohio.

DuGro (Grasselli Plant Food)

Humphreys-Godwin Co., Memphis, Tenn.

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

International Agricultural Corp., 38 Chauncy St., Boston, Mass.

Basic Slag
Caribee Lawn & Garden 5-8-7
Caribee Tobacco 7-6-5
Castor Pomace
Cottonseed Meal 41% Protein
Crop Grower 5-8-7
Multiple Strength 10-16-14
Nitrate of Potash
Sulfate of Ammonia
Superphosphate 0-16-0
Top Dresser 7-6-5
Top Dresser 8-6-6

Henry James & Son, Inc., 20 Stockbridge St., Springfield, Mass.

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

John Joynt, Lucknow, Ontario, Canada.

Joynt's Wood Ashes

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

Castor Pomace
Kellogg's 37% Protein Pure Old Process Linseed Meal

Koppers Products Co., Koppers Building, Pittsburgh, Pa.

Koppers Velvet Lawn
Sulfate of Ammonia (Commercial Grade)

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

"Lovit Brand" 41% Cottonseed Meal

Lowell Fertilizer Co., Boston, Mass.

Lowell Animal Brand A High Grade Manure For All Crops 3-8-4
Lowell Bone Fertilizer 2-10-2
Lowell Corn and Vegetable 4-8-4

Lowell Empress Brand 1-9-4
 Lowell Market Garden Manure 5-8-7
 Lowell Potato Grower 4-6-10
 Lowell Special Potato Fertilizer 5-7-10
 Lowell Tobacco Manure 5-3-5
 Lowell Top Dressing 7-6-5

Mardal Corporation, 370 Lexington Ave., New York City.
 Colloidal Phosphate

Mead Bros., Box 357, Cos Cob, Conn.
 Mead Bros. Tree & Shrub Food 10-3½-8

Millane Nurseries and Tree Experts Co. Inc., Cromwell, Conn.
 Millane Shade Tree Food

The Miller Fertilizer Co., Baltimore, Md.
 Harvest Brand 4-8-4 (Piedmont-Mt. Airy Guano Co., Inc.)
 Harvest Brand 5-8-7 (Piedmont-Mt. Airy Guano Co., Inc.)
 Miller's 2-12-4
 Miller's Crop Grower 5-8-7
 Miller's Onion & Vegetable 4-8-4
 Miller's Superphosphate 16%
 Miller's Top Dresser 8-6-6

Milwaukee Sewerage Commission, Milwaukee, Wisconsin.
 Milorganite

Natural Guano Co., Aurora, Ill.
 "Sheep's Head" Pulverized Sheep Manure

New England Fertilizer Co., Boston, Mass.
 New England Market Garden Manure 5-8-7
 New England Potato and Vegetable Manure 4-8-4
 New England Super A High Grade Fertilizer For All Crops 3-8-4

Nitrate Agencies Co., 104 Pearl St., New York City.
 Naco

N. V. Potash Export My., Inc., of Amsterdam, Holland, 19 West 44th St., New York City.
 Muriate of Potash
 Sulfate of Potash
 Sulfate of Potash Magnesia

Old Deerfield Fertilizer Co., Inc., So. Deerfield, Mass.
 Castor Pomace
 Cotton Hull Ashes
 Dry Ground Fish
 Old Deerfield 4-8-4

Registrations

Old Deerfield 5-3-5 (tobacco)
Old Deerfield 5-8-7
Old Deerfield 5-8-7 with sulfate of potash
Old Deerfield 6-8-12 (starter, bone & potash)
Old Deerfield 7-3-7 (tobacco)
Old Deerfield 8-6-6
Steamed Bone S & 50

Olds & Whipple, Inc., Hartford, Conn.

High Grade Carbonate of Potash 96/98
J. W. Alsop Inc. Special Tobacco Formula
O. & W. Blue Label Tobacco Fertilizer
O. & W. Castor Pomace
O. & W. Cotton Hull Ashes
O. & W. Complete Market Garden Fertilizer
O. & W. Complete Tobacco Fertilizer
O. & W. Dry Ground Fish
O. & W. Grass Fertilizer
O. & W. High Grade Potato & Vegetable Fertilizer
O. & W. High Grade Starter & Potash Compound
O. & W. High Grade Tobacco Starter
O. & W. Nitrate of Potash 95%
O. & W. Precipitated Bone Meal
O. & W. Pure Bone Meal
O. & W. Sulfate of Ammonia
O. & W. Superphosphate
O. & W. Tobacco Fertilizer
Wilcox Corn Special
Wilcox High Grade Fish & Potash
Wilcox Potato & Vegetable Phosphate
Wilcox Top Dresser

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

Groz-It Brand Pulverized Sheep Manure

Parmenter & Polsey Fertilizer Co., Boston, Mass.

"P&P" Maine Potato Fertilizer 4-6-10
Parmenter & Polsey Top Dressing 7-6-5

The Frank S. Platt Co., New Haven, Conn.

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

Premier Poultry Manure Co., 327 South LaSalle St., Chicago, Ill.

Premier Brand Pulverized Poultry Manure
Premier Brand Pulverized Sheep Manure

Pulverized Manure Co., Chicago, Ill.

Wizard Brand Cattle Manure
Wizard Brand Pulverized Sheep Manure

The Rogers & Hubbard Co., Portland, Conn.

4-8-4 Fertilizer
 5-8-7 Fertilizer
 8-6-6 Fertilizer
 Gro-Fast
 Gro-Fast Greens
 Hubbard's "Bone Base" Fertilizer for Seeding Down
 Hubbard's "Bone Base" Oats & Top Dressing
 Hubbard's "Bone Base" Soluble Corn & 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
 Rogers & Hubbard's All Soils All Crops Fertilizer
 Rogers & Hubbard's Climax Tobacco Brand
 Rogers & Hubbard's Corn & Grain Fertilizer
 Rogers & Hubbard's High Potash Fertilizer
 Rogers & Hubbard's Potato Fertilizer
 Rogers & Hubbard's Tobacco Grower Vegetable Formula
 Superphosphate

Ruhm Phosphate & Chemical Co., Mt. Pleasant, Tenn.

Ruhm's Lime Phosphate (Phosphate Rock, Washed & Ground)

F. Rynveld & Sons, 350 Greenwich St., New York City.

Rynveld's Bone Meal Fertilizer

William M. Sears Co., Stamford, Conn.

Fertil-field Green Lawn Food

M. L. Shoemaker & Co., Inc., Philadelphia, Pa.

"Swift-Sure" Bone Meal 3-50
 "Swift-Sure" Bone Meal 4½-47
 "Swift-Sure" Potato Special 5-8-7
 "Swift-Sure" Tobacco & Gen'l Use 3-10-3
 "Swift-Sure" Tobacco Starter 4-10-0

Springfield Rendering Co., Springfield, Mass.

Springfield 3-8-4 Fertilizer
 Springfield 4-8-4 Fertilizer
 Springfield 4-8-7 Fertilizer
 Springfield 5-8-7 Fertilizer
 Springfield 5-5-5 Lawn & Shrub Fertilizer
 Springfield 5-3-5 Tobacco Special
 Springfield 7-6-5 Top Dresser

Standard Wholesale Phosphate & Acid Works, Inc., Baltimore, Md.

Standard U. S. 3 x 10 x 3
 Standard U. S. 5 x 10 x 5
 Standard U. S. 8 x 6 x 6
 Standard U. S. Accomac Peninsula King
 Standard U. S. Big Four Crop Grower
 Standard U. S. Bone Meal

Registrations

Standard U. S. Champion Potato Grower
Standard U. S. Commercial Fertilizer
Standard U. S. Evergreen Fish Guano
Standard U. S. Fish
Standard U. S. Fish, Bone & Potash
Standard U. S. Grain Grower
Standard U. S. Golden Rule
Standard U. S. Jersey Special
Standard U. S. Jumbo Potato Grower
Standard U. S. Mammoth Potato Grower
Standard U. S. Mammoth Truck Grower
Standard U. S. Muriate of Potash
Standard U. S. Nitrate of Soda
Standard U. S. Rainbow Brand
Standard U. S. Royal Potato Grower
Standard U. S. Service Mixture
Standard U. S. Sulfate of Ammonia
Standard U. S. Sulfate of Potash
Standard U. S. 16% Superphosphate
Standard U. S. 18% Superphosphate
Standard U. S. 20% Superphosphate
Standard U. S. Tankage 4.94%
Standard U. S. Tankage 7.40%
Standard U. S. Tobacco Special
Standard U. S. Truckers Fish Guano

Summers Fertilizer Company, Inc., Baltimore, Md.

Summers' "Best on Earth" Ground Fish Scrap 11%
Summers' Genuine Venezuelan Goat Manure

Swift & Company, Court Square Building, Baltimore, Md.

Vigoro

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

Calcium Nitrate (Nitrate of Lime)
Cal-Nitro 16%
Calurea
Nitrophoska 10-20-20
Nitrophoska No. 1 (15-30-15)
Nitrophoska 16-16-16
Urea (Floranid-Urea)

Tennessee Corporation, Lockland, Cincinnati, Ohio.

Loma

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

Bone Tankage
Dried Ground Fish
7% Guano 7-6-5
I. P. Thomas 5-8-7
Long Island Special 4-8-7
Pure Ground Bone
16% Superphosphate
Tip Top Superphosphate 3-10-6
Truckers High Grade Guano 4-8-4

Tobacco By-Products & Chemical Corp., Louisville, Ky.

"Black Leaf Sterilized Ground Tobacco Stems"

Virginia-Carolina Chemical Corp., New York City.

Bloomaid
Fine Ground Bone
Muriate of Potash
Sheep Manure
V-C Aroostook Potato Grower
V-C Crescent Brand
V-C Fairway Fertilizer
V-C High Grade Potash Mixture
V-C National Brand
V-C Owl Brand Fertilizer
V-C Phospho-Tobacco Dairy Absorbent
V-C Rescue Brand
V-C Super Forty
V-C 16% Superphosphate
V-C 20% Superphosphate
V-C Tip-Top Top Dresser
V-C XXXX Fish & Potash

Walker-Gordon Farms, Juliustown, N. J.

Driconure

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

Chilean Nitrate of Soda

The Wilcox Fertilizer Co., Mystic, Conn.

Wilcox Dry Ground Fish

F. H. Woodruff & Sons, Milford, Conn.

Woodco Turfmaker Lawn Food

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

Woodruff's Home Mixed Fertilizer

Worcester Rendering Co., Auburn, Mass.

Corn & Grain Fertilizer 2-10-2
Market Garden Fertilizer 5-8-7
Potato & Vegetable Fertilizer 4-8-4
Prosperity Complete Dressing
Superior Top Dressing Fertilizer 8-6-6

INSPECTION OF 1931

The Station Agent has visited 87 towns and villages in the State and has drawn 436 official samples of fertilizer, including all the registered brands which could be found. The classification of these and of other samples analyzed is given in the summary.

CLASSIFICATION OF FERTILIZER MATERIALS, 1931

	No. of samples	Page
I. Containing Chiefly Nitrogen:		
Nitrate of soda	18	22
Calcium nitrate	18	22
Calurea	1	22
Urea	2	22
Ammonium sulfate	10	22
Castor pomace	51	22
Cottonseed meal	240	23
Cyanamid	1	22
Linseed Meal	13	23
Horn and Hoof Meal	2	23
II. Containing Chiefly Phosphoric Acid:		
Precipitated bone phosphate	10	28
Superphosphate	15	28
Basic Slag	1	28
III. Containing Chiefly Potash:		
Carbonate of potash	3	28
Muriate of potash	7	28
Sulfate of potash	5	28
Sulfate of potash and magnesia	1	28
Cottonhull ashes	89	33
Wood ashes	2	33
Kainit	1	28
Miscellaneous	18	28
IV. Containing Nitrogen and Potash:		
Nitrate of potash	4	33
Nitrate of potash and soda	2	33
Ground tobacco stems	2	33
Miscellaneous	14	33
V. Containing Nitrogen and Phosphoric Acid:		
Dry ground fish	66	36
Tankage	8	36
Ground bone	44	36
Milorganite	1	36
VI. Mixed Fertilizers:		
Containing nitrogen and phosphoric acid	3	41
Containing phosphoric acid and potash	1	41
Containing nitrogen, phosphoric acid and potash ..	235	41
Special and home mixtures	48	45
VII. Miscellaneous:		
Sheep Manure	17	64
Lime	22	64
Other miscellaneous	51	67
Check meals and fertilizers	42	67
Total	1051	

I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN.

NITRATE OF SODA

Nitrate of soda is commercial sodium nitrate containing not less than 15 per cent of nitrogen, chiefly as sodium nitrate. Natural deposits in Chili still supply this raw material, but it is also being made synthetically in large quantities both in the United States and in Europe from nitric acid and caustic soda or sodium carbonate. Synthetic nitrate of soda as made in the United States will contain about 16.25 percent of nitrogen.

The official samples analyzed contained over 15 percent of nitrogen and substantially met or exceeded guaranties. Nitrogen from this source, based on a very limited number of price quotations, has cost about 16 cents per pound.

Analyses are given in Table 1. Twelve unofficial samples are not included.

OTHER SOURCES OF NITROGEN

Other raw materials in this class are the synthetic products calcium nitrate (15% N), calurea (34% N), urea (46% N), and cyanamid. In calurea 80% of the nitrogen is in the form of urea and 20% is in the form of nitrate.

Analyses of official samples of these products are given in Table 1. Four samples submitted by purchasers are not included in the tabulation.

AMMONIUM SULFATE

This raw material may be made from by-product ammonia obtained in the manufacture of illuminating gas or from synthetic ammonia, gypsum and carbon dioxide. Arcadian sulfate of ammonia is a special grade, dried and screened to remove lumps and to secure good mechanical condition. Commercial grades will contain 20.5 percent of nitrogen. Nitrogen from this source has been valued at about 11 cents per pound this year.

Official samples analyzed are summarized in Table 2. All exceeded 20.5 percent of nitrogen.

CASTOR POMACE

When the oil is removed from castor beans the press cake is ground and becomes the castor pomace of the fertilizer trade. It is chiefly valuable as a source of nitrogen. Castor pomace contains an albuminous substance called ricin which is poisonous when introduced into the circulation. Although it is said not to be

toxic when eaten, instances of cattle poisoning are cited and it is generally recommended that it be stored where farm animals will not have access to it.

Fifty-one samples were examined, most of them submitted by purchasers. Analyses of official samples only are given in Table 3.

COTTONSEED MEAL

Analyses of nine official samples of cottonseed meal are given in Table 4. Two hundred and thirty-one samples tested for purchasers have been analyzed and the results reported to them and to the manufacturers.

LINSEED MEAL

No official samples of linseed meal were analyzed, but 13 samples were examined for purchasers.

HORN AND HOOF MEAL

This raw material made by processing, drying and grinding hoofs and horns contains from 10 to 15 per cent of nitrogen. No official samples were analyzed, but two samples were examined for purchasers.

TABLE 1. ANALYSES OF NITRATE OF SODA, ETC.

Sta. No.	Manufacturer or Jobber	Sampled from stock of	Per Cent nitrogen	
			Found	Guaranteed
Nitrate of Soda				
6571	American Agricultural Chemical Co., New York City..	Factory, West Haven.....	15.68	15.22
6551	Champion. Anglo-Chilean Nitrate Sales Corp., New York City	T. W. Ryan, Stratford.....	15.82	16.00
6615	Apothecaries Hall Co., Waterbury	Factory, East Windsor.....	15.98	15.21
6659	Associated Seed Growers, New Haven	Factory, Milford	16.04	15.00
6553	Arcadian. Barrett Co., New York City	Cheshire Reformatory, West Cheshire	16.12	16.00
7154	Standard Wholesale Phosphate & Acid Works, Baltimore, Md.	Philip De Bishop, West Cheshire	15.68	15.00
Calcium Nitrate (Nitrate of Lime)				
6925	Synthetic Nitrogen Products Corp., New York City....	A. E. Shedd, Norwich.....	15.04	15.00
Calurea				
6877	Eastern States Farmers' Exchange, Springfield, Mass.	Paul W. Caldwell, New Milford	33.51	34.00
Urea				
6878	Synthetic Nitrogen Products Corp., New York City....	Frank Clark, So. Britain....	46.16	46.00
7194	Synthetic Nitrogen Products Corp., New York City....	John M. Herr, East Hartford	46.00	46.00
Cyanamid				
6874	American Cyanamid Co., New York City.....	A. G. Brewer, Canaan.....	22.82	22.00

TABLE 2. ANALYSES OF SULFATE OF AMMONIA.

Station No.	Manufacturer or Jobber	Sampled from stock of	Per Cent nitrogen	
			Found	Guaranteed
6570	American Agricultural Chemical Co., New York City..	Factory, West Haven.....	20.50	20.56
6616	Apothecaries Hall Co., Waterbury, Conn.	Factory, East Windsor.....	20.94	20.58
6807	Arcadian Barrett Company, New York City.....	Knowles & Lombard, Guilford	20.80	20.56
7281	Barrett Co., New York City.	Edgar Seymour, Granby....	20.76	20.56
6556	Consolidated Rendering Co., Boston, Mass.	L. T. Frisbie Co., New Haven	20.82	20.50
7394	Eastern States Farmers' Exchange, Springfield, Mass.	Paul W. Caldwell, New Milford	20.82	20.50
7317	Ford Motor Co., Fordson, Mich.	O'Meara Motor Co., East Hartford	20.82	20.80
7313	International Agricultural Corp., Boston, Mass.....	Lester W. Lloyd, Suffield...	20.72	20.50
6577	Olds & Whipple, Inc., Hartford	Factory, East Hartford.....	20.74	20.58
6737	Standard Wholesale Phosphate & Acid Works, Baltimore, Md.	Julius Lewis, Southington..	20.64	20.56

TABLE 3. ANALYSES OF CASTOR POMACE

Station No.	Manufacturer or Jobber	Sampled from stock of	Per Cent nitrogen	
			Found	Guaranteed
6574	American Agricultural Chemical Co., New York City..	E. J. Bantle, Glastonbury...	4.92	4.52
6609	Apothecaries Hall Co., Waterbury	Factory, East Windsor.....	4.79	4.52
7161	Armour Fertilizer Works, New York City	James Caffrey, Cromwell...	4.93	4.52
7132	Baker Castor Oil Co., New York City	Olds & Whipple, Inc., Hartford	4.74	4.50
6565	Berkshire Chemical Co., Bridgeport	Factory, Bridgeport	4.84	4.31
6549	Consolidated Rendering Co., Boston, Mass.	T. W. Ryan, Stratford.....	5.02	4.52
7312	International Agricultural Corp., Boston, Mass.....	Lester W. Lloyd, Suffield...	4.82	4.53
6764	Spencer Kellogg & Sons, Buffalo, N. Y.....	H. H. McKnight, Ellington	4.72	4.52
6580	Olds & Whipple, Inc., Hartford	Factory, East Hartford.....	5.17	4.53

TABLE 4. ANALYSES OF COTTONSEED MEAL

Station Agent	Manufacturer or Jobber	Sampled from stock of	Per Cent nitrogen	
			Found	Guaranteed
6607	Apothecaries Hall Co., Waterbury	Factory, East Windsor.....	6.46	6.58
6575	Helmet. Ashcraft-Wilkinson Co., Atlanta, Ga.....	E. J. Bantle, Glastonbury...	6.68	6.58
7190	Helmet. Ashcraft-Wilkinson Co., Atlanta, Ga.....	John M. Herr, East Hartford	6.58	6.58
6563	Paramount. Ashcraft-Wilkinson Co., Atlanta, Ga.....	Geo. S. Phelps & Co., Thompsonville	6.28	5.76
7180	Dixie. Humphreys - Godwin Co., Memphis, Tenn.....	Tony Petrofski, Somers.....	6.64	6.58
6875	Bull. Humphreys-Godwin Co., Memphis, Tenn.....	Geo. T. Soule Co., New Milford	6.88	6.88
6558	Zenith. International Agricultural Corp., Boston, Mass.	Lester W. Lloyd, Suffield...	6.51	6.56
6792	Lovit. L. B. Lovitt & Co., Memphis, Tenn.	H. H. McKnight, Ellington.	7.02	6.56
7393	Lovit. L. B. Lovitt & Co., Memphis, Tenn.	Paul W. Caldwell, New Milford	6.91	6.56

II. RAW MATERIALS CHIEFLY VALUABLE FOR PHOSPHORIC ACID

Analyses of official samples of superphosphate are given in Table 5. One sample was examined for a purchaser.

Included in the same table are three official samples of precipitated bone phosphate and one of basic slag. Seven samples of precipitated bone examined for purchasers are not listed in the tabulation.

III. RAW MATERIALS CHIEFLY VALUABLE FOR POTASH

POTASH SALTS

Carbonate of potash in a pure, dry condition contains 68 percent of actual potash (K_2O) but commercial grades as sold for fertilizer purposes usually contain from 62 to 65 percent. Official samples examined this year contained from 64.5 to 67.2 percent. A fair valuation for potash from this source is 10 cents per pound.

Muriate of potash of fertilizer grade contains from 48 to 50 percent of actual potash. Seven samples examined exceeded 48 percent in all cases and generally exceeded 50 percent. Potash from this source has been valued at $4\frac{1}{2}$ cents per pound.

Sulfate of potash should contain not less than 48 percent of potash and not more than 2.5 percent of chlorine. Guaranties of 48 percent were exceeded in all the official samples analyzed. Chlorine varied from 1.87 to 2.54 percent. Potash in sulfate of potash has been valued at about 6 cents this year.

Sulfate of potash and magnesia is a fertilizer potash salt containing about 25 percent of potash. The one official sample analyzed was guaranteed 26 percent and was found to contain over 28 percent. The chlorine content was 2.09 percent. The limit of chlorine is the same as that for sulfate of potash, viz., 2.5 percent.

Kainit is a potash salt that has not been used so much in recent years as formerly. It is of variable composition and will usually contain from 12 to 16 percent of potash. It is supplied from German and French mines. The one official sample examined contained 14.02 percent of potash and was guaranteed 14 percent.

Analyses of official samples are given in Table 6. Samples submitted by purchasers, 18 in number, are not included in the tabulation.

TABLE 5. ANALYSES OF SUPERPHOSPHATE (ACID PHOSPHATE), ETC.

Station Agent	Manufacturer or Wholesale Dealer	Dealer or Purchaser	Phosphoric acid			
			Citrate insoluble	Total	Found	Guaranteed
			%	%	%	%
	Superphosphate					
6560	American Agricultural Chemical Co., New York City	Geo. S. Phelps & Co., Thompsonville.	0.45	16.76	16.31	16.00
6617	Apothecaries Hall Co., Waterbury.....	Factory, East Windsor.....	1.56	17.84	16.28	16.00
6916	Armour Fertilizer Works, New York City	J. D. Kelsey & Son, Madison.....	0.76	18.52	17.76	16.00
6658	Associated Seed Growers, Inc., New Haven	Factory, Milford	1.00	16.99	15.99	16.00
6572	Berkshire Chemical Co., Bridgeport.....	Knowles & Lombard, Guilford.....	1.05	17.32	16.27	16.00
6550	Consolidated Rendering Co., Boston, Mass.	T. W. Ryan, Stratford.....	0.14	16.83	16.69	16.00
6827	Eastern States Farmers' Exchange, Springfield, Mass.	A. G. Brewer, Canaan.....	1.63	17.63	16.00	16.00
6618	Gould & Olena, Inc., New York City..	Rackliffe Bros., New Britain.....	0.33	16.46	16.13	16.00
6554	International Agricultural Corp., Boston, Mass.	L. W. Lloyd, Suffield	0.04	16.30	16.26	16.00
6579	Olds & Whipple, Inc., Hartford.....	Factory, East Hartford	1.45	17.45	16.00	16.00
6552	The Rogers & Hubbard Co., Portland...	Factory, Portland	0.53	18.07	17.54	16.00

TABLE 5. ANALYSES OF SUPERPHOSPHATE (ACID PHOSPHATE), ETC.—*Concluded.*

Station No.	Manufacturer or Wholesale Dealer	Dealer or Purchaser	Phosphoric acid			
			Citrate insoluble	Total	"Available"	
					Found	Guaranteed
			%	%	%	%
Superphosphate						
7171	Standard Wholesale Phosphate & Acid Works, Baltimore, Md.	E. O. Chapman, North Haven	0.94	17.05	16.11	16.00
6599	I. P. Thomas & Son Co., Philadelphia, Pa.	H. D. Peters, Highwood	1.29	19.05	17.76	16.00
6919	Virginia-Carolina Chemical Co., New York City	Earl Bennett, Norwich	0.65	18.00	17.35	16.00
Precipitated Bone Phosphate						
6610	Apothecaries Hall Co., Waterbury	Factory, East Windsor	0.33	40.45	40.12	36.00
6766	Eastern States Farmers' Exchange, Springfield, Mass.	H. H. McKnight, Ellington	0.41	41.46	41.05	38.00
6576	Olds & Whipple, Inc., Hartford	Factory, East Hartford	0.70	43.40	42.70	38.00
Basic Slag						
7279	International Agricultural Corp., Boston, Mass.	Lester W. Lloyd, Suffield	....	17.27	15.16	14.40

TABLE 6. ANALYSES OF POTASH SALTS.

Station	Manufacturer or Jobber	Sampled from stock of	Potash	
			Found	Guaranteed
	Carbonate of Potash		%	%
6903	Apothecaries Hall Co., Waterbury	Factory, East Windsor.....	67.17	60.00
6567	Berkshire Chemical Co., Bridgeport	Factory, Bridgeport.....	64.46	60.00
7133	Olds & Whipple, Inc., Hartford	Factory, East Hartford.....	65.03	65.00
	Muriate of Potash			
6569	American Agricultural Chemical Co., New York City	Factory, West Haven.....	51.16	50.00
6613	Apothecaries Hall Co., Waterbury	Factory, East Windsor.....	51.33	50.00
7213	Eastern States Farmers Exchange, Springfield, Mass.	Paul W. Caldwell, New Milford	49.61	48.00
6546	N. V. Potash Export My. New York City.....	T. W. Ryan, Stratford.....	51.58	48.00
6663	N. V. Potash Export My. New York City.....	A. E. Shedd, Norwich.....	52.10	48.00
7174	Standard Wholesale Phosphate & Acid Works, Baltimore, Md.	Julius Lewis, Southington...	48.47	48.00
7129	Virginia-Carolina Chemical Co., New York City.....	Thomaston Supply Co., Thomaston	51.74	48.00
	Sulfate of Potash			
6561	American Agricultural Chemical Co., New York City..	Geo. S. Phelps & Co., Thompsonville	49.21	48.00
6611	Apothecaries Hall Co., Waterbury	Factory, East Windsor.....	49.38	48.00
6765	Eastern States Farmers' Exchange, Springfield, Mass..	H. H. McKnight, Ellington.	49.49	48.00
6598	N. V. Potash Export My. New York City.....	H. D. Peters, Highwood....	48.94	48.00
7175	Standard Wholesale Phosphate & Acid Works, Baltimore, Md.	Julius Lewis, Southington...	51.02	48.00

TABLE 6. ANALYSES OF POTASH SALTS.—*Concluded.*

Station No.	Manufacturer or Jobber	Sampled from stock of	Potash	
			Found	Guaranteed
	Sulfate of Potash and Magnesia		%	%
6612	Apothecaries Hall Co., Waterbury	Factory, East Windsor.....	28.32	26.00
	Kainit			
7165	Eastern States Farmers' Exchange	Julius Lewis, Southington...	14.02	14.00

COTTONHULL ASHES AND WOOD ASHES

Cottonhull ashes are used quite extensively in this State as a source of potash. Some of this material varies considerably in composition and it is often sold on a unit basis for that reason. When guaranties are made they are usually set at 20 to 25 percent of potash. One of the samples examined was very low grade.

So far as we have data on prices the cost per unit to purchasers has been from \$1.75 to \$2.25 per unit. At \$2.00 per unit the cost of potash is 10 cents per pound.

Analyses of official samples are given in Table 7. Samples submitted by purchasers, 83 in number, are not included in the tabulation.

No official samples of wood ashes have been analyzed but two samples submitted by purchasers were found to be of good quality. They contained 4.8 and 4.9 percent of potash with 30 to 40 percent of calcium oxide.

IV. RAW MATERIALS CHIEFLY VALUABLE
FOR NITROGEN AND POTASH

Nitrate of potash contains not less than 12 percent of nitrogen and 44 percent of potash (K_2O).

Some of the Chilean deposits of nitrate are mixtures of nitrate of soda and nitrate of potash. Commercial nitrate of soda-potash consists of about 3 parts nitrate of soda and one part of nitrate of potash and contains about 14 percent of nitrogen and 10 percent or more of potash.

Tobacco stems will supply about 150 pounds of plant food per ton and have been used for many years as a fertilizer material. The official samples examined this year contain from 1.5 to 3.0 percent of nitrogen and 5 to 5.5 percent of potash.

Official samples of materials in this group are listed in Table 8. Fourteen samples submitted by purchasers are not included in the tabulation.

TABLE 7. ANALYSES OF COTTONHULL ASHES

Station No.	Manufacturer or Wholesale Dealer	Sampled from stock of	Phosphoric acid	Potash
			%	%
6915	Berkshire Chemical Co., Bridgeport	S. J. Orr, West Suffield.....	....	11.83
6803	F. W. Brode Corp., Memphis, Tenn.	Apothecaries Hall Co., Wa- terbury	2.33	32.46
6906	Ed. Eggert, Hartford	Factory, Hartford	2.86	21.51
7128	Ed. Eggert, Hartford.....	Geo. A. Peckham, Suffield...	2.80	30.54
6581	Olds & Whipple, Inc., Hart- ford	Factory, East Hartford.....	1.10	21.80
7193	Olds & Whipple, Inc., Hart- ford	John M. Herr, East Hartford	1.79	22.23

TABLE 8. ANALYSES OF NITRATE OF POTASH, ETC.

Station No.	Manufacturer	Sampled from stock of	Nitrogen		Potash	
			Found	Guaranteed	Found	Guaranteed
			%	%	%	%
6763	Nitrate of Potash Eastern States Farmers' Exchange, Springfield, Mass.	H. H. McKnight, Ellington.....	13.00	13.00	45.32	44.00
6891	International Agricultural Corp., Boston, Mass.	Lester W. Lloyd, Suffield.....	13.32	13.16	45.91	44.00
6578	Olds & Whipple, Inc., Hartford.....	Factory, East Hartford.....	13.34	12.35	45.76	44.00
7195	Olds & Whipple, Inc., Hartford.....	John M. Herr, East Hartford.....	13.24	12.35	45.48	44.00
	Nitrate of Soda and Potash					
6614	Apothecaries Hall Co., Waterbury.....	Factory, East Windsor.....	14.40	14.80	14.19	10.00
7140	Berkshire Chemical Co., Bridgeport....	Factory, Bridgeport	14.50	14.80	13.29	12.00
	Ground Tobacco Stems					
6884	Black Leaf Sterilized Tobacco By-Prod- ucts & Chemical Corp., Louisville, Ky.	Julius Lewis, Southington	1.68	1.16	5.54	4.00
7196	Black Leaf Sterilized Tobacco By-Prod- ucts & Chemical Corp., Louisville, Ky.	John M. Herr, East Hartford.....	3.30	1.16	4.94	4.00

V. RAW MATERIALS CHIEFLY VALUABLE FOR
NITROGEN AND PHOSPHORIC ACID

FISH, TANKAGE, BONE, ETC.

Dry ground fish is a fertilizer material made from non-edible fish and the offal from fish canneries. It generally contains 8 percent or more of nitrogen and 5 to 6 percent of phosphoric acid.

None of the samples examined this year were found adulterated with inorganic nitrogen.

Analyses of official samples are found in Table 9. Analyses of 54 samples analyzed for purchasers are not included.

Tankage is a fertilizer material derived from refuse meat and bone. Where meat predominates this fertilizer will contain 8 to 10 percent of nitrogen with 5 to 10 percent of phosphoric acid. If bone predominates there will be more phosphoric acid present and less nitrogen. All of the official samples examined this year were of the high nitrogen order. Occasionally ammonium sulfate has been found in quantity to suggest adulteration, but no such evidence was found this year.

Analyses of official samples are given in Table 10.

Raw ground bone is made by drying and grinding animal bones that have not been previously steamed. Steamed bone meal is made by steaming bones under pressure, after which they are dried and ground. Steamed bone meal contains considerably less nitrogen than raw bone meal.

Analyses of official samples of ground bone are given in Table 11. In addition to these official samples, 28 samples of bone meal have been analyzed for purchasers and are not listed in the table.

Milorganite is an activated sludge and the analysis of an official sample showed 5.39 percent of nitrogen and 2.74 percent of phosphoric acid. There was 4.96 percent of organic nitrogen insoluble in water, 62 percent of which (3.08%) was active by laboratory methods. The material was guaranteed to contain 5 percent of nitrogen and 2.75 percent of phosphoric acid.

TABLE 9. ANALYSES OF DRY GROUND FISH

Station No.	Manufacturer or Wholesale Dealer	Sampled from stock of	Nitrogen		Ammonia equivalent to total nitrogen	Phosphoric acid		Station No.
			Total found	Total guaranteed		Total found	Total guaranteed	
			%	%	%	%	%	
6562	American Agricultural Chemical Co., New York City.....	Geo. S. Phelps & Co., Thompsonville.	8.42	8.23	10.24	8.97	6.00	6562
6606	Apothecaries Hall Co., Waterbury...	Factory, East Windsor.....	8.52	8.20	10.36	8.02	5.00	6606
6566	Berkshire Chemical Co., Bridgeport..	Factory, Bridgeport	8.14	8.22	9.90	6.07	6.00	6566
6601	Central Chemical Co., Bridgeport....	E. J. Bantle, Glastonbury.....	8.14	8.22	9.90	9.65	6.00	6601
6547	Consolidated Rendering Co., Boston, Mass.	T. W. Ryan, Stratford.....	9.67	8.22	11.76	8.07	6.40	6547
7282	Consolidated Rendering Co., Boston, Mass.	T. J. Coleman, Warehouse Point.....	9.42	8.22	11.45	8.47	6.40	7282
6905	Eastern States Farmers' Exchange, Springfield, Mass.	E. D. Woolam, Warehouse Point....	8.84	9.00	10.75	8.55	6.00	6905
7186	Eastern States Farmers' Exchange, Springfield, Mass.	Tobacco Station, Windsor.....	8.62	8.00	10.48	8.68	4.00	7186
6602	Olds & Whipple, Inc., Hartford.....	Factory, East Hartford.....	9.13	9.05	11.10	8.15	5.00	6602
7191	Olds & Whipple, Inc., Hartford.....	John M. Herr, East Hartford.....	9.65	9.05	11.73	7.54	5.00	7191
6597	I. P. Thomas & Son Co., Philadelphia, Pa.	H. D. Peters, Highwood.....	9.36	8.20	11.38	8.04	7.00	6597
7216	Wilcox Fertilizer Co., Mystic.....	Factory, Mystic	9.22	8.23	11.21	6.16	6.00	7216

Dry Ground Fish

TABLE 10. ANALYSES OF TANKAGE, ETC.

Station No.	Manufacturer	Sampled from stock of	Nitrogen		Ammonia equivalent to total nitrogen	Phosphoric acid		Mechanical analysis			Station No.
			Total found	Total guaranteed		Total found	Total guaranteed	Finer than 1.50 inch	Coarser than 1.50 inch	%	
6662	Apothecaries Hall Co., Waterbury.	J. B. McArdle, Greenwich.....	8.02	7.40	9.75	7.61	3.00	41.0	59.0	%	6662
6882	Apothecaries Hall Co., Waterbury.	J. A. Glasnap, West Cheshire.....	3.75	3.29	4.56	23.22	20.00	51.0	49.0	%	6882
6559	Conn. Fat Rendering & Fertilizer Corp., West Haven.....	Factory, West Haven.....	4.14	...	5.03	21.21	25.00	44.0	56.0	%	6559
6548	Consolidated Rendering Co., Boston, Mass.	T. W. Ryan, Stratford.....	7.75	7.41	9.42	11.89	9.15	38.5	61.5	%	6548
6555	Consolidated Rendering Co., Boston, Mass.	L. T. Frisbie Co., New Haven.....	5.36	4.92	6.52	16.14	14.00	44.5	55.5	%	6555
6729	Eastern States Farmers' Exchange, Springfield, Mass.	Julius Lewis, Southington.....	7.28	7.50	8.85	8.38	9.20	47.0	53.0	%	6729
7155	Standard Wholesale Phosphate & Acid Works, Baltimore, Md....	Philip De Bishop, West Cheshire...	5.13	4.94	6.24	14.20	13.73	38.0	62.0	%	7155
6596	I. P. Thomas & Son Co., Philadelphia, Pa.	H. D. Peters, Highwood.....	5.29	4.90	6.43	9.62	9.15	44.5	55.5	%	6596

TABLE 11. ANALYSES OF GROUND BONE.

Station No.	Manufacturer	Sampled from stock of	Nitrogen		Ammonia equivalent to total nitrogen	Phosphoric acid		Mechanical analysis			Station No.
			Total found	Total guaranteed		Total found	Total guaranteed	Finer than 1.50 inch	Coarser than 1.50 inch	%	
6605	American Agricultural Chemical Co., New York City.....	F. S. Bidwell Co., Windsor Locks..	2.88	2.47	3.50	29.42	22.88	51.0	49.0	6605	
6661	Apothecaries Hall Co., Waterbury.	J. B. McArdle, Greenwich.....	3.93	3.29	4.78	19.22	20.00	53.5	46.5	6661	
6728	Apothecaries Hall Co., Waterbury.	R. W. Hine, Cheshire.....	2.87	2.46	3.49	25.63	22.00	59.0	41.0	6728	
6813	Armour Fertilizer Works, New York City.....	F. C. Benjamin, Danbury.....	3.00	2.47	3.65	23.08	22.00	70.0	30.0	6813	
6564	Berkshire Chemical Co., Bridgeport.....	Factory, Bridgeport.....	1.92	2.47	2.33	27.73	20.00	55.0	45.0	6564	
6557	Consolidated Rendering Co., Boston, Mass.....	L. T. Frisbie Co., New Haven.....	3.64	2.05	4.43	25.72	22.90	45.0	55.0	6557	
6573	Consolidated Rendering Co., Boston, Mass.....	Comstock-Ferre & Co., Wethersfield	3.52	2.05	4.28	23.08	22.90	44.5	55.5	6573	
6917	Consolidated By-Products Co., Philadelphia, Pa.....	H. L. Reynolds Co., Hamburg.....	1.70	1.00	2.07	29.72	28.00	83.0	17.0	6917	

TABLE 11. ANALYSES OF GROUND BONE—Concluded.

Station No.	Manufacturer	Sampled from stock of	Nitrogen		Ammonia equivalent to total nitrogen	Phosphoric acid		Mechanical analysis		Station No.
			Total found	Total guaranteed		Total found	Total guaranteed	Finer than 1.50 inch	Coarser than 1.50 inch	
6568	L. T. Frisbie Co., New Haven.....	Frank S. Platt Co., New Haven.....	4.04	3.28	4.91	24.00	22.00	39.0	61.0	6568
6619	Goulard & Olena, Inc., New York City.....	Rackliffe Bros., New Britain.....	3.25	2.46	3.95	20.32	22.85	57.0	43.0	6619
7189	Olds & Whipple, Inc., Hartford...	Factory, East Hartford.....	3.04	2.50	3.70	22.01	22.00	57.0	43.0	7189
6603	The Rogers & Hubbard Co., Portland.....	Cadwell & Jones, Hartford.....	3.71	3.29	4.51	24.40	20.50	36.0	64.0	6603
6604	The Rogers & Hubbard Co., Portland.....	Cadwell & Jones, Hartford.....	3.74	3.69	4.55	26.70	24.70	71.5	28.5	6604
7142	M. L. Shoemaker & Co., Philadelphia, Pa.....	E. J. Bantle, Glastonbury.....	2.70	2.47	3.28	26.61	22.88	48.0	52.0	7142
7145	M. L. Shoemaker & Co., Philadelphia, Pa.....	Geo. T. Soule Co., New Milford....	3.82	3.69	4.64	23.00	21.51	41.0	59.0	7145
6600	I. P. Thomas & Son Co., Philadelphia, Pa.....	H. D. Peters, Highwood.....	2.76	2.45	3.36	23.85	23.00	62.0	38.0	6600

VI. MIXED FERTILIZERS

SUPPLYING NITROGEN AND PHOSPHORIC ACID

Three official samples of mixtures supplying only nitrogen and phosphoric acid were examined.

6730. Ammo-Phos A made by the American Cyanamid Co., New York. It was guaranteed 11 percent nitrogen and 46 percent available phosphoric acid and contained 11.10 percent nitrogen and 48.81 percent of available phosphoric acid.

7316. O. & W. Tobacco Starter, made by Olds & Whipple, Inc., Hartford. This mixture was guaranteed 8.23 percent nitrogen and 3 percent available phosphoric acid and contained 8.50 and 4.31 percent of these elements respectively.

7141. Swift-Sure Tobacco Starter, made by M. L. Shoemaker and Co., Philadelphia, Pa., was guaranteed 3.28 percent of nitrogen and 10 percent of available phosphoric acid, and 3.21 percent and 10.65 percent of these elements respectively were found.

SUPPLYING PHOSPHORIC ACID AND POTASH

One official sample of a mixture supplying only available phosphoric acid and potash was analyzed.

6738. Eastern States 0-14-6, made by Eastern States Farmers' Exchange, Springfield, Mass., was guaranteed to contain 14 percent of available phosphoric acid and 6 percent of potash and contained 14.01 percent of available phosphoric acid and 6.28 percent of potash.

SUPPLYING NITROGEN, PHOSPHORIC ACID AND POTASH

(Analyses are given in Table 12.)

In this group are 235 official samples of registered brands. The results of the inspection and analyses are briefly summarized in the following tabulated statement:

Total number of samples analyzed		235
Samples considerably deficient in		
one item	53	
two items	8	
three items	0	61
Total items of plant food guaranteed (235 x 3)		705
Total items found deficient:		
nitrogen	29	
available phosphoric acid	18	
potash	22	69
Total guaranties substantially met or exceeded		636
Per cent of guaranties substantially met or exceeded		90
Samples showing approximate commercial deficiencies exceeding \$1.00 per ton		7
Per cent of samples deficient by more than \$1.00		3

This summary shows that of 705 individual guaranties of plant food in official samples analyzed, 636, or 90 percent, were substantially met or exceeded.

In only 7 samples did the commercial valuations of deficiencies exceed \$1.00 per ton. This is a little less than 3 percent of the total samples analyzed.

In estimating commercial values in mixed fertilizers ammonia was reckoned at 18 cents per pound and available phosphoric acid and potash at 5 cents per pound each.

The distribution of chemical deficiencies is given in Table 12a.

TABLE 12a. SUMMARY OF CHEMICAL DEFICIENCIES

	of picks	of nities	Deficiencies in			Per cent of guaran- tees met
			Nitrogen Avail.	P ₂ O ₅	Potash	
American Agricultural Chemical Co...	35	105	3	0	7	90
American Cyanamid Co.	4	12	1	1	1	75
Apothecaries Hall Co.	13	39	0	1	0	97
Armour Fertilizer Works	13	39	2	1	1	90
Associated Seed Growers, Inc.	3	9	0	0	0	100
Bartlett, F. A., Tree Expert Co....	1	3	0	0	0	100
Berkshire Chemical Co.	10	30	0	0	1	97
Bridge's, A. D., Sons	2	6	0	0	0	100
Central Chemical Co.	9	27	1	0	0	96
Davey Tree Expert Co.	2	6	1	0	0	83
Eastern States Farmers' Exchange...	14	42	3	3	2	81
Essex Fertilizer Co.	5	15	1	1	1	80
Frisbie, L. T., Co.	10	30	1	1	1	90
Goulard and Olena, Inc.	2	6	0	1	0	83
Grasselli Chemical Co.	1	3	1	0	1	33
International Agricultural Corp.	4	12	1	0	0	92
James, Henry, and Son	2	6	1	0	0	83
Lowell Fertilizer Co.	10	30	2	2	0	87
Millane Nurseries and Tree Experts Co.	1	3	0	0	0	100
Miller Fertilizer Co.	3	9	0	2	0	78
New England Fertilizer Co....	3	9	1	0	0	89
Old Deerfield Fertilizer Co....	7	21	0	0	0	100
Olds and Whipple, Inc.	12	36	0	0	0	100
Parmenter and Polsey Co.	2	6	0	0	0	100
Piedmont-Mt. Airy Guano Co., Inc....	2	6	1	0	1	67
Platt, Frank S., Co.	2	6	0	0	0	100
Rogers and Hubbard Co., The....	19	57	0	1	1	96
Sears, W. M., Co....	1	3	0	0	0	100
Shoemaker, M. L., and Co....	2	6	0	0	0	100
Springfield Rendering Co.	3	9	1	0	0	89
Standard Wholesale Phosphate and Acid Works	14	42	4	2	2	81
Swift and Co.	1	3	0	0	0	100
Synthetic Nitrogen Products Corp....	3	9	0	0	0	100
Tennessee Corp.	1	3	0	0	0	100
Thomas, I. P., and Son Co.	5	15	1	1	1	80
Virginia-Carolina Chemical Co....	7	21	1	0	2	86
Woodruff, F. H., and Sons	1	3	0	0	0	100
Woodruff, S. D., and Sons	1	3	0	1	0	67
Worcester Rendering Co.	5	15	2	0	0	87
Totals	235	705	29	18	22	90

SAMPLES SHOWING COMMERCIAL DEFICIENCIES

Samples showing commercial deficiencies in excess of \$1.00 per ton, estimated as already described, are as follows:

6717	Davey Tree Food	\$2.18
6741	E. S. 8-16-16	1.38
7214	E. S. 10-5-10	1.88
7452	E. S. 10-5-10	8.29
6653	Lowell Top Dressing 7-6-5.....	1.23
6913	New England Market Garden Manure 5-8-7.....	2.08
7176	Standard Wholesale Phosphate and Acid Works, Jumbo Potato Grower	1.04

COMMERCIAL DEFICIENCIES, 11 YEAR PERIOD

Commercial deficiencies for a period of 11 years are summarized in Table 12b. Manufacturers not having 10 or more samples analyzed in the 11 year period are not included. Commercial deficiencies each year are reckoned by balancing shortages against overruns in plant food, using accepted trade values, and disregarding net shortages of \$1.00 or less per ton. In the accompanying table it appears that, for the manufacturers listed, 94 percent of all the samples examined in 11 years have shown no commercial deficiencies, or none in excess of \$1.00 per ton.

TABLE 12b. COMMERCIAL DEFICIENCIES FOR THE PERIOD 1921-1931

Manufacturer	Total number of samples	Number equaling or exceeding guarantees in money value	Per cent for 11 yr. period	No. of samples for 1931	Per cent for 1931
American Agricultural Chemical Co.	464	447	96	35	100
Apothecaries Hall Co.	115	114	99	13	100
Armour Fertilizer Works	120	101	84	13	100
Berkshire Chemical Co.	100	100	100	10	100
Bridge's, A. D., Sons Co.	23	23	100	2	100
Eastern States Farmers' Exchange	117	99	85	14	79
Essex Fertilizer Co.	69	66	96	5	100
Frisbie, L. T., Co.	108	98	91	10	100
International Agricultural Corp.	69	63	91	4	100
Lowell Fertilizer Co.	108	97	90	10	90
Mapes Formula and Peruvian Guano Co.	129	128	99 ¹	0	...
New England Fertilizer Co.	77	73	95	3	33
Olds and Whipple, Inc.	79	79	100	12	100
Parmenter and Poley	33	32	97	2	100
Platt, Frank S., Co.	14	13	93	2	100
Rogers and Hubbard Co., The	170	165	97	19	100
Royster, F. S., Guano Co.	67	54	81 ²	0	...
Shoemaker, M. L., and Co.	29	29	100	2	100
Springfield Rendering Co.	43	41	95	3	100
Standard Wholesale Phosphate and Acid Works	42	39	93 ²	14	93
Thomas, I. P., and Son Co.	54	54	100	5	100
Virginia-Carolina Chemical Co.	70	66	94	7	100
Worcester Rendering Co.	48	44	92	5	100
	<u>2148</u>	<u>2025</u>	<u>94</u>	<u>190</u>	<u>97</u>

SPECIAL AND HOME MIXTURES

These samples, 48 in number, are chiefly tobacco fertilizer mixed according to special formulas and submitted by the purchasers for analysis. A few home mixtures are also included. In all such cases the analyses have been reported by the Station to the purchaser, and to the mixer if known. Special mixtures are made from registered raw materials but the mixtures themselves are not sold under brand names.

The analytical data on these samples are not tabulated.

¹ No samples for 1931.

² No samples for 1930 or 1931.

³ For four years.

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
American Agricultural Chemical Co., New York City			
7220	AA Double Strength Tobacco Fertilizer.....	10-6-10	Ellington
6762	AA Top Dresser	8-6-6	Bloomfield
6820	AAC Aroostook Potato Manure.....	5-8-7	New Haven
6701	AAC Complete General Fertilizer.....	3-8-4	Windsor Locks ..
7249	AAC Double A Tobacco Fertilizer.....	5-3-5	East Granby
6712	AAC General Crop Fertilizer.....	2-9-3	So. Norwalk
6700	AAC Grass and Lawn Top Dressing.....	6-6-4	Windsor Locks ..
7251	AAC Hi-Grade Tobacco Manure.....	7-3-7	No. Granby.....
6914	AAC Monarch Fertilizer	4-8-4	Bloomfield
6713	AAC Peerless Potato Manure.....	4-8-7	So. Norwalk
7263	AAC Peerless Potato Manure.....	4-8-7	So. Norwalk
6826	AAC Prolific 10% Potash Fertilizer.....	2-8-10	Canaan
6673	AAC Tobacco Starter Fertilizer.....	3-7-16	Thompsonville ..
7217	Agrico	6.08-9-6	Norwich
6759	Agrico for Aroostook	6-8-7	Simsbury
6727	Agrico for Corn.....	3-10-6	Danbury
6747	Agrico for New England.....	4-8-10	New Britain
6725	Agrico Fertilizer for Trees and Shrubs.....	8-6-6	New Canaan
7266	Agrico Fertilizer for Trees and Shrubs.....	8-6-6	New Canaan
6714	Agrico for Truck	5-10-5	So. Norwalk
6674	Bowker's All Round Fertilizer.....	3-8-4	Thompsonville ..
6723	Bowker's Market Garden Fertilizer.....	4-8-4	New Canaan
6724	Bowker's Stockbridge Early Crop Manure....	5-8-7	New Canaan
6708	Bowker's Stockbridge Hill and Drill Fertilizer	4-8-7	Bristol
6934	Bowker's Stockbridge Tobacco Manure.....	5-3-5	Thompsonville ..
6795	Bradley's Blood, Bone and Potash.....	5-8-7	Lebanon
7261	Bradley's Complete Tobacco Manure.....	5-3-5	Glastonbury
6702	Bradley's Northland Potato Grower.....	4-8-4	Windsor Locks ..
6655	Bradley's Potato Manure.....	3-8-4	Suffield
6667	Bradley's XL Superphosphate of Lime.....	3-10-4	Suffield
7135	National Complete Tobacco Fertilizer.....	5-3-5	Ellington
7252	Sanderson's Complete Tobacco Grower.....	5-3-5	Windsor Locks..
6825	Sanderson's Corn Superphosphate	2-9-3	Canaan
6911	Sanderson's Formula A.....	4-8-4	Guilford
6935	Sanderson's Formula B.....	4-8-7	Thompsonville ..
American Cyanamid Co., New York City			
6823	Ammo-Phos-Ko No. 1.....	14.5-24-12	Thomaston
6829	Ammo-Phos-Ko No. 2A.....	11-18-18	Canaan
6872	Ammo-Phos-Ko No. 3.....	12-30-10	Canaan
7212	Ammo-Phos-Ko No. 4.....	14.5-16-12	New Milford

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH

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	
%	%	%	%	%	%	%	%	%	%	%	
0.86	5.56	0.76	0.33	7.51	9.13	1.28	8.61	7.33	0.94	9.50	7220
0.70	5.16	0.06	0.70	6.62	8.05	0.54	6.80	6.26	6.49	6.49	6762
0.44	2.96	0.44	0.36	4.20	5.11	0.60	8.70	8.10	6.79	6.79	6820
0.00	2.08	0.22	0.24	2.54	3.09	0.61	9.10	8.49	4.02	4.02	6701
0.49	1.04	0.34	2.21	4.08	4.96	0.19	3.74	3.55	0.47	4.87	7249
0.34	0.84	0.17	0.35	1.70	2.07	0.92	10.24	9.32	2.98	2.98	6712
0.42	4.00	0.22	0.26	4.90	5.96	0.40	7.05	6.65	4.25	4.25	6700
0.62	1.24	0.34	3.56	5.76	7.00	0.26	3.70	3.44	0.51	7.07	7251
0.38	2.44	0.20	0.38	3.40	4.13	0.56	8.75	8.19	4.22	4.22	6914
0.23	2.32	0.28	0.44	3.27	3.98	0.64	8.74	8.10	6.78	6.78	6713
0.15	2.16	0.64	0.46	3.41	4.14	0.64	9.07	8.43	6.90	6.90	7263
0.00	1.40	0.12	0.14	1.66	2.02	0.82	9.09	8.27	9.77	9.77	6826
0.00	2.00	0.21	0.43	2.64	3.21	0.53	8.33	7.80	1.50	15.66	6673
0.34	4.34	0.12	0.22	5.02	6.10	1.31	10.64	9.33	0.51	6.07	7217
0.48	3.78	0.38	0.34	4.98	6.05	0.71	9.09	8.38	6.80	6.80	6759
0.00	2.08	0.26	0.25	2.59	3.15	0.63	10.94	10.31	6.12	6.12	6727
0.32	2.76	0.14	0.25	3.47	4.22	0.65	9.14	8.49	9.69	9.69	6747
0.80	4.90	0.00	0.50	6.20	7.54	0.47	6.96	6.49	6.34	6.34	6725
0.15	4.76	0.77	0.72	6.40	7.78	0.43	7.21	6.78	6.20	6.20	7266
0.36	3.00	0.42	0.33	4.11	5.00	0.75	10.86	10.11	5.05	5.05	6714
0.00	1.92	0.30	0.28	2.50	3.04	0.80	8.93	8.13	4.07	4.07	6674
0.40	2.34	0.12	0.55	3.41	4.14	0.69	8.85	8.16	4.50	4.50	6723
0.38	3.16	0.22	0.32	4.08	4.96	0.48	8.79	8.31	6.82	6.82	6724
0.31	2.26	0.30	0.46	3.33	4.05	0.64	8.88	8.24	7.02	7.02	6708
0.54	1.32	0.32	2.22	4.40	5.35	0.26	4.17	3.91	0.38	4.91	6934
0.30	3.18	0.28	0.28	4.04	4.91	0.69	8.65	7.96	6.94	6.94	6795
0.44	1.04	0.40	2.24	4.12	5.01	0.19	3.51	3.32	0.23	5.23	7261
0.27	2.36	0.28	0.54	3.45	4.19	0.84	9.03	8.19	4.62	4.62	6702
0.03	2.04	0.18	0.22	2.47	3.00	0.65	9.03	8.38	4.00	4.00	6655
0.00	2.00	0.27	0.22	2.49	3.03	0.55	10.50	9.95	4.12	4.12	6667
0.80	1.00	0.40	2.07	4.27	5.19	0.15	3.45	3.30	0.47	4.87	7135
0.52	1.16	0.14	2.20	4.02	4.89	0.20	3.73	3.53	0.43	5.16	7252
0.11	0.88	0.40	0.35	1.74	2.11	1.01	10.27	9.26	3.00	3.00	6825
0.43	2.46	0.10	0.45	3.44	4.18	0.77	9.43	8.66	4.34	4.34	6911
0.48	2.48	0.20	0.34	3.50	4.26	0.87	9.51	8.64	0.77	6.76	6935
0.00	12.28	0.08	0.25	12.61	15.33	0.49	25.52	25.03	11.76	11.76	6823
0.00	8.96	0.00	0.07	9.03	10.98	1.71	19.25	17.54	19.68	19.68	6829
0.22	9.54	0.14	0.26	10.16	12.35	1.01	33.20	32.19	11.43	11.43	6872
0.00	11.60	0.04	0.16	11.80	14.35	0.99	17.00	16.01	13.64	13.64	7212

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
Apothecaries Hall Co., Waterbury, Conn.			
6901	Liberty Fertilizer 8-16-8	8-16-8	East Windsor ..
6926	Liberty Corn and All Crops 2-8-2.....	2-8-2	Jewett City
6720	Liberty Corn, Fruit and All Crops 2-12-4.....	2-12-4	Greenwich
7315	Liberty Fish, Bone and Potash 3-8-3.....	3-8-3	Rockville
6721	Liberty High Grade Market Gardener's 5-8-7.	5-8-7	Greenwich
7287	Liberty High Grade Tobacco Manure 7-3-7..	7-3-7	Thompsonville ..
6904	Liberty Onion Special (Potash as Sulphate) 4-8-7	4-8-7	East Windsor ..
6797	Liberty Potato and General Crop 4-8-10.....	4-8-10	Norwich
6722	Liberty Potato and Market Gardener's Special 4-8-4	4-8-4	Greenwich
6902	Liberty Special Fertilizer for Fruit, 7-8-6.....	7-8-6	East Windsor ..
7259	Liberty Tobacco Special (C. S. Meal Base) 5-3-5	5-3-5	Windsor
6900	Liberty Tobacco Starter.....	5-4-14	East Windsor ..
6796	Liberty Top Dresser for Grass and Grain 10-3-5-8	10-3-5-8	Norwich
Armour Fertilizer Works, New York City			
7146	Armour's Big Crop Fertilizer 2-12-4.....	2-12-4	Wethersfield ...
6814	Armour's Big Crop Fertilizer 3-8-4.....	3-8-4	Danbury
7150	Armour's Big Crop Fertilizer 4-6-10.....	4-6-10	Seymour
6742	Armour's Big Crop Fertilizer 4-8-4.....	4-8-4	Plainville
7162	Armour's Big Crop 4-16-4.....	4-16-4	Portland
7151	Armour's Big Crop Tobacco Special 5-3-5.....	5-3-5	Enfield
7331	Armour's Big Crop Tobacco Special 5-3-5.....	5-3-5	Enfield
6812	Armour's Big Crop Fertilizer 5-8-7.....	5-8-7	Danbury
7163	Armour's Big Crop 7-11-10.....	7-11-10	Portland
7164	Armour's Big Crop Fertilizer 8-6-6.....	8-6-6	Portland
7147	Armour's Big Crop Fertilizer 10-16-14.....	10-16-14	Madison
7148	Armour's Special Turf Fertilizer.....	12.16-8-6	Madison
7187	Vert	6.08-8-6	Hartford
Associated Seed Growers, Inc., New Haven, Conn.			
6710	Special Mixture for General Use.....	4-8-4	Milford
7137	Special Mixture with 6% Potash.....	4-8-6	Milford
6711	Tip Top Brand	5-8-7	Milford
F. A. Bartlett Tree Expert Co., Stamford, Conn.			
6715	Bartlett Green Tree Food.....	6-8-4	Stamford

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	
%	%	%	%	%	%	%	%	%	%	%	
1.16	3.60	0.20	1.83	6.79	8.26	0.27	16.11	15.84	8.86	8.86	6901
0.13	1.24	0.18	0.60	2.15	2.61	0.68	8.40	7.72	2.36	2.36	6926
0.00	1.92	0.26	0.17	2.35	2.86	0.68	12.82	12.14	4.24	4.24	6720
0.34	1.60	0.28	0.74	2.96	3.60	0.88	8.83	7.95	2.93	2.93	7315
0.86	2.88	0.40	0.19	4.33	5.26	0.69	8.94	8.25	7.23	7.23	6721
1.37	0.14	0.64	3.89	6.04	7.34	0.16	4.94	4.78	0.84	7.28	7287
0.59	2.04	0.34	0.81	3.78	4.60	4.26	13.45	9.19	0.80	7.27	6904
0.76	2.04	0.36	0.14	3.30	4.01	0.85	8.71	7.86	10.02	10.02	6797
0.00	2.34	0.37	0.99	3.70	4.50	0.64	9.34	8.70	4.17	4.17	6722
3.03	2.10	0.22	0.47	5.82	7.08	0.55	8.75	8.20	6.04	6.04	6902
0.90	0.08	0.38	2.99	4.35	5.29	0.20	5.02	4.82	0.78	6.43	7259
1.23	0.12	0.50	2.16	4.01	4.88	0.34	5.84	5.50	1.78	16.46	6900
0.00	7.00	0.04	1.50	8.54	10.38	0.02	4.10	4.08	9.71	9.71	6796
0.00	1.44	0.12	0.10	1.66	2.02	0.63	12.20	11.57	4.11	4.11	7146
0.00	2.20	0.07	0.33	2.60	3.16	0.43	8.80	8.37	4.10	4.10	6814
0.11	3.04	0.00	0.10	3.25	3.95	0.34	7.20	6.86	9.55	9.55	7150
0.00	3.04	0.02	0.07	3.13	3.81	0.34	8.92	8.58	4.09	4.09	6742
0.15	2.76	0.16	0.08	3.15	3.83	0.95	17.09	16.14	4.56	4.56	7162
1.74	0.12	0.30	2.26	4.42	5.37	0.16	3.55	3.39	0.62	5.16	7151
1.54	0.10	0.30	2.36	4.30	5.23	0.25	3.61	3.36	0.58	5.17	7331
0.60	2.68	0.20	0.64	4.12	5.01	0.33	8.13	7.80	7.21	7.21	6812
0.27	5.32	0.05	0.10	5.74	6.98	0.47	11.75	11.28	10.06	10.06	7163
0.42	6.00	0.14	0.13	6.69	8.13	0.19	7.24	7.05	6.12	6.12	7164
0.93	7.10	0.06	0.13	8.22	9.99	0.20	16.18	15.98	14.33	14.33	7147
0.18	9.70	0.19	0.07	10.14	12.33	0.25	8.58	8.33	3.58	6.10	7148
0.16	4.92	0.00	0.16	5.24	6.37	6.24	15.68	9.44	4.32	6.70	7187
0.00	2.20	0.47	0.61	3.28	3.99	0.63	8.65	8.02	4.67	4.67	6710
0.12	2.16	0.56	0.48	3.32	4.04	0.87	9.17	8.30	6.12	6.12	7137
0.00	2.84	0.43	0.79	4.06	4.94	0.66	8.95	8.29	7.24	7.24	6711
0.00	4.28	0.09	0.97	5.34	6.49	2.93	11.05	8.12	4.69	4.69	6715

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
Berkshire Chemical Co., Bridgeport, Conn.			
6726	Berkshire Complete Fertilizer	2-12-2	Ridgefield
6889	Berkshire Complete Tobacco Fertilizer	5-3-5	Suffield
6871	Berkshire Economical Grass Fertilizer	10-3-8	Seymour
7448	Berkshire Grass Special Fertilizer	7-6-5	Seymour
7139	Berkshire High Grade Tobacco Fertilizer	6-3-6	Bridgeport
6575	Berkshire Long Island Special Fertilizer	5-8-7	Highwood
6676	Berkshire Market Garden Fertilizer	4-8-4	Highwood
6888	Berkshire Tobacco Special Fertilizer	7-3-7	Granby
6890	Berkshire Tobacco Starter Fertilizer	5-4-15	Suffield
7138	Berkshire Truck Fertilizer	5-8-5	Brooklyn
Amos D. Bridge's Sons, Inc., Hazardville, Conn.			
6899	Corn, Onion, Potato and General Purpose...	4-8-4	Hazardville
7131	Special Tobacco Fertilizer	5-3-5	Hazardville
Central Chemical Co., Bridgeport, Conn.			
6679	Gro-All 5-10-5	5-10-5	Milford
7449	Gro-All Garden Brand	3-8-4	Waterbury
6748	Gro-All High Grade Potato	5-8-7	Tolland
7450	Gro-All High Grade Potato and Onion	5-8-7	Silver Lane
7447	Gro-All Onion Brand Potash from Sulphate..	4-8-4	Tolland
7248	Gro-All Potato Special	4-8-4	Somers
7267	Gro-All Tobacco Special	5-4-5	Suffield
7451	Gro-All Tobacco Starter	4-6-10	Suffield
7188	Gro-All Wrapper Brand	6.5-3-7	Glastonbury
Davey Tree Expert Co., Kent, Ohio			
6717	Davey Tree Food	12.16-3-3	Sound Beach ...
7264	Davey Tree Food	12.16-3-3	Sound Beach ...
Eastern States Farmers' Exchange, Springfield, Mass.¹			
7134	E. S. 2-12-6	2-12-6	Ellington
6740	E. S. 4-8-8	4-8-8	Southington
6873	E. S. 4-10-6	4-10-6	Canaan
6739	E. S. 4-12-4	4-12-4	Southington
7283	E. S. 4-16-20	4-16-20	Cromwell
6816	E. S. 6-8-6	6-8-6	Meriden

¹ First figure in "grade" column represents "nitrogen," not ammonia.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued

Nitrogen					Ammonia equivalent to total nitrogen	Phosphoric acid			Potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total		Citrate-insoluble	Total	So-called "Available"	As muriate	Total	
%	%	%	%	%	%	%	%	%	%	%	
0.00	1.08	0.29	0.39	1.76	2.14	0.78	12.85	12.07	2.50	2.50	6726
1.57	0.28	0.52	2.50	4.87	5.92	0.10	3.55	3.45	0.40	5.14	6889
7.81	0.24	0.00	0.49	8.54	10.38	1.85	8.91	7.06	0.48	8.31	6871
2.57	2.20	0.52	0.43	5.72	6.95	0.70	6.72	6.02	5.67	5.67	7448
1.97	0.00	0.64	2.51	5.12	6.22	0.10	3.23	3.13	0.48	6.14	7139
0.00	2.68	0.60	0.90	4.18	5.08	1.20	9.45	8.25	6.89	6.89	6675
0.00	1.92	0.58	0.72	3.22	3.91	0.83	8.80	7.97	4.43	4.43	6676
2.58	0.00	0.58	2.98	6.14	7.47	0.47	7.90	7.43	0.45	7.78	6888
3.02	0.08	0.20	1.22	4.52	5.50	0.20	4.89	4.69	1.82	13.29	6890
0.39	2.22	0.82	0.69	4.12	5.01	0.84	9.21	8.37	5.14	5.14	7138
0.70	1.84	0.18	0.73	3.45	4.19	0.90	9.73	8.83	4.17	4.17	6899
0.77	0.08	0.44	3.12	4.37	5.31	0.59	4.30	3.71	0.51	5.73	7131
0.55	2.94	0.02	0.37	3.88	4.72	0.42	10.80	10.38	5.53	5.53	6679
0.34	2.08	0.24	0.28	2.94	3.57	0.39	8.70	8.31	3.16	4.22	7449
0.38	3.52	0.20	0.28	4.38	5.33	0.40	8.71	8.31	1.34	6.93	6748
0.21	3.56	0.08	0.29	4.14	5.03	0.36	8.49	8.13	1.63	7.45	7450
0.38	2.64	0.24	0.30	3.56	4.33	0.40	8.79	8.39	0.98	4.57	7447
0.37	2.42	0.14	0.35	3.28	3.99	0.53	8.97	8.44	1.46	3.92	7248
0.29	1.64	0.84	1.40	4.17	5.07	0.18	4.65	4.47	0.65	5.43	7267
0.32	2.48	0.20	0.30	3.30	4.01	0.21	6.26	6.05	1.42	9.84	7451
0.61	1.72	0.76	2.35	5.44	6.61	0.20	3.81	3.61	1.70	7.51	7188
1.53	5.68	0.10	2.11	9.42	11.45	0.46	3.55	3.09	2.53	3.29	6717
1.15	7.72	0.16	1.49	10.52	12.79	0.41	4.39	3.98	2.66	3.35	7264
0.24	1.56	0.24	0.15	2.19	2.66	0.51	12.72	12.21	6.26	6.26	7134
0.76	3.08	0.00	0.30	4.14	5.03	0.81	9.13	8.32	8.48	8.48	6740
0.81	3.06	0.06	0.35	4.28	5.20	0.46	11.18	10.72	6.36	6.36	6873
0.91	2.90	0.00	0.28	4.09	4.97	0.93	13.64	12.71	4.60	4.60	6739
0.33	3.00	0.48	0.30	4.11	5.00	0.30	16.61	16.31	20.25	20.25	7283
2.18	3.64	0.00	0.30	6.12	7.44	0.25	8.75	8.50	6.28	6.28	6816

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
Eastern States Farmers' Exchange, Springfield, Mass.¹			
7210	E. S. 6-15-9.....	6-15-9	Southbury
6887	E. S. 6-18-6.....	6-18-6	West Simsbury..
6876	E. S. 8-4-8 Tobacco.....	8-4-8	New Milford ...
6741	E. S. 8-16-16	8-16-16	Southington
6828	E. S. 8-16-16	8-16-16	Canaan
7149	E. S. 8-16-16 Potash from Sulphate.....	8-16-16	Ellington
7214	E. S. 10-5-10 Tobacco.....	10-5-10	New Milford ...
7452	E. S. 10-5-10 Tobacco.....	10-5-10	Southbury
Essex Fertilizer Co., Boston, Mass.			
6670	Essex Complete Manure 5-8-7.....	5-8-7	Wallingford
6671	Essex Fish Brand Fertilizer for all Crops 3-8-4	3-8-4	Wallingford
6669	Essex Market Garden 4-8-4.....	4-8-4	Wallingford
7277	Essex Peerless Potato Manure 4-6-10.....	4-6-10	Wallingford
7278	Essex Top Dressing 7-6-5	7-6-5	Wallingford
L. T. Frisbie Co., New Haven, Conn.			
6910	Frisbie's 3-10-6	3-10-6	Wallingford
6909	Frisbie's 5-8-7 (S)	5-8-7	North Haven ...
6668	Frisbie's 5-10-5	5-10-5	Wallingford
6822	Frisbie's Corn and Grain Fertilizer.....	2-10-2	West Cheshire ..
6680	Frisbie's Market Garden 5-8-7.....	5-8-7	Southport
6681	Frisbie's Special 3-8-4	3-8-4	New Haven
6707	Frisbie's Special Vegetable and Potato Grower	4-8-4	New Britain
7215	Frisbie's Tobacco Grower 5-3-5	5-3-5	Kent
7211	Frisbie's Tobacco Grower 7-3-7	7-3-7	Brookfield
6799	Frisbie's Top Dresser 8-6-6.....	8-6-6	Norwich
Goulard & Olena, Inc., New York City			
6704	G. and O. Lawn and Garden Fertilizer.....	5-8-5	New Britain
6620	J. E. Green's Formula.....	10-4-2.5	New Britain
Grasselli Chemical Co., Cleveland, Ohio			
7260	Du Gro (Grasselli Plant Food).....	4.86-13-4	Fair Haven

¹ First figure in "grade" column represents "nitrogen," not ammonia.

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	
	%	%	%	%		%	%	%	%	%	
1.18	4.00	0.40	0.30	5.88	7.15	0.30	15.43	15.13	9.61	9.61	7210
1.54	4.00	0.30	0.29	6.13	7.45	0.44	18.10	17.66	6.24	6.24	6887
2.67	0.26	2.86	2.95	8.74	10.63	0.08	4.68	4.60	0.23	9.19	6876
1.40	6.10	0.00	0.28	7.78	9.46	0.60	16.31	15.71	15.88	15.88	6741
1.43	6.22	0.00	0.30	7.95	9.67	0.55	16.39	15.84	16.57	16.57	6828
1.81	5.84	0.10	0.51	8.26	10.04	0.25	14.75	14.50	1.21	16.93	7149
3.30	0.40	3.05	2.93	9.68	11.77	0.07	5.00	4.93	0.29	9.59	7214
1.24	0.68	3.64	3.28	8.84	10.75	0.19	6.05	5.86	1.02	5.93	7452
0.29	3.16	0.39	0.36	4.20	5.11	0.25	8.28	8.03	7.46	7.46	6670
0.12	1.80	0.46	0.42	2.80	3.40	0.65	8.74	8.09	4.30	4.30	6671
0.26	2.24	0.54	0.37	3.41	4.14	0.65	8.15	7.50	4.63	4.63	6669
0.26	2.76	0.52	0.32	3.86	4.69	0.49	7.54	7.05	10.47	10.47	7277
0.12	5.16	0.20	0.08	5.56	6.76	0.41	6.81	6.40	4.57	4.57	7278
0.31	1.84	0.28	0.05	2.48	3.02	0.14	10.49	10.35	5.93	5.93	6910
0.21	3.12	0.32	0.57	4.22	5.13	0.13	8.99	8.86	0.60	6.86	6909
0.33	3.16	0.52	0.36	4.37	5.31	0.25	10.85	10.60	5.44	5.44	6668
0.00	0.92	0.52	0.28	1.72	2.09	0.66	10.93	10.27	1.85	2.00	6822
0.31	3.04	0.42	0.33	4.10	4.98	0.46	8.76	8.30	7.01	7.01	6680
0.14	1.76	0.28	0.32	2.50	3.04	0.68	8.40	7.72	3.83	3.83	6681
0.21	2.28	0.40	0.41	3.30	4.01	0.45	9.33	8.88	3.89	3.89	6707
0.51	0.08	0.62	2.94	4.15	5.05	0.06	4.40	4.34	0.58	5.15	7215
1.69	0.04	0.48	3.55	5.76	7.00	0.26	5.15	4.89	0.69	7.31	7211
1.09	4.58	0.38	0.37	6.42	7.81	0.15	6.20	6.05	5.76	5.76	6799
0.00	2.56	0.19	1.40	4.15	5.05	0.71	9.50	8.79	4.88	6.18	6704
3.21	0.18	0.52	4.61	8.52	10.36	3.00	4.73	1.73	3.35	3.35	6620
0.00	3.64	0.01	0.21	3.86	4.69	2.00	16.12	14.12	3.35	3.35	7260

TABLE 12. ANALYSES OF MIXED FERTILIZERS

St it i n No.	Manufacturer and Brand	Grade	Place of Sampling
International Agricultural Corp., Boston, Mass.			
6892	Crop Grower 5-8-7	5-8-7	Suffield
7178	Multiple Strength 10-16-14	10-16-14	Suffield
7314	Top Dresser	7-6-5	Suffield
7280	Top Dresser 8-6-6	8-6-6	Suffield
Henry James & Son, Inc., Springfield, Mass.			
6927	4-6-10	4-6-10	Mansfield Depot.
6928	4-8-4	4-8-4	Mansfield Depot.
Lowell Fertilizer Co., Boston, Mass.			
6556	Lowell Animal Brand, A High Grade Manure for All Crops 3-8-4	3-8-4	Suffield
6811	Lowell Bone Fertilizer 2-10-2	2-10-2	Southbury
6552	Lowell Corn and Vegetable 4-8-4	4-8-4	West Cheshire ..
7296	Lowell Empress Brand 1-9-4	1-9-4	Warehouse Point
6654	Lowell Market Garden Manure 5-8-7	5-8-7	West Cheshire ..
7159	Lowell Special Potato Fertilizer 5-7-10	5-7-10	Southbury
6810	Lowell Potato Grower 4-6-10	4-6-10	Southbury
7295	Lowell Tobacco Manure 5-3-5	5-3-5	Granby
6653	Lowell Top Dressing 7-6-5	7-6-5	West Cheshire ..
7152	Lowell Top Dressing 7-6-5	7-6-5	West Cheshire ..
Millane Nurseries and Tree Expert, Inc., Cromwell, Conn.			
	Millane Shade Tree Food	10-12-4	Cromwell
Miller Fertilizer Co., Baltimore, Md.			
6924	Miller's Crop Grower 5-8-7	5-8-7	Norwich
6920	Miller's Onion and Vegetable 4-8-4	4-8-4	Norwich
7335	Miller's 2-12-4	2-12-4	Norwich
New England Fertilizer Co., Boston, Mass.			
6913	New England Market Garden Manure 5-8-7 ..	5-8-7	Meriden
6912	New England Potato and Vegetable Manure 4-8-4	4-8-4	Meriden
6885	New England Super, A High Grade Fertilizer For All Crops 3-8-4	3-8-4	Unionville

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	
%	%	%	%	%	%	%	%	%	%	%	
0.35	3.44	0.28	0.18	4.25	5.17	0.45	8.50	8.05	7.20	7.20	6892
0.12	6.16	1.76	0.15	8.19	9.96	0.51	17.71	17.20	13.97	13.97	7178
0.20	4.44	0.64	0.31	5.59	6.80	0.30	6.34	6.04	5.14	5.14	7314
0.00	5.84	0.37	0.36	6.57	7.99	0.25	6.85	6.60	6.02	6.02	7280
0.66	1.84	0.16	0.44	3.10	3.77	0.56	6.66	6.10	9.94	9.94	6927
0.27	2.20	0.44	0.57	3.48	4.23	0.63	8.58	7.95	4.37	4.37	6928
0.15	1.84	0.32	0.30	2.61	3.17	0.61	7.95	7.34	4.13	4.13	6656
0.10	0.98	0.38	0.32	1.78	2.16	0.86	10.45	9.59	2.04	2.04	6811
0.28	2.22	0.46	0.35	3.31	4.02	0.68	8.75	8.07	4.48	4.48	6652
0.00	0.48	0.29	0.23	1.00	1.22	0.50	9.98	9.48	3.91	3.91	7296
0.39	2.84	0.44	0.34	4.01	4.88	0.60	8.38	7.78	7.11	7.11	6654
0.36	3.00	0.36	0.38	4.10	4.98	0.24	7.61	7.37	9.91	9.91	7159
0.45	2.26	0.32	0.36	3.39	4.12	0.25	6.55	6.30	10.12	10.12	6810
0.73	0.08	0.48	2.94	4.23	5.14	0.36	4.12	3.76	0.51	4.94	7295
0.00	5.00	0.31	0.08	5.39	6.55	0.45	6.23	5.78	5.61	5.61	6653
0.00	5.10	0.31	0.08	5.49	6.67	0.40	6.35	5.95	5.28	5.28	7152
5.51	2.50	0.00	0.21	8.22	9.99	0.61	13.05	12.44	4.63	4.63	6819
0.00	3.64	0.05	0.36	4.05	4.92	0.85	8.49	7.64	7.07	7.07	6924
0.00	2.80	0.10	0.37	3.27	3.98	1.08	8.96	7.88	4.50	4.50	6920
0.00	0.78	0.62	0.36	1.76	2.14	0.73	12.40	11.67	4.13	4.13	7335
0.36	2.44	0.32	0.32	3.44	4.18	0.60	9.01	8.41	7.46	7.46	6913
0.35	2.20	0.56	0.49	3.60	4.38	0.52	9.39	8.87	3.97	3.97	6912
0.00	1.74	0.43	0.37	2.54	3.09	0.74	8.55	7.81	3.84	3.84	6885

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.			
6933	Old Deerfield 4-8-4	4-8-4	Somers
7179	Old Deerfield 5-3-5 (Tobacco)	5-3-5	Somers
6930	Old Deerfield 5-8-7	5-8-7	Somers
7269	Old Deerfield 5-8-7 (Potash from Sulfate) ...	5-8-7	Somers
7268	Old Deerfield 6-8-12 Starter, Bone and Potash	6-8-12	Somers
6931	Old Deerfield 7-3-7 (Tobacco)	7-3-7	Somers
6932	Old Deerfield 8-6-6	8-6-6	Somers
Olds & Whipple, Inc., Hartford, Conn.			
7406	J. W. Alsop, Inc., Special Tobacco Formula..	7-4-6	Suffield
7197	O & W Blue Label Tobacco Fertilizer.....	6-3-6	South Windsor..
6761	O & W Complete Market Garden Fertilizer.	4-8-4	Bloomfield
7177	O & W Complete Tobacco Fertilizer.....	5-3-5	Suffield
6760	O & W Grass Fertilizer	6-6-4	Bloomfield
6693	O & W High Grade Potato and Vegetable Fertilizer	5-8-7	Wethersfield ...
7136	O & W High Grade Starter and Potash Com- pound	5-4-15	East Hartford ..
7286	O & W Tobacco Fertilizer	7-3-7	Hazardville
7130	Wilcox Top Dresser	7-6-5	East Hartford ..
6794	Wilcox Corn Special	3-10-4	Willimantic
6918	Wilcox High Grade Fish and Potash.....	4-8-4	Old Mystic
6793	Wilcox Potato and Vegetable Phosphate.....	5-8-7	Willimantic
Parmenter & Polsey Co., Boston, Mass.			
6815	P & P Maine Potato Fertilizer 4-6-10.....	4-6-10	Wallingford
7160	P & P Top Dressing 7-6-5.....	7-6-5	Wallingford
Piedmont-Mt. Airy Guano Co., Inc. Baltimore, Md.			
6883	Harvest Brand 4-8-4	4-8-4	Plantville
6889	Harvest Brand 5-8-7	5-8-7	Mystic
Frank S. Platt Co., New Haven, Conn.			
6688	Platco Special 5-8-7	5-8-7	New Haven
6689	Platt's Special Lawn Fertilizer.....	12-5-5	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	
%	%	%	%	%	%	%	%	%	%	%	
0.95	1.60	0.80	0.37	3.72	4.52	0.70	9.36	8.66	5.14	5.14	6933
0.66	0.04	0.80	2.96	4.46	5.42	0.97	5.18	4.21	0.58	6.04	7179
0.80	1.84	1.04	0.80	4.48	5.45	0.76	9.60	8.84	0.78	7.32	6930
0.85	1.52	1.12	0.79	4.28	5.20	1.00	10.25	9.25	0.77	7.26	7269
1.03	0.20	1.84	1.82	4.89	5.95	2.62	10.65	8.03	1.30	13.78	7268
0.93	0.32	1.60	3.69	6.54	7.95	0.66	5.29	4.63	0.82	7.81	6931
1.53	3.68	0.68	0.93	6.82	8.29	0.69	6.91	6.22	6.10	6.10	6932
0.51	0.16	1.72	3.70	6.09	7.40	0.30	4.82	4.52	0.53	6.22	7406
0.70	0.02	0.54	3.78	5.04	6.13	0.60	4.71	4.11	0.62	6.71	7197
0.69	1.56	0.60	0.55	3.40	4.13	0.85	9.50	8.65	4.51	4.51	6761
0.95	0.08	0.38	2.87	4.28	5.20	0.69	4.41	3.72	0.52	5.96	7177
1.47	2.20	0.80	0.75	5.22	6.35	0.91	7.42	6.51	4.59	4.59	6760
0.93	2.20	0.44	0.75	4.32	5.25	1.20	9.74	8.54	7.15	7.15	6593
1.65	0.12	0.28	2.08	4.13	5.02	0.80	5.98	5.10	1.66	16.88	7136
1.10	0.10	0.62	4.20	6.02	7.32	0.21	4.16	3.95	0.73	7.75	7286
3.37	1.88	0.08	0.53	5.86	7.12	1.36	8.25	6.89	5.14	5.14	7130
0.61	1.36	0.22	0.55	2.74	3.33	0.89	11.40	10.51	4.35	4.35	6794
0.71	1.56	0.39	0.71	3.37	4.10	1.48	9.45	7.97	4.71	4.71	6918
0.99	2.32	0.28	0.67	4.26	5.18	1.16	10.16	9.00	7.89	7.89	6793
0.51	2.24	0.34	0.39	3.48	4.23	0.52	6.57	6.05	9.89	9.89	6815
0.33	5.00	0.40	0.07	5.80	7.05	0.38	6.50	6.12	4.97	4.97	7160
0.00	2.54	0.09	0.49	3.12	3.79	0.88	8.92	8.04	4.71	4.71	6883
0.00	3.64	0.01	0.39	4.04	4.91	1.11	8.90	7.79	6.74	6.74	6869
0.44	3.16	0.24	0.32	4.16	5.06	0.62	8.79	8.17	7.23	7.23	6688
0.00	7.34	0.99	2.31	10.64	12.94	0.78	7.22	6.44	0.85	6.45	6689

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
The Rogers & Hubbard Co., Portland, Conn.			
6697	4-8-4 Fertilizer	4-8-4	Hartford
6698	5-8-7 Fertilizer	5-8-7	Hartford
6868	8-6-6 Fertilizer	8-6-6	Norwich
6817	Gro-Fast	6-6-6	Portland
7242	Gro-Fast Greens	10-2-2	Madison
6818	Hubbard's "Bone Base" Fertilizer for Seeding Down	3-5-6	Portland
6755	Hubbard's "Bone Base" Oats and Top Dress- ing	10-3-8	New Britain
6809	Hubbard's "Bone Base" Soluble Corn and General Crops Manure	3-8-6	Branford
6808	Hubbard's "Bone Base" Soluble Potato Manure	6-8-5	Branford
7358	Hubbard's "Bone Base" Soluble Potato Manure	6-8-5	Portland
7284	Hubbard's "Bone Base" Soluble Tobacco Ma- nure	6-8-10	East Hartford ..
6806	Rogers & Hubbard's All Soils All Crops Fer- tilizer	4-10-4	New London ...
7253	Rogers & Hubbard's Climax Tobacco Brand..	5-3-5	Warehouse Point
6756	Rogers & Hubbard's Corn and Grain Fertilizer	1-10-3	New Britain ...
6757	Rogers & Hubbard's High Potash Fertilizer..	3-8-10	New Britain ...
7289	Rogers & Hubbard's High Potash Fertilizer..	3-8-10	Abington
7357	Rogers & Hubbard's High Potash Fertilizer..	3-8-10	Portland
6758	Rogers & Hubbard's Potato Fertilizer.....	2-10-4	New Britain
7250	Rogers & Hubbard's Tobacco Grower Vege- table Formula	6-3-6	Granby
W. M. Sears Co., Stamford, Conn.			
7265	Fertil-Field Green Lawn Food.....	5-8-7	Stamford
M. L. Shoemaker & Co., Philadelphia, Pa.			
7144	Swift-Sure Potato Special 5-8-7.....	5-8-7	New Milford ...
7143	Swift-Sure Tobacco and General Use 3-10-3...	3-10-3	New Milford ...
Springfield Rendering Co., Springfield, Mass.			
6896	Springfield 3-8-4 Fertilizer	3-8-4	Thompsonville ..
6893	Springfield 4-8-4 Fertilizer	4-8-4	Thompsonville ..
6929	Springfield 5-8-7 Fertilizer	5-8-7	Stafford Springs.

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	
%	%	%	%	%	%	%	%	%	%	%	
0.16	2.52	0.48	0.24	3.40	4.13	0.96	9.35	8.39	4.39	4.39	6697
0.11	3.68	0.50	0.11	4.40	5.35	0.72	9.25	8.53	7.07	7.07	6698
1.28	4.90	0.54	0.22	6.94	8.44	1.80	8.01	6.21	6.10	6.10	6868
1.55	1.02	0.46	1.99	5.02	6.10	0.69	6.90	6.21	6.93	6.93	6817
0.78	3.98	0.18	3.85	8.79	10.69	0.15	2.45	2.30	1.94	2.40	7242
0.00	1.44	0.30	0.80	2.54	3.09	6.41	12.18	5.77	7.17	7.17	6818
7.80	0.04	0.04	0.28	8.16	9.92	3.40	9.23	5.83	1.62	8.49	6755
0.09	1.06	0.94	0.40	2.49	3.03	2.40	10.79	8.39	6.16	6.16	6809
1.59	1.42	1.10	0.79	4.90	5.96	2.38	10.01	7.63	1.10	5.63	6808
2.53	0.36	1.40	0.64	4.93	5.99	2.64	11.51	8.87	1.41	5.55	7358
2.72	0.56	1.28	0.66	5.22	6.35	2.11	11.45	9.34	1.06	9.96	7284
0.00	2.44	0.64	0.30	3.38	4.11	2.00	11.88	9.88	4.31	4.31	6806
1.23	0.20	0.34	2.65	4.42	5.37	0.21	3.73	3.52	0.94	5.32	7253
0.00	0.30	0.62	0.08	1.00	1.22	1.22	11.63	10.41	4.00	4.00	6756
0.00	1.54	0.82	0.28	2.64	3.21	1.85	10.60	8.75	9.40	9.40	6757
0.00	1.66	0.89	0.23	2.78	3.38	1.35	10.00	8.65	10.21	10.21	7289
0.00	1.48	0.88	0.29	2.65	3.22	1.06	9.50	8.44	10.61	10.61	7357
0.00	0.90	0.74	0.16	1.80	2.19	1.08	11.65	10.57	4.22	4.22	6758
1.09	0.20	0.84	3.11	5.24	6.37	0.76	4.68	3.92	0.88	6.36	7250
0.00	3.28	0.17	0.98	4.43	5.39	3.90	12.04	8.14	7.86	7.86	7265
0.00	3.08	0.26	0.84	4.18	5.08	0.69	9.17	8.48	6.82	6.82	7144
0.00	1.76	0.12	0.68	2.56	3.11	0.96	11.81	10.85	0.81	3.47	7143
0.00	1.88	0.46	0.43	2.77	3.37	0.51	9.40	8.89	4.21	4.21	6896
0.21	2.04	0.43	0.46	3.14	3.82	0.40	8.53	8.13	4.08	4.08	6893
0.34	2.92	0.54	0.36	4.16	5.06	0.79	8.65	7.86	6.89	6.89	6929

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
Standard Wholesale Phosphate & Acid Works, Baltimore, Md.			
7244	3-10-3	3-10-3	New Milford ...
7157	5-10-5	5-10-5	Southport
7170	Accomac Peninsula King.....	5-8-5	North Haven
7243	Champion Potato Grower.....	3-12-5	New Milford ...
7172	Evergreen Fish Guano.....	4-8-4	Norwalk
7395	Evergreen Fish Guano.....	4-8-4	West Cheshire ..
7156	Fish, Bone and Potash.....	5-8-7	West Cheshire ..
7173	Grain Grower	2-8-2	Norwalk
7158	Jersey Special	4-8-10	North Haven
7176	Jumbo Potato Grower	7-6-5	Ellington
7258	Mammoth Potato Grower	2-8-10	New Milford ...
7209	Royal Potato Grower	4-8-7	Ellington
7285	Service Mixture	2-12-6	Ellington
7219	Tobacco Special	5-4-5	Ellington
Swift & Company, Baltimore, Md.			
6682	Vigoro	4.86-12-4	New Haven
Synthetic Nitrogen Products Corp., New York City¹			
6694	Nitrophoska No. 1 (15-30-15).....	15-30-15	Wethersfield ...
6886	Nitrophoska 16-16-16	16-16-16	Unionville
6695	Nitrophoska 10-20-20	10-20-20	Wethersfield ...
Tennessee Corporation, Lockland, Cincinnati, Ohio			
6719	Loma	6.08-10-4	Greenwich
I. P. Thomas & Son Co., Philadelphia, Pa.			
6678	I. P. Thomas 5-8-7	5-8-7	Milford
6686	Long Island Special 4-8-7	4-8-7	Westville
6821	7% Guano 7-6-5	7-6-5	Hamden
6687	Tip Top Super-Phosphate 3-10-6.....	3-10-6	Westville
6677	Truckers High Grade Guano 4-8-4.....	4-8-4	Highwood
Virginia Carolina Chemical Co., New York City			
6898	Bloomaid	6-10-4	Hazardville
6746	V-C Aroostook Potato Grower.....	5-8-7	Plainville

¹ First figure in "grade" column represents "nitrogen," not ammonia.

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	
%	%	%	%	%	%	%	%	%	%	%	
0.15	1.98	0.24	0.27	2.64	3.21	2.09	11.45	9.36	3.10	3.10	7244
0.00	3.20	0.72	0.26	4.18	5.08	0.65	10.85	10.20	4.81	4.81	7157
0.00	3.38	0.34	0.43	4.15	5.05	1.26	9.71	8.45	4.66	4.66	7170
0.00	1.84	0.36	0.30	2.50	3.04	0.60	12.95	12.35	5.09	5.09	7243
0.00	3.52	0.37	0.35	3.24	3.94	0.51	8.69	8.18	4.21	4.21	7172
0.00	2.40	0.46	0.32	3.18	3.87	0.72	8.75	8.03	4.83	4.83	7395
0.00	3.34	0.47	0.28	4.09	4.97	0.50	9.00	8.50	6.85	6.85	7156
0.00	1.06	0.29	0.30	1.65	2.01	0.60	8.55	7.95	2.13	2.13	7173
0.12	2.28	0.28	0.84	3.52	4.28	1.58	8.90	7.32	9.53	9.53	7158
0.00	3.60	1.02	0.56	5.18	6.30	0.38	7.19	6.81	5.67	5.67	7176
0.00	1.00	0.42	0.24	1.66	2.02	0.75	8.59	7.84	10.03	10.03	7258
0.00	2.38	0.49	0.27	3.14	3.82	0.05	8.55	8.50	6.80	6.80	7209
0.00	1.06	0.37	0.22	1.65	2.01	0.89	12.75	11.86	5.97	5.97	7285
0.00	1.48	0.78	1.44	3.70	4.50	0.71	5.39	4.68	0.51	5.22	7219
0.37	3.20	0.03	0.38	3.98	4.84	1.25	13.10	11.85	4.22	4.22	6682
2.12	12.80	0.00	0.00	14.92	18.14	0.03	29.82	29.79	15.09	15.09	6694
0.31	6.98	8.80	0.06	16.15	19.64	0.11	17.00	16.89	16.53	16.53	6886
0.00	8.46	1.82	0.26	10.54	12.81	0.13	22.00	21.87	20.55	20.55	6695
0.40	4.36	0.04	0.37	5.17	6.29	0.70	11.16	10.46	4.06	4.06	6719
0.00	3.70	0.10	0.41	4.21	5.12	1.40	9.71	8.31	7.81	7.81	6678
0.00	3.04	0.06	0.38	3.48	4.23	1.04	9.21	8.17	6.14	6.47	6686
0.00	4.80	0.00	0.70	5.50	6.69	1.02	7.43	6.41	3.96	5.00	6821
0.09	2.24	0.04	0.35	2.72	3.31	1.41	10.78	9.37	4.62	6.43	6687
0.00	2.96	0.00	0.34	3.30	4.01	1.10	9.14	8.04	4.17	4.17	6677
0.83	2.84	0.16	1.25	5.08	6.18	0.33	10.33	10.00	0.78	4.97	6898
0.39	2.72	0.30	0.67	4.08	4.96	1.55	9.72	8.17	6.60	6.60	6746

TABLE 12. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand	Grade	Place of Sampling
	Virginia Carolina Chemical Co., New York City		
6897	V-C Fairway Fertilizer	8-6-5	Hazardville ...
6745	V-C National Brand	4-8-10	Plainville
7181	V-C Rescue Brand	3-8-4	Hazardville ...
6824	V-C Tip-Top Top Dresser	7-6-5	Thomaston ...
6744	V-C XXXX Fish and Potash	4-8-4	Plainville
	F. H. Woodruff & Sons, Milford, Conn.		
6709	Woodco Turfmaker Lawn Food.....	10-6-4	Milford ..
	S. D. Woodruff & Sons, Orange, Conn.		
6690	Woodruff's Home Mixed Fertilizer.....	4-8-6	Orange ..
	Worcester Rendering Co., Auburn, Mass.		
7218	Corn and Grain Fertilizer.....	2-10-2	Putnam
6798	Market Garden Fertilizer 5-8-7.....	5-8-7	Norwich
6801	Potato and Vegetable Fertilizer 4-8-4.....	4-8-4	Groton
7329	Prosperity Complete Dressing	6-6-4	Putnam
6802	Superior Top Dressing Fertilizer 8-6-6.....	8-6-6	Groton

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	
%	%	%	%	%	%	%	%	%	%	%	
0.00	4.48	1.03	1.44	6.95	8.45	0.28	6.75	6.47	5.34	5.34	6897
0.00	2.42	0.45	0.41	3.28	3.99	0.75	9.14	8.39	9.27	9.27	6745
0.00	3.04	0.48	0.56	4.08	4.96	0.27	8.65	8.38	4.37	4.37	7181
0.00	4.82	0.38	0.57	5.77	7.02	1.35	8.16	6.81	5.41	5.41	6824
0.00	2.38	0.49	0.27	3.14	3.82	0.75	9.16	8.41	3.91	3.91	6744
1.85	3.62	1.06	1.69	8.22	9.99	0.71	6.96	6.25	4.02	4.02	6709
3.81	0.20	0.09	0.68	4.78	5.81	0.48	7.51	7.03	6.34	6.34	6690
0.08	1.04	0.40	0.38	1.90	2.31	0.78	10.78	10.00	2.64	2.64	7218
0.32	3.08	0.52	0.36	4.28	5.20	0.55	8.38	7.83	7.31	7.31	6798
0.21	2.30	0.42	0.39	3.32	4.04	0.84	8.86	8.02	4.19	4.19	6801
0.30	3.56	0.42	0.38	4.66	5.67	0.62	7.49	6.87	4.21	4.21	7329
0.31	5.68	0.00	0.41	6.40	7.78	0.51	6.74	6.23	6.23	6.23	6802

VII. MISCELLANEOUS FERTILIZER, AMENDMENTS, ETC.

SHEEP MANURE, ETC.

Seventeen samples, all official, have been analyzed and the results are summarized in Table 13. Guaranties were met or exceeded in nearly all cases. Three samples failed to meet guaranties for potash.

LIME

Limestone and agricultural lime are not classed as fertilizers in this State and no official inspection is required. The Station for many years, however, has taken samples of liming materials and published the analyses for purposes of record and for the information of those interested.

Sixteen samples were taken this year by the Station agent and the analyses are given in Table 14. Six other samples were analyzed for individuals but the results are not included in the table because no information as to their source was given.

TABLE 13. ANALYSES OF SHEEP MANURE, ETC.

Station No.	Manufacturer or Brand	Place of Sampling	Total Nitro		Ammonia equiv- alent to total nitrogen		Total Phosphoric acid		Potash		Station No.
			%	Found	%	Guaran ed	%	Found	%	Found	
6672	A. A. C. Pulverized Sheep and Goat Manure. American Agri- cultural Chemical Co., New York City	Geo. S. Phelps & Co., Thomp- sonville	1.33	1.62	1.50	1.60	0.50	2.30	2.00	6672	
6743	Sheep Manure. Apothecaries Hall Co., Waterbury	W. S. Eaton, Plainville	1.16	1.41	1.50	0.85	0.50	3.37	2.00	6743	
6696	Sheep and Goat Manure. Ar- mour Fertilizer Works, New York City	Chas. C. Hart Seed Co., Wethers- field	1.60	1.94	1.50	1.57	1.00	3.97	2.00	6696	
6660	Berkshire Sheep Manure. Berk- shire Chemical Co., Bridge- port	C. Buckingham & Co., Southport	2.39	2.91	2.18	2.13	1.00	3.39	2.00	6660	
6657	Two-in-One Peat and Poultry Manure, C. E. Buell, Inc., Boston, Mass.	Lightborn & Pond, New Haven.	3.00	3.65	....	3.73	3.75	0.95	1.50	6657
6870	Corenco Sheep Manure. Consol- idated Rendering Co., Boston, Mass.	Knowles & Lombard, Guilford..	1.20	1.46	1.50	1.14	0.50	3.66	2.00	6870	
6800	Corenco Sheep Manure. Consol- idated Rendering Co., Boston, Mass.	A. E. Shedd, Norwich	1.26	1.53	1.50	0.80	0.50	3.12	2.00	6800	
6716	Davey Shredded Cattle Manure. Davey Tree Expert Co., Kent, Ohio	R. E. Landis, Sound Beach	1.90	2.31	1.20	1.40	1.00	1.90	2.00	6716	

TABLE 13. ANALYSES OF SHEEP MANURE.

Station No.	Manufacturer or Brand	Place of Sampling	Total nitrogen		Ammonia equiv- alent to total nitrogen		Total Phosphoric acid		Potash		Station No.
			Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	
6706	G & O Sheep Manure, Goulard & Olena, Inc., New York City	Rackliffe Bros., New Britain....	1.25	1.50	1.20	1.00	3.07	2.00	6706		
6699	"Sheep's Head" Pulverized Sheep Manure, Natural Guano Co., Aurora, Ill.	Cadwell & Jones, Hartford.....	2.52	2.43	1.55	1.25	3.90	2.00	6699		
6703	Groz-It Brand Pulverized Sheep Manure, Pacific Manure & Fertz. Co., San Francisco, Cal.	Raven Hardware Co., Meriden..	1.30	....	0.90	0.75	3.08	2.50	6703	
6684	Premier Brand Pulverized Poultry Manure, Premier Poultry Manure Co., Chicago, Ill.	Lightborn & Pond, New Haven.	5.82	6.00	2.38	2.75	1.00	1.30	6684		
6685	Premier Brand Pulverized Sheep Manure, Premier Poultry Manure Co., Chicago, Ill.	Lightborn & Pond, New Haven.	2.02	2.00	0.85	1.00	1.67	2.00	6685		
6907	Wizard Brand Pulverized Sheep Manure, The Pulverized Manure Co., Chicago, Ill.	Whitaker & Bacon, Hartford...	2.18	2.43	1.74	....	2.66	2.00	6907	
7288	Wizard Brand Cattle Manure, The Pulverized Manure Co., Chicago, Ill.	S. P. Strople, New Britain.....	2.24	2.10	1.54	....	1.48	1.00	7288	
6867	Summer's Venezuelan Goat Manure, Summers Fertilizer Co., Baltimore, Md.	Jordan Hardware Co., Willimantic	1.24	1.00	0.95	1.00	3.06	3.00	6867		
6683	Driconure, Walker-Gordon Laboratory Co., Plainsboro, N. J.	Lightborn & Pond, New Haven.	2.00	1.80	1.15	1.00	1.78	1.25	6683		

OTHER MISCELLANEOUS MATERIALS

Other miscellaneous materials, 47 in number, have been examined chiefly for persons who were interested to know of their possible value for fertilizer or for amendment purposes. Farm manures, tobacco stems and dust, humus, and factory wastes were the principal items submitted.

COLLABORATIVE WORK

Thirty samples of check cottonseed meals and 12 samples of check fertilizers have been analyzed in the collaborative programs of the American Oil Chemists Society and the F. S. Royster Guano Co.

TABLE 14. ANALYSES OF LIMESTONE, ETC.

Station No.	Manufacturer or Brand	Sampled from stock of or sent by
	Farnam Cheshire Lime Co., Farnams, Mass.	
6754	Agricultural Lime	John Kingsbury, Coventry.....
6990	Agricultural Lime	Walter T. Clark, Norwich.....
	Lee Lime Corporation, Lee, Mass.	
5928	Ground Limestone	American Sumatra Tobacco Co., Hartford
6015	Hydrated Lime	Tobacco Sub-Station, Windsor...
6293	Lime, Car 166068	Cullman Bros., Hartford.....
7009	Lime	Richard Smith, Hazardville.....
7048	Lime Hydrate No. 4.....	Silberman & Kahn, Hartford.....
7049	Lime Hydrate No. 5.....	Silberman & Kahn, Hartford.....
	New England Lime Co., Pittsfield, Mass.	
6380	Hydrated Lime, Car 170034.....	L. B. Haas & Co., Hartford.....
6392	Hydrated Lime and Magnesia No. 16...	A. N. Shepard & Son, Hartford...
6393	Hydrated Lime and Magnesia No. 17...	A. N. Shepard & Son, Hartford...
	U. S. Gypsum Co., Falls Village, Conn.	
6354	Limestone, Car 169010.....	American Sumatra Tobacco Co., Bloomfield
6355	Limestone, Car 160262	American Sumatra Tobacco Co., Bloomfield
5557	Agricultural Lime	The Lyman Farm, Middlefield....
	Whiterock Quarries, Inc., Bellefonte, Pa.	
6973	Spray Lump Lime	Botany Dept., Conn. Exp. Sta.....
6974	Super Hydrate Spray Lime.....	Botany Dept., Conn. Exp. Sta.....

Chemical analysis				Total oxides	Mechanical analysis					Station No.
Lime (CaO)		Magnesia (MgO)			20 mesh	40 mesh	50 mesh	80 mesh	100 mesh	
Found	Guaranteed	Found	Guaranteed							
%	%	%	%	%	%	%	%	%	%	
65.34	60.00	0.72	0.00	66.06	87.0	51.0	27.0	11.0	8.0	6754
61.06	60.00	1.38	0.00	62.44	91.0	71.5	34.0	14.0	9.0	6990
47.86	34.50	....	82.36	99.0	96.0	52.0	25.0	12.0	5928
44.21	30.05	....	74.26	99.0	98.0	87.0	50.0	24.0	6015
48.20	33.56	....	81.76	100.0	99.5	96.5	91.5	89.0	6293
48.00	46.00	33.02	30.00	81.02	99.5	99.0	96.0	90.0	88.0	7009
47.05	32.41	....	79.46	....	....	....	....	....	7048
47.79	32.94	....	80.73	100.0	98.0	94.0	88.0	84.0	7049
41.82	27.55	....	69.37	100.0	99.5	97.0	91.5	86.5	6380
41.28	26.70	....	67.98	99.0	97.5	94.0	89.0	85.0	6392
40.91	27.12	....	68.03	99.5	98.5	97.0	90.0	87.0	6393
30.94	20.78	....	51.72	99.5	99.0	81.5	50.5	41.0	6354
30.94	21.00	....	51.94	99.5	98.0	80.5	49.0	38.5	6355
30.45	20.57	51.02	100.0	99.0	80.0	47.0	36.0	5557
94.70	0.68	95.38	6973
69.75	0.65	70.40	100.0	100.0	99.5	99.0	98.0	6974

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