

Bulletin 417

September, 1938

# COMMERCIAL FERTILIZERS

REPORT FOR 1938

**E. M. BAILEY**  
Chemist in Charge



Connecticut  
Agricultural Experiment Station  
New Haven

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# Commercial Fertilizers Report for 1938

## STATUTE AND REGULATIONS REGARDING COMMERCIAL FERTILIZERS

E. M. Bailey  
Chemist in Charge

**T**HE term "commercial fertilizers" as used in the Connecticut fertilizer statute includes any and every substance imported, manufactured, prepared or sold for fertilizing or manuring or soil amendment purposes, except barnyard manure and stable manure that have not been artificially treated or manipulated, marl and lime.

*The seller is responsible for the proper labelling of each package of fertilizer, for the registration of each brand sold or offered for sale, for the payment of the required analysis fee and for the payment of the tonnage tax. If, however, proper labelling, registration and payments of analysis fees and of tonnage tax have been provided for by the manufacturer or by another responsible person, all sellers of such brands are released from the above mentioned requirements. The retailer, therefore, should assure himself that the requirements of the law have been met by the manufacturer of the brands which he handles, or himself be prepared to meet all these requirements.*

*It frequently happens that a manufacturer or jobber sells fertilizer materials which are the products of, and which are registered by, another firm or individual. Distributors in such cases should sell such materials by the exact brand names under which they are registered in order that there may be no mistake as to the identity of the brands. Any change in the brand names, or failure to make the identity of the brand and its manufacturer clear, makes the distributor liable for the registration of the product as his own brand.*

The law exempts from registration, and from other requirements referred to, only (1) fertilizers passing through the state in transit; (2) fertilizers and fertilizer materials shipped to regular fertilizer factories to be used for manufacturing purposes; and (3) fertilizers and fertilizer chemicals sold to the Connecticut Agricultural Experiment Station for experimental purposes.

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NOTE: Analyses reported in this bulletin were made by Messrs. Nolan, Mathis and Walden; microscopic examinations by Miss Shepard; inspection and sampling by Mr. Churchill, and compilations by Mrs. Vosburgh.

## DEFINITIONS OF FERTILIZER MATERIALS AND INTERPRETATION OF TERMS USED IN FERTILIZER CONTROL

For the purpose of bringing about a better understanding among control officials and the fertilizer industry as to the identity of fertilizer materials and the significance of terms used in interpreting results of analysis, a special committee of the Association of Official Agricultural Chemists was appointed in 1921 to consider this question, and from time to time pronouncements have been made.

The following definitions and interpretations are now official<sup>1</sup>:

### ACIDULATED FISH TANKAGE, ACIDULATED FISH SCRAP

Acidulated fish tankage, acidulated fish scrap, is the rendered product derived from fish and treated with sulfuric acid (adopted 1930).

### ACTIVATED SEWAGE PRODUCTS

Activated sewage products are those made from sewage freed from grit and coarse solids and aerated after being inoculated with micro-organisms. The resulting flocculated organic matter is withdrawn from the tanks, filtrated with or without the aid of coagulants, dried, ground, and screened (adopted 1930).

### AGRICULTURAL LIMING MATERIAL

Agricultural liming material is material whose calcium and magnesium content is capable of neutralizing soil acidity (adopted 1935).

### AIR-SLAKED LIME

Air-slaked lime is the product obtained by exposing quicklime or hydrated lime to the atmosphere until partly carbonated (adopted 1931, withdrawn for amendment, 1935).

### AMMONIATED SUPERPHOSPHATE

Ammoniated superphosphate is a product containing superphosphate and/or dissolved bone and nitrogenous compounds, but without the addition of potash (adopted 1930).

### ANALYSIS

Analysis, as applied to fertilizers, designates the percentage composition of the product expressed in terms of nitrogen, phosphoric acid, and potash in their various forms (adopted 1926).

### ASHES FROM LEACHED WOOD

Ashes from leached wood are unleached ashes resulting from the burning of wood that has been exposed to or digested in water or other liquid solvent, as in the extraction of dyes, so that a part of the plant food has been dissolved and removed (adopted 1926).

### AVAILABLE PHOSPHORIC ACID

Available phosphoric acid is the sum of the water-soluble and the citrate-soluble phosphoric acid (adopted 1931).

<sup>1</sup>Official and Tentative Methods of Analysis, A.O.A.C., 1930, page 490.

## *Definitions of Fertilizer Materials*

### "BASIC" LIME PHOSPHATE

"Basic" lime phosphate (lime-based superphosphate) is a superphosphate to which liming materials have been added in a quantity at least six per cent (6%) calcium carbonate equivalents in excess of the quantity required to convert all water-soluble phosphate to the citrate-soluble form (adopted 1934).

### BASIC PHOSPHATE SLAG

Basic phosphate slag is a by-product in the manufacture of steel from phosphatic iron ores. The product shall be finely ground and shall contain no admixture of materials other than what results in the original process of manufacture. It shall contain not less than twelve per cent (12%) of total phosphoric acid ( $P_2O_5$ ), not less than eighty per cent (80%) of which shall be soluble in two per cent (2%) citric acid solution according to the Wagner method of analysis. Any other phosphate slag not conforming to this definition shall be designated low grade (adopted 1925).

### BRAND AND BRAND NAME

A brand is a term, design, or trademark used in connection with one or several grades of fertilizers (adopted 1926).

A brand name is a specific designation applied to an individual fertilizer (adopted 1926).

### CITRATE-SOLUBLE ("REVERTED") PHOSPHORIC ACID

Citrate-soluble ("reverted") phosphoric acid is that part of the total phosphoric acid in a fertilizer that is insoluble in water but soluble in a solution of citrate of ammonia according to the method adopted by the A.O.A.C. (adopted 1932).

### CRUDE, INERT, OR SLOW-ACTING NITROGENOUS MATERIALS

Crude, inert, or slow-acting nitrogenous materials are unprocessed organic substances relatively high in nitrogen, but having a very low value as plant food and showing a low activity by both the alkaline and neutral permanganate methods—below fifty per cent (50%) and eighty per cent (80%) respectively (adopted 1929).

### CYANAMID

Cyanamid is a commercial product composed chiefly of calcium cyanamid ( $CaCN_2$ ), and it shall contain not less than twenty-one per cent (21%) of nitrogen (adopted 1935).

### DICALCIUM PHOSPHATE

Dicalcium phosphate is a manufactured product consisting chiefly of a dicalcic salt of phosphoric acid (adopted 1931).

### DISSOLVED BONE

Dissolved bone is ground bone or bone meal that has been treated with sulfuric acid (adopted 1926).

### DRIED BLOOD

Dried blood is the collected blood of slaughtered animals, dried and ground, and containing not less than twelve per cent (12%) of nitrogen in organic forms (adopted 1928).

### DRIED, PULVERIZED, OR SHREDDED MANURES

Dried, pulverized, or shredded manures are what the name indicates, and not mixtures of manures and other materials (adopted 1925).

## FERTILIZER GRADE

Fertilizer grade shall represent only the minimum guarantee of its plant food expressed in terms of nitrogen (not ammonia), available phosphoric acid, and water-soluble potash (adopted 1928).

## FISH TANKAGE, FISH SCRAP, DRY GROUND FISH, FISH MEAL FERTILIZER GRADE

Fish tankage, fish scrap, dry ground fish, fish meal fertilizer grade is the dried ground product derived from rendered or unrendered fish (adopted 1929).

## GARBAGE TANKAGE

Garbage tankage is the rendered, dried, and ground product derived from waste household food materials (adopted 1929).

## GROUND LIMESTONE

Ground limestone is the product obtained by grinding calcareous or dolomitic limestone. Not less than seventy-five per cent (75%) shall pass a 100-mesh sieve. It shall contain calcium and magnesium carbonates equivalent to not less than ninety per cent (90%) of calcium carbonate (adopted 1931, withdrawn for amendment, 1935).

## GROUND RAW BONE

Ground raw bone is dried ground animal bones that have not been previously steamed under pressure (adopted 1929).

## GROUND SHELL LIME

Ground shell lime is the product obtained by grinding the shells of mullusks. Not less than seventy-five per cent (75%) shall pass a 100-mesh sieve. It shall contain calcium and magnesium carbonates equivalent to not less than eighty per cent (80%) of calcium carbonate (adopted 1931, withdrawn for amendment, 1935).

## GROUND SHELL MARL

Ground shell marl is the product obtained by grinding natural deposits of shell marl. Not less than seventy-five per cent (75%) shall pass a 100-mesh sieve. It shall contain calcium and magnesium carbonates equivalent to not less than eighty per cent of calcium carbonate (adopted 1931, withdrawn for amendment, 1935).

## GROUND STEAMED BONE

Ground steamed bone is ground animal bones that have been previously steamed under pressure (adopted 1929).

## GYPSUM, LAND PLASTER, OR CRUDE CALCIUM SULFATE

Gypsum, land plaster, or crude calcium sulfate are products consisting chiefly of calcium sulfate. They may contain twenty per cent (20%) of combined water. (They do not neutralize acid soils) (adopted 1931).

## HIGH CALCIC PRODUCTS

High calcic products are materials of which 90% or more of the total calcium and magnesium content consists of calcium oxide (adopted 1935).

## HIGH MAGNESIC PRODUCTS

High magnesian products are materials in which more than 10 per cent of the total calcium and magnesium oxide consists of magnesium oxide (adopted 1935).



HOOF AND HORN MEAL

Hoof and horn meal is processed, dried, and ground hoofs and horns (adopted 1929).

HYDRATED OR SLAKED LIME

Hydrated or slaked lime is a dry product consisting chiefly of the hydroxide of calcium and oxide-hydroxide of magnesium (adopted 1935).

KAINIT

Kainit is a potash salt containing potassium and sodium chlorides and sometimes sulfate of magnesia with not less than twelve per cent (12%) of potash ( $K_2O$ ) (adopted 1928).

LEACHED WOOD ASHES

Leached wood ashes are ashes from burned unleached wood with part of their plant food removed by artificial means or by exposure to rains, snows, or other solvent (adopted 1928).

LIME

The word "lime" when applied to liming materials means either calcium oxide or calcium and magnesium oxides (adopted 1934).

MANGANESE

Manganese. The Committee recommends that either the water-soluble or available manganese in fertilizers be expressed as manganese (Mn) (adopted 1935).

MANGANESE SULFATE

Manganese sulfate. The term manganese sulfate, when applied to an ingredient of a mixed fertilizer, shall designate anhydrous manganese sulfate ( $MnSO_4$ ) (adopted 1935).

MANURE SALTS

Manure salts are potash salts containing high percentages of chloride and from twenty per cent (20%) to thirty per cent (30%) of potash ( $K_2O$ ). The term double manure salts is discontinued (adopted 1925).

MONO-AMMONIUM PHOSPHATE (FERTILIZER GRADE)

Monoammonium phosphate (fertilizer grade) is a commercial salt made by combining phosphoric acid with ammonia. It shall contain not less than ten per cent (10%) of nitrogen and not less than forty-six per cent (46%) of available phosphoric acid (adopted 1934).

MURIATE OF POTASH (COMMERCIAL POTASSIUM CHLORIDE)

Muriate of potash is a potash salt containing not less than forty-eight per cent (48%) of potash ( $K_2O$ ), chiefly as chloride (adopted 1929).

NITRATE OF POTASH (COMMERCIAL POTASSIUM NITRATE)

Nitrate of potash is a salt containing not less than twelve per cent (12%) of nitrogen and forty-four per cent (44%) of potash ( $K_2O$ ) (adopted 1927).

NITRATE OF SODA (COMMERCIAL SODIUM NITRATE)

Nitrate of soda is commercial sodium nitrate containing not less than fifteen per cent (15%) of nitrogen, chiefly as sodium nitrate (adopted 1928).

## PEAT

Peat is partly decayed vegetable matter of natural occurrence. It is composed chiefly of organic matter which contains some nitrogen of low activity (adopted 1931).

## CHARRED PEAT

Charred peat is peat artificially dried at a temperature that causes partial decomposition (adopted 1931).

## PHOSPHATE ROCK

Phosphate rock is a natural rock containing one or more calcium phosphate minerals of sufficient purity and quantity to permit its use, either directly or after concentration, in the manufacture of commercial products (adopted 1933).

## PHOSPHORIC ACID

The term phosphoric acid designates phosphorus pentoxide ( $P_2O_5$ ) (adopted 1934).

## POTASH

The term potash designates potassium oxide ( $K_2O$ ) (adopted 1934).

## PRECIPITATED BONE PHOSPHATE

Precipitated bone phosphate is a by-product from the manufacture of glue from bones and is obtained by neutralizing the hydrochloric acid solution of processed bone with calcium hydroxide. The phosphoric acid is chiefly present as dicalcium phosphate (adopted 1933).

## PRECIPITATED PHOSPHATE

Precipitated phosphate is a product consisting mainly of dicalcium phosphate obtained by neutralizing with calcium hydroxide the acid solution of either phosphate rock or processed bone (adopted 1933).

## PROCESS TANKAGES

Process tankages are products made under steam pressure from crude inert nitrogenous materials, with or without the use of acids, for the purpose of increasing the activity of the nitrogen. These products shall be called "Process Tankages" with or without further qualification. The water-insoluble nitrogen in these products shall test at least fifty per cent (50%) active by the alkaline, or eighty per cent (80%) by the neutral permanganate method (adopted 1931).

PRODUCTS SECURED BY HEATING CALCIUM PHOSPHATE WITH ALKALI SALTS  
CONTAINING POTASH

Products secured by heating calcium phosphate with alkali salts containing potash are non-acid phosphates with potash. They are not potassium phosphate (adopted 1928).

## QUICK LIME, BURNED LIME, CAUSTIC LIME, LUMP LIME, UNSLAKED LIME

Quick lime, burned lime, caustic lime, lump lime, unslaked lime. These designations shall apply to calcined materials, the major part of which is calcium oxide, in natural association with a lesser amount of magnesium oxide, and which is capable of slaking with water (adopted 1935).

## SHEEP MANURE—WOOL WASTE

Sheep manure-wool waste is the by-product from wool-carding establishments consisting chiefly of sheep manure, seeds, and wool fiber (adopted 1931).

**SOFT PHOSPHATE WITH COLLOIDAL CLAY**

Soft phosphate with colloidal clay is very finely divided low-analysis by-product from mining Florida rock phosphate by a hydraulic process in which the colloidal materials settle at points in artificial ponds and basins farthest from the washer, and are later removed after the natural evaporation of the water (adopted 1933).

**SULFATE OF AMMONIA (COMMERCIAL AMMONIUM SULFATE)**

Sulfate of ammonia (commercial ammonium sulfate) is a commercial product composed chiefly of ammonium sulfate. It shall contain not less than twenty and five-tenths per cent (20.5%) of nitrogen (adopted 1931).

**SULFATE OF POTASH (COMMERCIAL POTASSIUM SULFATE)**

Sulfate of potash is a potash salt containing not less than forty-eight per cent (48%) of potash ( $K_2O$ ), chiefly as sulfate, and not more than two and one-half per cent (2.5%) of chlorine (adopted 1929).

**SULFATE OF POTASH-MAGNESIA**

Sulfate of potash-magnesia is a potash salt containing not less than twenty-five per cent (25%) of potash ( $K_2O$ ), nor less than twenty-five per cent (25%) of sulfate of magnesia, and not more than two and one-half (2.5%) of chlorine (adopted 1925).

**SUPERPHOSPHATE**

Superphosphate is a cured mixture of rock phosphate and sulfuric acid and/or phosphoric acid. The grade shall always be used as a prefix to the name. Example: 16% Superphosphate. The use of the term Acid Phosphate is discontinued (adopted 1935).

**TANKAGE**

Tankage (without qualification) is the rendered, dried, and ground by-product, largely meat and bone from animals (slaughtered or that have died otherwise) (adopted 1929).

**UNIT OF PLANT FOOD**

A unit of plant food is twenty (20) pounds, or one per cent (1%) of a ton (adopted 1926).

**UNLEACHED WOOD ASHES**

Unleached wood ashes are ashes from burned unleached wood that have had no part of their plant food removed and that contain four per cent (4%) or more of water-soluble potash ( $K_2O$ ) (adopted 1928).

**WASTE LIME, BY-PRODUCT LIME**

Waste lime, by-product lime, is any industrial waste or by-product containing calcium or calcium and magnesium in forms that will neutralize acids. It may be designated by the prefixation of the name of the industry or process by which it is produced, i.e., gas-house lime, tanners' lime, acetylene lime-waste, lime-kiln ashes, calcium silicate, etc. (adopted 1931).

**INTERPRETATIONS****ACTIVITY OF WATER IN SOLUBLE NITROGEN IN MIXED FERTILIZERS**

The alkaline and neutral permanganate methods distinguish between the better and the poorer sources of water-insoluble nitrogen; they do not show the percentage availability of the material. The available nitrogen of any product is measured only by carefully conducted vegetation experiments.

(a) The methods shall be used on mixed fertilizers containing water-insoluble nitrogen amounting to three-tenths of one per cent (0.3%) or more of the weight of the material. If a total nitrogen exceeds the minimum guarantee and is accompanied by a low activity of the insoluble nitrogen, the over-run shall be taken into consideration in determining the classification of the water-insoluble nitrogen.

(b) The water-insoluble nitrogen in mixed fertilizers showing an activity below fifty per cent (50%) by the alkaline method, and also below eighty per cent (80%) by the neutral method, shall be classed as inferior. This necessitates the use of both methods, also the provision as to over-run in (a), before classifying as inferior (adopted 1927).

#### AMOUNT OF CHLORINE PERMISSIBLE IN FERTILIZERS IN WHICH THE POTASH IS CLAIMED AS SULFATE

Chlorine in mixed fertilizers in which the potash is claimed as sulfate shall not exceed one-half of one per cent (0.5%) more than what is called for in the minimum potash content based on the definition for sulfate of potash formulated by the committee. Calculate as follows: 0.05 times the percentage of potash found plus 0.5 (adopted 1928).

#### BRAND NAME TO INCLUDE ANALYSIS OR GRADE OF FERTILIZER

The analysis or grade of a fertilizer should be included with its brand name, and so used by the manufacturer on sacks and in printed literature and by the control official in his reports and publications (adopted 1927).

#### CYANAMIDE AND UREA NITROGEN

Cyanamide and urea nitrogen is synthetic non-protein organic nitrogen (adopted 1931).

#### FERTILIZER FORMULA

A fertilizer formula shall express the quantity and grade of the crude stock materials used in making a fertilizer mixture. For example: 800 pounds of 16 per cent superphosphate, 800 pounds of tankage (7.40 nitrogen and 9.15 total phosphoric acid), and 400 pounds of sulphate of potash-magnesia (twenty-six per cent (26%) potash) (adopted 1926).

#### FINELY GROUND AS APPLIED TO BASIC PHOSPHATE SLAG

Finely ground in the definition of basic phosphate slag shall refer to actual size of particles as determined by the use of standard sieves, as follows: seventy per cent (70%) or more shall pass a 100-mesh, and ninety per cent (90%) or more shall pass a 50-mesh sieve (adopted 1927).

#### THE WORD "LIME" AS APPLIED TO FERTILIZERS

The term lime shall not be used in the registration, labelling, or guaranteeing of fertilizers or fertilizing materials, unless the lime is in a form to neutralize soil acidity, such as the oxide, hydroxide, or carbonate, or equivalent magnesia compounds (adopted 1935).

#### NET WEIGHTS

The weights appearing on packages of fertilizer, agricultural lime, and liming materials shall always mean net weights (adopted 1932).

#### ORDER OF TERMS

The order of terms in mixed fertilizers shall be nitrogen first, phosphoric acid second, and potash third (adopted 1930).

NAME OF A FERTILIZER MATERIAL USED AS THE BRAND NAME OR PART OF THE  
BRAND NAME OF A MIXED FERTILIZER

When the name of a fertilizer material is used as part of the brand name of a mixed fertilizer, as for example blood, bone or fish, the nitrogen or phosphoric acid shall be derived from or supplied entirely by the material named. When the name of a fertilizer material is used as a brand or as part of a brand and the nitrogen and phosphoric acid is not supplied by the material named, the word brand shall follow the name of the material. Example: Fish Brand Fertilizer (adopted 1930).

STATEMENT OF GUARANTIES

The statement of guarantee of mixed fertilizers shall be given in whole numbers (adopted 1930).

UNIFORMITY IN USE OF TERMS "PHOSPHORIC ACID" AND "POTASH"

As the terms phosphoric acid and potash are used universally in guaranteeing and in reporting the analyses of fertilizers, it is recommended that the same terms also be used in reporting and discussing the results of analyses of related materials (adopted 1934).

REGISTRATIONS FOR 1938

For 1938, 58 firms and individuals registered 345 brands of fertilizer at this Station for sale in this State. As required by statute, the brands so registered are listed as follows:

**Acme Guano Co., Baltimore, Md.**

Acme 4-8-4  
Acme 4-8-7  
Acme 5-8-7  
Acme 7-6-6 Top Dressing  
Acme 16% Superphosphate  
Acme 20% Superphosphate

**Ted Alkire, Lubbock, Texas**

Kireal Cotton Hull Ash

**American Agricultural Chemical Co.,  
North Weymouth, Mass.**

AA 3-10-6 Fertilizer  
AA 5-10-5 Fertilizer  
AA Complete Manure with 10% Potash  
4-8-10  
AA Double Strength Fertilizer 8-16-14  
AA General Crop Fertilizer 2-10-2  
AA Monarch Fertilizer 4-8-4  
AA Peerless Fertilizer 4-8-7  
AA Potato & Vegetable Fertilizer 5-8-7  
AA Prolific 10% Potash Fertilizer 2-8-10  
AA 16% Superphosphate  
AA 20% Superphosphate  
AA Tobacco Starter 5-5-15  
AA Top Dresser 7-6-6  
Agrico for Aroostook with 10% Potash  
5-8-10  
Agrico for Corn 3-10-6  
Agrico for Corn 4-12-6  
Agrico for Fruit 9-6-6  
Agrico for Gardens 4-10-4

Agrico for Lawns, Trees and Shrubs  
7-7-5  
Agrico for New England 4-8-10  
Agrico for Pastures & Top Dressing  
7-6-6  
Agrico for Potatoes & Vegetables 5-8-7  
Agrico for Seeding Down 4-16-20  
Agrico for Tobacco 6-3-6  
Agrico for Truck 5-10-5  
Bradley's XL Fertilizer 3-10-4  
Double A Tobacco Fertilizer 5-3-5  
Castor Pomace  
Fine Ground Bone  
Fish Meal  
Pulverized Sheep & Goat Manure  
Sanderson's Formula B 4-8-7  
Sulphate of Ammonia

**American Cyanamid Co., 30 Rocke-  
feller Plaza, New York, N. Y.**

'Ammo-Phos' 11-48-0  
21% 'Aero' Cyanamid Granular

**Apothecaries Hall Co., Waterbury,  
Conn.**

Bone Meal 2.47%  
Bone Meal 3.70%  
Bone and Meat Tankage  
Cal Nitro  
Castor Pomace  
Cotton Hull Ashes  
Dry Ground Fish  
Dry Ground Fish Japanese

Liberty Corn 2-10-2  
 Liberty Fish, Bone & Potash 3-10-4  
 Liberty General Fertilizer 5-10-5  
 Liberty Green-Gro 6-5-3  
 Liberty High Analysis 10-16-14  
 Liberty High Grade Corn 2-12-4  
 Liberty High Grade Market Gardeners  
 5-8-7  
 Liberty High Grade Tobacco Manure  
 6-3-7  
 Liberty Market Gardeners Special 4-8-4  
 Liberty Potato & General Crops 4-8-10  
 Liberty Potato and Market Gardeners  
 (Potash as Muriate) 4-8-7  
 Liberty Special Fertilizer for Fruit 7-8-6  
 Liberty Special Fertilizer for Lawns,  
 Gardens, etc. 4-4-0  
 Liberty Tobacco Fertilizer 6-3-6  
 Liberty Tobacco Mixture 7-3-7  
 Liberty Tobacco Special 5 3-5  
 Liberty Tobacco Starter 4-10-0  
 Liberty Tobacco Starter with Potash  
 5-4-15  
 Liberty Top Dresser for Grass and Grain  
 8-8-8  
 Liberty Tree and Shrub Food 10-8-8  
 Liberty 8-6-6  
 Liberty 8-16-16  
 Linseed Meal (Archer-Daniels-Midland)  
 Nitrate of Potash  
 Precipitated Bone  
 Sheep Manure  
 Sulphate of Ammonia  
 Superphosphate 16%  
 Superphosphate Gran. 20%  
 Tankage

**Armour Fertilizer Works, 120 Broad-  
way, New York, N. Y.**

Armour's Big Crop Fertilizer 3-12-6  
 Armour's Big Crop Fertilizer 4-8-4  
 Armour's Big Crop Fertilizer 4-8-7  
 Armour's Big Crop Fertilizer 4-8-10  
 Armour's Big Crop Fertilizer 5-8-7  
 Armour's Big Crop Fertilizer 5-10-5  
 Armour's Big Crop Fertilizer 7-6-6  
 Armour's Big Crop Fertilizer 8-16-20  
 Armour's Big Crop Superphosphate  
 0-16-0  
 Armour's Big Crop Superphosphate  
 0-20-0  
 Armour's Big Crop Tobacco Special  
 5-3-5  
 Armour's Big Crop Tobacco Special  
 6-3-6  
 Armour's Big Crop Tobacco Starter  
 5-5-15  
 Armour's Bone Meal Fertilizer 2.47-23  
 Armour's Garden and Lawn Fertilizer  
 4-8-6  
 Armour's Special Putting Green Mixture  
 8-5-2  
 Sheep and Goat Manure 1.25-1T-2

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

Cow-Eta Brand 41% Protein Prime  
Quality Cottonseed Meal

**Associated Seed Growers, Inc., 205  
Church St., New Haven, Conn.**

Clark's 3-10-6  
 Clark's 4-8-10  
 Clark's Tip Top 5-8-7  
 Clark's 5-10-5

**Atkins & Durbrow, Inc., 165 John St.,  
New York, N. Y.**

**Henure**

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

Arcadian the American Nitrate of Soda  
 Arcadian Sulphate of Ammonia  
 Sulphate of Ammonia

**F. A. Bartlett Tree Expert Co., 60  
Canal St., Stamford, Conn.**

Bartlett Green Tree Food 6-7-4

**The Baugh & Sons Co., 25 S. Calvert  
St., Baltimore, Md.**

Baugh's Fish Bone and Potash Mixture  
 4-8-4  
 Baugh's Half Century Perfection Brand  
 4-8-7  
 Baugh's Peruvian Guano Substitute  
 5-8-7  
 Baugh's Pure Steamed Bone Meal  
 Baugh's Raw Bone Meal  
 Baugh's Special Top Dresser 7-6-6  
 Baugh's  $\frac{3}{4}$  Century Perfection Brand  
 3-10-6  
 Baugh's Truckers Favorite 5-10-5  
 Baughphos, The Ideal 16% Superphos-  
 phate  
 Baughphos, The Ideal 20% Superphos-  
 phate  
 Muriate of Potash

**The Berkshire Chemical Co., Bridge-  
port, Conn.**

Berkshire Berry and Tomato Special  
 Fertilizer 3-10 6  
 Berkshire Castor Pomace  
 Berkshire Complete Fertilizer 2-12-2  
 Berkshire Cotton Hull Ash  
 Berkshire Dry Ground Menhaden Fish  
 Berkshire Fine Ground Bone  
 Berkshire Golf Green Fertilizer 8-5-2  
 Berkshire Grass Special Fertilizer 6-6-5  
 Berkshire High Grade Tobacco Fer-  
 tilizer 6-3-6  
 Berkshire Long Island Special Fer-  
 tilizer 4-8-7  
 Berkshire Market Garden Fertilizer  
 4-8-4  
 Berkshire Potato and Garden Special  
 Fertilizer 5-8-7

Berkshire Sheep and Goat Manure  
 Berkshire Superphosphate 16%  
 Berkshire Tobacco Special Fertilizer  
 7-3-7  
 Davco Superphosphate — Granulated  
 20%

**Bisbee Linseed Co., Inc., Amsterdam,  
 N. Y.**

“K & M” Brand 32% Protein Old Process  
 Linseed Meal

**Central Soya Co., Inc., Fort Wayne,  
 Ind.**

Central Star Brand Soybean Oilmeal

**Chilean Nitrate Sales Corp., 120  
 Broadway, New York, N. Y.**

Champion Brand Chilean Nitrate of  
 Soda  
 Chilean Nitrate of Soda Containing  
 Potash  
 Old Style Chilean Nitrate of Soda

**Consolidated Chemical Industries,  
 Inc., Woburn, Mass.**

Fertilizer Bone Meal  
 1/70 Steamed Bone Meal (for fertilizer  
 purposes)

**Consolidated Rendering Co., 178 At-  
 lantic Ave., Boston, Mass.**

Corenco 3-10-4 Animal Brand  
 Corenco 3-12-16  
 Corenco 4-8-4 Corn and Vegetable  
 Corenco 4-8-7 Market Garden  
 Corenco 4-8-10 Potato Grower  
 Corenco 5-5-5 Lawn and Shrub Fer-  
 tilizer  
 Corenco 5-5-15  
 Corenco 5-8-7 General Crop Manure  
 Corenco 5-8-10 Peerless Potato  
 Corenco 5-10-5 Super Truck  
 Corenco 6-3-6 Special Tobacco Grower  
 Corenco 7-3-7 Super Tobacco Grower  
 Corenco 7-6-6 Complete Fruit and Top  
 Dressing  
 Corenco 8-16-14 Two in One  
 Corenco Cod and Haddock Meal  
 Ground Bone  
 Ground Tankage  
 Muriate of Potash  
 Sheep Manure  
 Superphosphate 16%  
 Superphosphate 20%  
 Sulphate of Ammonia  
 Sulphate of Potash

**C & R Sales Co., 45 Chatham St.,  
 Worcester, Mass.**

Nitro-Organure 10-6-4

**Davey Tree Expert Co., Kent, Ohio**

Davey Shredded Cattle Manure 1-1-2  
 Davey Tree Food 10-3-3

**E. I. du Pont de Nemours & Co.,  
 Wilmington, Del.**  
 “Uramon”

**Eastern States Farmers’ Exchange,  
 Springfield, Mass.**

Eastern States 0-20-20  
 Eastern States 4-8-8  
 Eastern States 4-12-4  
 Eastern States 4-16-20  
 Eastern States 5-5-15  
 Eastern States 6-8-6  
 Eastern States 7-14-19  
 Eastern States 8-4-8 Tobacco  
 Eastern States 8-16-16  
 Eastern States 8-16-16 L. C. S.  
 Eastern States 8-20-12  
 Eastern States 8-24-8  
 Eastern States 10-5-10 Tobacco  
 Eastern States 12-4-4  
 Eastern States 12-16-12  
 Eastern States Agricultural Urea  
 Eastern States Calnitro  
 Eastern States Castor Pomace  
 Eastern States Cottonhull Ash  
 Eastern States Dry Ground Fish  
 Eastern States Ground Steam Bone  
 Eastern States Muriate of Potash  
 Eastern States Nitrate of Potash  
 Eastern States Precipitated Bone  
 Eastern States Sulphate of Ammonia  
 Eastern States Sulphate of Potash  
 Eastern States 20% Superphosphate  
 Eastern States 40% Superphosphate

**Faesy & Besthoff, Inc., 22 E. 40th St.,  
 New York, N. Y.**

Bone Meal

**Flower City Charcoal Co., Rochester,  
 N. Y.**

Char-Gro 4-16-4

**Ford Motor Co., Dearborn, Michigan**

Ford Ammonium Sulphate

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

Dixie Brand Cottonseed Meal

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

International Caribee 5-10-10  
 International Castor Pomace  
 International 4-8-4  
 International 4-8-10  
 International 5-8-7

- International 7-6-6  
 International 16% Superphosphate  
 International 20% Superphosphate
- Spencer Kellogg & Sons, Inc., Buffalo, N. Y.**  
 Castor Pomace  
 Kellogg's 32% Protein Old Process  
 Linsced Meal
- Killen & Hall, Inc., Post Road, Darien, Conn.**  
 Killen and Hall Tree Food 8-5-2
- Leary, The Florist, 24 E. Main St., Waterbury, Conn.**  
 All-Gro 4-8-5
- L. B. Lovitt & Co., Memphis, Tenn.**  
 "Lovit Brand" 41% Protein Cotton  
 Seed Meal
- Natural Guano Co., Aurora, Ill.**  
 Sheep's Head Sheep Manure
- North American Car Corp., Premier Poultry Manure Div., 327 South La Salle St., Chicago, Ill.**  
 Premier Brand Pulverized Poultry  
 Manure
- N. V. Potash Export My., Inc., 19 West 44th St., New York, N. Y.**  
 N. V. Muriate of Potash 50%  
 N. V. Muriate of Potash 60%  
 N. V. Sulphate of Potash 48%  
 N. V. Sulphate of Potash-Magnesia
- Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.**  
 Old Deerfield Complete Tobacco 5-3-5  
 Old Deerfield Cottonhull Ashes  
 Old Deerfield Dry Ground Fish  
 Old Deerfield Grass Top Dressing 7-6-6  
 Old Deerfield Ground Steamed Bone  
 Old Deerfield High Grade Tobacco 6-3-7  
 Old Deerfield Nitrate of Potash  
 Old Deerfield Superphosphate 16%  
 Old Deerfield Tobacco Starter, Bone  
 and Potash 5-8-12  
 Valley Brand 4-8-4  
 Valley Brand 5-8-7
- Olds & Whipple, Inc., Hartford, Conn.**  
 Luxura 5-8-6  
 O&W 6-3-5 Blue Label Tobacco Fer-  
 tilizer-Potash derived from CHA  
 O&W 6-3-6 Blue Label Tobacco Fer-  
 tilizer-Potash derived from CHA
- O&W 6-3-6 Blue Label Tobacco Fer-  
 tilizer  
 O&W Bone Meal  
 O&W Castor Pomace  
 O&W 5-3-5 Complete Tobacco Fer-  
 tilizer  
 O&W 3-10-4 Corn Special Fertilizer  
 O&W Cotton Hull Ashes  
 O&W Dry Ground Fish  
 O&W 5-4-15 H. G. Tobacco Starter and  
 Potash Compound  
 O&W 4-8-4 Market Garden Fertilizer  
 O&W Nitrate of Potash  
 O&W 4-8-7 Potato and General Purpose  
 Fertilizer  
 O&W 5-8-7 Potato and General Purpose  
 Fertilizer  
 O&W Precipitated Bone  
 O&W 6-3-7 Special Tobacco Fertilizer  
 O&W Superphosphate 16%  
 O&W 8-6-6 Top Dressing and Grass  
 Fertilizer
- Outpost Nurseries, Inc., Ridgefield, Conn.**  
 Outpost Plant Food 8-5-2
- Perkins Oil Co., Memphis, Tenn.**  
 Golden Rod Brand Cottonseed Meal
- Plantspur Products Co., Ridgefield, N. J.**  
 Plantspur Fertilizer 3-3-2
- The Frank S. Platt Co., 450 State St., New Haven, Conn.**  
 Platco Special 5-8-7 Fertilizer  
 Platt's Special 10-5-5 Lawn Fertilizer
- The Pulverized Manure Co., 503 Exchange Bldg., Union Stock Yards, Chicago, Ill.**  
 Wizard Brand Cow Manure  
 Wizard Brand Pulverized Sheep Manure
- The Rogers & Hubbard Co., Portland, Conn.**  
 Fine Ground Bone  
 Golf Course Fertilizer 8-6-2  
 Gro-Fast Plant Food 5-6-6  
 Hubbard's All Soils Fertilizer 4-8-4  
 Hubbard's Climax Tobacco Fertilizer  
 5-3-5  
 Hubbard's Corn Fertilizer 4-8-7  
 Hubbard's Corn and Grain Fertilizer  
 3-10-4  
 Hubbard's High Potash Fertilizer 4-8-10  
 Hubbard's Potato Fertilizer 5-8-7  
 Hubbard's Seeding Fertilizer 3-7-6  
 Hubbard's Tobacco Grower 6-3-6  
 Hubbard's Tobacco Manure 5-8-10



- Hubbard's Top Dressing 8-5-8  
 Pure Raw Knuckle Bone Flour  
 Red H 4-8-4  
 Red H 4-8-7  
 Red H 4-8-8  
 Red H 4-8-10  
 Red H 5-8-7  
 Red H 5-10-10  
 Red H 7-6-6  
 Red H 8-16-14  
 Sheep and Goat Manure  
 Strictly Pure Bone  
 Superphosphate 16%  
 Superphosphate 20%
- O. M. Scott & Sons Co., Marysville, Ohio**  
 Scott's Turf Builder 10-6-4
- Sewerage Commission of the City of Milwaukee, Milwaukee, Wis.**  
 Milorganite
- M. L. Shoemaker & Co., Inc., Philadelphia, Pa.**  
 Shoemaker's "SWIFT-SURE" Tobacco Starter 4-10-0
- Soil Builders, Inc., Orlando, Florida**  
 Soil Mineral Colloids
- Standard Wholesale Phosphate & Acid Works, Inc., Baltimore, Md.**  
 Standard 3-10-6  
 Standard 4-8-4  
 Standard 4-8-7  
 Standard 4-16-20  
 Standard 5-8-7  
 Standard 5-8-10  
 Standard 5-10-5  
 Standard 7-6-6  
 Standard 8-6-6  
 Standard 8-16-14  
 Standard Nitrate of Soda  
 Steamed Bone Meal  
 Standard 16% Superphosphate  
 Standard 20% Superphosphate
- Stump & Walter Co., 132 Church St., New York, N. Y.**  
 Sawco Bone 2.47—24.00%  
 Sawco Emerald Grass Fertilizer 5-7-3  
 Sawco General Garden Fertilizer 5-10-5  
 Sawco Pulverized Sheep Manure 2-1-2  
 Sawconure 3-1-1  
 Sawconite 6-3-1
- Summers Fertilizer Co., Inc., 604 Stock Exchange, Bldg., Baltimore, Md.**  
 Summers "Best-On-Earth" 3-10-6  
 Summers "Best-On-Earth" 4-8-4  
 Summers "Best-On-Earth" 4-8-10  
 Summers "Best-On-Earth" 5-8-7  
 Summers "Best-On-Earth" 5-8-10 Fertilizer
- Summers "Best-On-Earth" 16% Superphosphate  
 Summers "Best-On-Earth" 20% Superphosphate  
 Summers Bone Meal  
 Summers Venezuelan Goat Manure
- Swift & Co. Fertilizer Works, Baltimore, Md.**  
 Bone Meal Fertilizer  
 Roselwan, 5-8-7  
 Swift's Sheep Manure 1.85-1-1.75  
 Swift's Special Golf Fertilizer, 6-12-4  
 Swift's Special Golf Fertilizer, 12-6-4 Vigoro, 4-12-4
- Synthetic Nitrogen Products Corp., 285 Madison Ave., New York, N. Y.**  
 Calcium Nitrate (Nitrate of Lime)  
 Nitrophoska 15-30-15  
 Urea
- Tennessee Corp., Lockland, Ohio**  
 Loma 5-10-4  
 Soil-Prep 4-2-2
- I. P. Thomas & Son Co., 721 Market St., Camden, N. J.**  
 I. P. Thomas 3-10-6  
 I. P. Thomas 5-8-7  
 16% Superphosphate  
 20% Superphosphate
- Virginia-Carolina Chemical Co., Richmond, Va.**  
 BloomAid (New Process) 4-10-3  
 V C Fairway Fertilizer (New Process) 6-6-4
- Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J.**  
 Bovung
- Thomas Wood & Sons, Inc., 12-14 Midland Ave., Montclair, N. J.**  
 Woodgro Pure Cow Manure Dehydrated
- F. H. Woodruff & Sons, Milford, Conn.**  
 Gro-Sod Lawn Food 10-6-4
- Woodruff Fertilizer Works, Inc., Orange, Conn.**  
 Animal Tankage  
 Bone Meal  
 Woodruff's Big Crop Fertilizer 5-8-7  
 Woodruff's Corn Fertilizer 4-16-4  
 Woodruff's Market Garden Fertilizer 4-8-4  
 Woodruff's Superphosphate 16%  
 Woodruff's Superphosphate 20%  
 Woodruff's 3-10-6 Fertilizer  
 Woodruff's Top Dresser 7-6-6  
 Woodruff's Yankee Special Fertilizer 5-10-5

## INSPECTION OF 1938

The Station Agent has visited 68 towns and villages in the State and has drawn 377 official samples of fertilizer, including all the registered brands that could be found. The classification of these and of other samples is given in the summary:

## CLASSIFICATION OF FERTILIZER MATERIAL, 1938

	Number of samples	Page
<b>I. <i>Containing chiefly Nitrogen</i></b>		
Nitrate of soda.....	6	19
Calcium nitrate.....	2	19
Cyanamid.....	1	19
Urea.....	2	19
Uramon.....	5	19
Ammonium sulfate.....	7	23
Castor pomace.....	15	19
Cottonseed meal.....	93	19
Linseed meal.....	6	19
Soybean oil meal.....	8	19
<b>II. <i>Containing Chiefly Phosphoric Acid</i></b>		
Superphosphate.....	38	19
Precipitated bone.....	4	19
Natural phosphate.....	1	19
<b>III. <i>Containing Chiefly Potash</i></b>		
Muriate of potash.....	6	20
Sulphate of potash.....	5	20
Cottonhull ashes.....	57	20
Wood ashes.....	6	20
Charcoal ashes.....	1	20
<b>IV. <i>Containing Nitrogen and Potash</i></b>		
Nitrate of potash.....	12	20
Nitrate of soda containing potash.....	1	20
<b>V. <i>Containing Nitrogen and Phosphoric Acid</i></b>		
Dry ground fish.....	29	20
Tankage.....	6	20
Ground bone.....	24	20
<b>VI. <i>Mixed Fertilizers</i></b>		
Commercial mixtures.....	247	21
Special and home mixtures.....	36	22
<b>VII. <i>Miscellaneous</i></b>		
Sheep manure, etc.....	21	22
Lime.....	32	22
Other miscellaneous.....	67	22
Check meals and fertilizers.....	42	22
Tobacco stems.....	5	56
<b>Total.....</b>	<b>791</b>	

**I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN****NITRATE OF SODA, ETC.**

Analyses of 17 official samples of materials in this group are given in Table 1, page 23.

One sample of uramon, 9641, was deficient, but two others fully met guaranties. Urea, 9127, was slightly deficient. All other samples fully met guaranties.

Six unofficial samples were analyzed for purchasers.

**VEGETABLE PRODUCTS**

Cottonseed meal, castor pomace, linseed meal and soybean meal are largely used as vegetable sources of nitrogen for fertilizer.

Fourteen official samples of such materials were examined and all fully satisfied guaranties. Analyses are given in Table 2, page 24.

One official sample of soybean meal was analyzed, and seven were examined for purchasers.

The total number of samples analyzed was 121; cottonseed meal, 93 samples, predominated.

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

Superphosphate is the product obtained by treating phosphate rock with sulphuric acid, and when so made it contains 16 percent of available phosphoric acid. In recent years superphosphates of higher available phosphoric acid content are not uncommon. These are made by treating rock phosphate with phosphoric acid, or with sulphuric and phosphoric acids, and since they contain less calcium sulphate than ordinary superphosphate their available phosphoric acid is enhanced proportionally.

The grade of superphosphates should always be declared on labels and in registrations, e.g.: 16 percent, 20 percent, 40 percent, as the case may be.

Analyses of 30 official samples of superphosphates are given in Table 3, page 25. Guaranties were met in all cases except in samples 9202 and 9229 where deficiencies of 0.47 percent and 0.71 percent were found.

Eight samples of superphosphates were examined for purchasers.

Four official samples of precipitated bone phosphate or "precipitated bone" were examined and analyses are included in Table 3. Guaranties of 38 percent were met or exceeded in all cases.

A sample of "mineral colloids", a natural phosphate, contained 21.89 percent of total phosphoric acid which substantially met the guaranty of 22 percent.

### III. RAW MATERIALS CHIEFLY VALUABLE FOR POTASH

Analyses of official samples of potash salts and of cottonhull ashes are given in Table 4, page 28.

Guaranties for muriate of potash and for sulphate of potash were fully met except in sample 9177, muriate of potash, where an 0.5 percent deficiency in potash was found.

Cottonhull ashes are largely used as a source of potash in tobacco mixtures. Because of their variable potash content it is difficult to fix a guaranty and sales are generally made on a unit basis.

In addition to the analyses given in Table 4, two samples of sulphate of potash and 48 of cottonhull ashes were examined for purchasers.

Six samples of wood ashes were submitted by Mr. Walter Scott of Niantic. They contained from 3 to 8.5 percent of water-soluble potash.

One sample of charcoal ashes submitted by the Consolidated Cigar Corp. of Hartford contained 14.62 percent of potash.

### IV. RAW MATERIALS SUPPLYING NITROGEN AND POTASH

Analyses of four official samples of nitrate of potash and one of nitrate of soda-potash are given in Table 5, page 29. Guaranties for potash were met but three samples were a little deficient in nitrogen.

Eight samples of nitrate of potash were analyzed for purchasers.

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

Analyses of official samples of dry ground fish, tankage and ground bone are given in Tables 6, 7 and 8, pages 30, 31, 32.

Four samples of dry ground fish showed deficiencies in nitrogen exceeding 0.1 percent. There was no evidence of added mineral forms of nitrogen.

Three samples of tankage showed nitrogen deficiencies.

The samples of ground bone showed no notable deficiencies in total nitrogen or in phosphoric acid. One sample, 9230, contained a considerable amount of ammonium sulphate; only about one-half of the nitrogen was from bone. Sold as bone meal the article is adulterated, but there is no objection to the sale of such a mixture under a tag or label descriptive of its composition. Our information is that only two tons of this material were sold in this State.

Some years ago dry ground fish was found on sale here largely adulterated with ammonium sulphate but no recurrence of that practice has been discovered.

Twenty-two samples of materials of this group have been examined for purchasers.

## VI. MIXED FERTILIZERS

Analyses of 215 official samples of mixed fertilizers are given in Table 9, pages 34-47.

The results may be summarized as follows:

Total number of samples.....		215
Samples deficient in:		
One item.....	59	
Two items.....	5	
Three items.....	1	65
Percentage of samples meeting guaranties in all respects.....		70
Total guaranties made.....		641
Guaranties not met:		
Nitrogen.....	35	
Phosphoric acid.....	15	
Potash.....	22	72
Percentage of guaranties met.....		89

Only one sample showed a commercial deficiency greater than \$1.00 per ton. This was Standard 4-16-20, No. 8801 (Standard Wholesale Phosphate and Acid Works).

There was little reason to question the quality of the organic nitrogen in mixed fertilizers this year. By the alkaline method of judging this factor only three samples showed "activity" values of less than 50 percent. By the neutral method one of these was above 80 percent and the other two were not sufficiently under 80 percent to warrant serious question.

The acid-forming or base-forming character of the various brands analyzed this year has been judged by the tentative method adopted by the Association of Official Agricultural Chemists, and the results have been included in the reports made to purchasers and to manufacturers.

The significance of the symbols used is explained in the table. Following the practice of last year, samples have not been rated as acid-forming unless the acidity equivalent exceeded 50 pounds of calcium carbonate per ton of fertilizer. Values of  $\pm 50$  have been rated as near neutral "N". Thus in any instances where two samples of the same brand are given different ratings, e.g. "N" and "A", the samples are not necessarily very different in their residual soil reaction. These data are not to be interpreted as prejudicial to acid-forming fertilizers, because the practice of liming the soil systematically counteracts not only the natural acidity of the soil but any acidity due to fertilizer applications as well. In recent years there is, however, some practice among manufacturers of fertilizers to include limestone in their mixtures to correct the residual effects of acid-forming ingredients. Dolomite is preferable for this purpose.

## STATE PURCHASES OF FERTILIZER

During the past season fertilizers for use at State institutions, or by State departments, have been purchased through the State Supervisor of Purchases. The Station was called upon to include in its regular inspection the brands supplied on these orders. It was not feasible, nor did it

seem necessary, to sample all brands at all places of delivery, but it was agreed to draw at least two samples of each brand if more than one shipment was made.

The analyses appear in the appropriate tables and are designated in State purchases. For convenience of reference the following summary is given:

Nitrate of soda	2 samples, Table 1, page 23.
Superphosphate	2 samples, Table 3, page 25.
Muriate of Potash	1 sample, Table 4, page 28.
Mixed fertilizers	16 samples, Table 9, pages 34,

So far as our analyses and other examinations disclosed, the goods supplied were of the substance and quality demanded except in case of sample 8801, 4-16-20, which showed deficiencies in available  $P_2O_5$  and potash in the approximate commercial value of \$1.48 per ton; 8805 was low in available  $P_2O_5$  but the commercial deficiency was negligible. In all other samples the guaranties were substantially met.

#### SPECIAL AND HOME MIXTURES

Analyses of 36 samples of fertilizer of special or home mixing are given in Table 10, page 48.

#### VII. MISCELLANEOUS FERTILIZERS AND OTHER MATERIALS

Analyses of commercial animal and poultry manures are given in Table 11, page 50.

Liming materials examined during the year are summarized in Table 12, page 52.

Seventy-two samples of miscellaneous materials have been examined for farmers and others interested. Some of these are recorded for reference purposes, Table 13, page 56.

Forty-two samples of check cottonseed meals and check fertilizers have been analyzed in the collaborative programs of the American Oil Chemists Society and of the F. R. Royster Guano Company. These programs are for the purpose of checking methods of analysis and procedure for the materials mentioned and are participated in by State, commercial and industrial laboratories.

TABLE I. ANALYSES OF NITRATE OF SODA AND OTHER NITROGENOUS MATERIALS

State No.	Manufacturer or Jobber	Sampled from stock of	Percent nitrogen	
			Found	Guaranteed
<b>Nitrate of Soda</b>				
8664 <sup>1</sup>	Arcadian, The American. Barrett Co., New York, N. Y.....	Middletown: Conn. State Hospital.	16.22	16.00
9114	Arcadian, The American. Barrett Co., New York, N. Y.....	Colchester: P. Cutler, Inc.....	16.22	16.00
9053	Champion Brand Chilean. Chilean Nitrate Sales Corp., New York, N. Y.	Southington: Julius Lewis.....	16.26	16.00
8582 <sup>1</sup>	Standard. Standard Wholesale Phos- phate & Acid Works, Baltimore, Md.....	Reformatory, Cheshire.	16.30	16.00
<b>Calcium Nitrate (Nitrate of Lime)</b>				
9128	Eastern States Calnitro. Eastern States Farmers' Exchange, Spring- field, Mass.....	East Hartford: Eastern States Branch	20.72	20.50
9568	Synthetic Nitrogen Products Corp., New York, N. Y.....	Hartford: Olds & Whipple, Inc..	15.12	15.00
<b>Cyanamid</b>				
9126	21% 'Aero'. American Cyanamid Co., New York, N. Y.....	East Hartford: Eastern States Branch	21.00	21.00
<b>Urea</b>				
9127	Eastern States Agricultural 42% Eastern States Farmers' Exchange, Springfield, Mass.....	East Hartford: Eastern States Branch	41.65	42.00
<b>Uramon</b>				
9415	E. I. du Pont de Nemours & Co., Wilmington, Del.....	Thomaston: Thomaston Supply Co.	42.55	42.00
9606	E. I. du Pont de Nemours & Co., Wilmington, Del.....	East Hartford: John M. Herr.....	42.20	42.00
9641 <sup>2</sup>	E. I. du Pont de Nemours & Co., Wilmington, Del.....	East Hartford: Olds & Whipple, Inc.	40.85	42.00
<b>Sulphate of Ammonia</b>				
9300	American Agricultural Chemical Co., North Weymouth, Mass.....	Westerly: C. W. Campbell Co.	20.92	20.50
9259	Apothecaries Hall Co., Waterbury, Conn.....	Waterford: The Seaside.....	20.94	20.50
9035	The Barrett Co., New York, N. Y....	Stratford: T. W. Ryan	20.90	20.56
9123	Consolidated Rendering Co., Boston, Mass.....	Stafford Springs: Valley Grain Co.....	20.52	20.50
9559	Eastern States. Eastern States Farm- ers' Exchange, Springfield, Mass....	East Hartford: Eastern States Branch	20.96	20.50
9652	Ford. Ford Motor Co., Dearborn, Mich.....	Middletown: Longworth & Carlson Co.....	20.96	20.80

<sup>1</sup>Supplied on order from State Purchasing Department.<sup>2</sup>Purchased in bulk from mfr. and packed by distributor.

TABLE 2. ANALYSES OF CASTOR POMACE, COTTONSEED MEAL, ETC.

Station No.	Manufacturer or Jobber	Sampled from stock of	Percent nitrogen	
			Found	Guaranteed
<b>Castor Pomace</b>				
9328	American Agricultural Chemical Co., North Weymouth, Mass.....	American Agricultural Chem. Co., W. Haven	5.84	4.50
9552	Apothecaries Hall Co., Waterbury, Conn.....	Apothecaries Hall Co., East Windsor.....	5.79	4.52
9582	Berkshire. Berkshire Chemical Co., Bridgeport, Conn.....	Richard Smith, Poquonock.....	5.36	4.50
9558	Eastern States. Eastern States Farmers' Exchange, Springfield, Mass....	East Hartford: Eastern States Farmers' Exchange.....	5.85	5.00
9322	International. International Agricultural Corp., Boston, Mass.....	Irving W. Foote, Norwich.....	6.00	4.53
9034	Spencer Kellogg & Sons, Inc., Buffalo, N. Y.....	T. W. Ryan, Stratford.....	6.03	4.52
9587	Spencer Kellogg & Sons, Inc., Buffalo, N. Y.....	The Rogers & Hubbard Co., Portland.....	6.00	4.52
9567	O & W. Olds & Whipple, Inc., Hartford, Conn.....	Olds & Whipple, Inc., Hartford.....	6.00	4.50
<b>Cottonseed Meal</b>				
9066	Cow-Eta Brand 41%. Ashcraft-Wilkinson Co., Atlanta, Ga.....	G. A. Peckham, Suffield.....	6.54	6.56
9530	Dixie Brand. Humphreys-Godwin Co., Memphis, Tenn.....	Geo. S. Phelps & Co., Thompsonville.....	6.54	6.58
9509	"Lovit Brand" 41%. L. B. Lovitt & Co., Memphis, Tenn.....	Bloomfield Farmers' Exchange, Bloomfield	6.58	6.56
9534	"Lovit Brand" 41%. L. B. Lovitt & Co., Memphis, Tenn.....	Henry Cybulski, Somers.....	6.68	6.56
9604	"Lovit Brand" 41%. L. B. Lovitt & Co., Memphis, Tenn.....	John M. Herr, East Hartford.....	6.39	6.56
<b>Linseed Meal</b>				
9579	Kellogg's 32%. Spencer Kellogg & Sons, Inc., Buffalo, N. Y.....	Rockville Grain & Coal Co., Rockville.....	5.55	5.12
<b>Soy Bean Meal</b>				
9574	Tobakosoy. A. E. Staley Mfg. Co., Decatur, Ill.....	Rockville Grain & Coal Co., Rockville.....	7.05	6.51



TABLE 3. ANALYSES OF SUPERPHOSPHATE, ETC.

Station No.	Manufacturer or wholesale dealer	Dealer or purchaser	Phosphoric acid			
			Citrate insoluble	Total	"Available"	
					Fou d	Gu rant ed
			%	%	%	%
9202	<b>Superphosphate</b> Acme 20%. Acme Guano Co., Baltimore, Md....	Associated Seed Growers, Inc., Milford.....	1.16	20.69	19.53	20.00
9293	AA 16%. American Agricultural Chemical Co., North Weymouth, Mass.....	C. W. Campbell Co., Groton.....	0.91	17.90	16.99	16.00
9113	AA 20%. American Agricultural Chemical Co., North Weymouth, Mass.....	P. Cutler, Inc., Colchester.....	1.35	22.84	21.49	20.00
9379	16%. Apothecaries Hall Co., Waterbury, Conn....	J. B. McArdle, Stamford.....	1.30	18.17	16.87	16.00
9323	20% Granular. Apothecaries Hall Co., Waterbury, Conn.....	Boston Grain Co., Willimantic.....	0.87	22.38	21.51	20.00
9487	Armour's Big Crop 20%. Armour Fertilizer Works, New York, N. Y.....	Warehouse, Hartford.....	1.15	21.35	20.20	20.00
9169	Baughphos, The Ideal 20%. The Baugh & Sons Co., Baltimore, Md.....	Hamden Lehigh Coal Co., Hamden..	0.40	20.40	20.00	20.00
9171	Baughphos, The Ideal 16%. The Baugh & Sons Co., Baltimore, Md.....	Hamden Lehigh Coal Co., Hamden..	0.09	18.30	18.21	16.00
9357	Berkshire 16%. Berkshire Chemical Co., Bridgeport, Conn.....	Berkshire Chemical Co., Bridgeport..	1.04	18.24	17.20	16.00
9398	Berkshire 16%. Berkshire Chemical Co., Bridgeport, Conn.....	Clapboard Hill Co., New Canaan....	1.00	17.40	16.40	16.00
9251	Davco Granulated. Berkshire Chemical Co., Bridgeport, Conn.....	Wirthmore Grain & Coal Co., Stepney	0.65	22.24	21.59	20.00
9193	16%. Consolidated Rendering Co., Boston, Mass....	L. T. Frisbie Co., New Haven.....	0.27	17.47	17.20	16.00

analyses

TABLE 3. ANALYSES OF SUPERPHOSPHATE, ETC.—Concluded

Station No.	Manufacturer or wholesale dealer	Dealer or purchaser	Phosphoric acid			
			Citrate insoluble	Total	"Available"	
					Found	Guaranteed
			%	%	%	%
	<b>Superphosphate</b>					
9089	20%. Consolidated Rendering Co., Boston, Mass...	Berkman Grain Co., Lebanon.....	0.16	20.93	20.77	20.00
9054	Eastern States 20%. Eastern States Farmers' Exchange, Springfield, Mass.....	Eastern States Branch, Willimantic..	1.33	22.44	21.11	20.00
9055	Eastern States Double 40%. Eastern States Farmers' Exchange, Springfield, Mass.....	Eastern States Branch, Willimantic..	2.43	42.88	40.45	40.00
9471	International 16%. International Agricultural Corp., Boston, Mass.....	Sunshine Feed Store, Plainville.....	0.43	17.41	16.98	16.00
9321	International 20%. International Agricultural Corp., Boston, Mass.....	Irving W. Foote, Norwich.....	0.85	21.74	20.89	20.00
9572	Old Deerfield 16%. Old Deerfield Fertilizer Co., South Deerfield, Mass.....	Rockville Grain & Coal Co., Rockville.....	0.56	17.70	17.14	16.00
9508	O & W 16%. Olds & Whipple, Inc., Hartford, Conn.....	Bloomfield Farmers' Exchange, Bloomfield.....	0.49	18.03	17.54	16.00
9116	16%. The Rogers & Hubbard Co., Portland, Conn.	Willimantic Grain Co., Willimantic..	0.21	17.66	17.45	16.00
9096	20%. The Rogers & Hubbard Co., Portland, Conn.	Norwich Grain Co., Norwich.....	1.05	24.23	23.18	20.00
9118	20%. The Rogers & Hubbard Co., Portland, Conn.	Willimantic Grain Co., Willimantic..	0.99	22.91	21.92	20.00
8811 <sup>1</sup>	16%. Standard Wholesale Phosphate & Acid Works, Baltimore, Md.....	Long Lane Farm, Middletown.....	1.35	18.10	16.75	16.00
8584 <sup>1</sup>	20%. Standard Wholesale Phosphate & Acid Works, Baltimore, Md.....	Reformatory, Cheshire.....	1.09	21.42	20.33	20.00
9228	Summer's "Best-On-Earth" 16%. Summers Fertilizer Co., Baltimore, Md.....	Laden Bros., Inc., Wallingford.....	1.36	17.48	16.12	16.00
9229	Summer's "Best-On-Earth" 20%. Summers Fertilizer Co., Baltimore, Md.....	Laden Bros., Inc., Wallingford.....	1.54	20.83	19.29	20.00

9632	16%. I. P. Thomas & Sons Co., Camden, N. J....	H. D. Peters, Hamden.....	1.39	17.39	16.00	16.00*
9586	20%. I. P. Thomas & Sons Co., Camden, N. J....	J. P. Beach, North Haven.....	1.19	21.86	20.67	20.00
9036	Woodruff's 16%. The Woodruff Fertilizer Works, Inc., Orange.....	The Woodruff Fertilizer Works, Orange.....	0.29	20.24	19.95	16.00
9030	Woodruff's 20%. The Woodruff Fertilizer Works, Inc., Orange.....	T. W. Ryan, Stratford.....	0.74	21.58	20.84	20.00
<b>Precipitated Bone</b>						
9551	Apothecaries Hall Co., Waterbury, Conn.....	Apothecaries Hall Co., East Windsor	1.14	40.20	39.06	38.00
9605	Apothecaries Hall Co., Waterbury, Conn.....	John M. Herr, East Hartford.....	0.80	38.90	38.10	38.00
9131	Eastern States Farmers' Exchange, Springfield, Mass.....	Eastern States Farmers' Exchange, East Hartford.....	0.80	40.72	39.92	38.00
9566	O & W. Olds & Whipple, Inc., Hartford, Conn....	Olds & Whipple, Inc., Hartford.....	0.58	40.22	39.64	38.00
<b>Natural Phosphate</b>						
9258	Mineral Colloids. Soils Builders, Inc., Orlando, Fla.....	A. J. Beebe, Mgr., Niantic.....	....	21.89 <sup>2</sup>	....	....

<sup>1</sup> Supplied on order from State Purchasing Department.

<sup>2</sup> Guaranty 22%.

TABLE 4. ANALYSES OF POTASH SALTS, ETC.

Station No.	Manufacturer or Jobber	Sampled from stock of	Potash	
			Found	Guaranteed
	<b>Muriate of Potash</b>		%	%
9177	The Baugh & Sons Co., Baltimore, Md.....	Hamden Lehigh Coal Co., Hamden.....	49.50	50.00
9079	Consolidated Rendering Co., Boston, Mass.....	Berkman Grain Co., Lebanon.....	51.14	50.00
9410	Eastern States Farmers' Exchange, Springfield, Mass.....	Eastern States Branch, Torrington.....	62.04	60.00
8585 <sup>1</sup>	N. V. N. V. Potash Export My., Inc., New York, N. Y.....	Reformatory, Cheshire.....	50.54	50.00
9031	N. V. N. V. Potash Export My., Inc., New York, N. Y.....	T. W. Ryan, Stratford.....	50.30	50.00
9303	N. V. N. V. Potash Export My., Inc., New York, N. Y.....	I. W. Foote, Norwich.....	60.60	60.00
	<b>Sulphate of Potash</b>			
9196	Consolidated Rendering Co., Boston, Mass.....	New Haven: L. T. Frisbie Co.....	49.38	48.00
9129	Eastern States. Eastern States Farmers' Exchange, Springfield, Mass....	Eastern States Branch, East Hartford.....	48.18	48.00
9414	N. V. N. V. Potash Export My., Inc., New York, N. Y.....	Thomaston Supply Co., Thomaston.....	48.74	48.00
	<b>Cottonhull Ashes</b>			
9067	Kireal. Ted Alkire, Lubbock, Texas.	G. A. Peckham, Suffield.....	36.21	30.00
9132	Kireal. Ted Alkire, Lubbock, Texas.	Eastern States Branch, East Hartford.....	35.14	30.00
9550	Apothecaries Hall Co., Waterbury...	Apothecaries Hall Co., East Windsor.....	37.34	.... <sup>2</sup>
9207	Berkshire Chemical Co., Bridgeport, Conn.....	Owen-Noble, West Suffield.....	28.36	30.00
9208	Berkshire Chemical Co., Bridgeport, Conn.....	Joseph Karpinski, Suffield.....	28.50	30.00
9209	Berkshire Chemical Co., Bridgeport, Conn.....	John Cranouski, Poquonock.....	27.64	30.00
9210	Berkshire Chemical Co., Bridgeport, Conn.....	Richard Smith, Poquonock.....	27.11	30.00
8665	Eastern States. Eastern States Farmers' Exchange, Springfield, Mass....	Eastern States Branch, East Hartford.....	35.36	30.00
9561	O & W. Olds & Whipple, Inc., Hartford, Conn.....	Olds & Whipple, Inc., Hartford.....	27.30	20.00

<sup>1</sup>Supplied on order from State Purchasing Department.<sup>2</sup>Sold on unit basis.

TABLE 5. ANALYSES OF NITRATE OF POTASH, ETC.

Station No.	Manufacturer or Jobber	Sampled from stock of	Nitrogen		Potash	
			Found	Guaranteed	Found	Guaranteed
	<b>Nitrate of Potash</b>		%	%	%	%
9537	Apothecaries Hall Co., Waterbury, Conn.....	Apothecaries Hall Co., East Windsor	12.96	13.00	44.00	44.00
9603	Apothecaries Hall Co., Waterbury, Conn.....	John M. Herr, East Hartford.....	12.82	13.00	44.50	44.00
9560	Eastern States Eastern States Farmers' Exchange, Springfield, Mass.....	Eastern States Branch, East Hartford.....	12.86	13.00	44.22	44.00
9565	O & W. Olds & Whipple, Inc., Hartford, Conn....	Olds & Whipple, Inc., Hartford.....	12.86	13.00	44.00	44.00
	<b>Nitrate of Soda—Potash</b>					
9049	Chilean. Chilean Nitrate Sales Corp., New York, N. Y.....	Woodruff Fertilizer Works, Orange..	15.10	14.00	15.32	14.00

Analyses

TABLE 6. ANALYSES OF DRY GROUND FISH

Station No.	Manufacturer or wholesale dealer	Sampled from stock of	Nitrogen		Phosphoric acid	
			Total found	Total guaranteed	Total found	Total guaranteed
			%	%	%	%
9519	Fish Meal. American Agricultural Chemical Co., North Weymouth, Mass.....	Spencer Bros., Suffield.....	9.32	9.00	7.03	4.00
9556	Apothecaries Hall Co., Waterbury.....	Apothecaries Hall Co., East Windsor	9.37	9.46	7.94	5.00
9557	Japanese. Apothecaries Hall Co., Waterbury, Conn.	Apothecaries Hall Co., East Windsor	9.52	9.46	6.46	5.00
9602	Apothecaries Hall Co., Waterbury, Conn.....	John M. Herr, East Hartford.....	9.28	9.46	8.18	5.00
7599	Menhaden. Berkshire Chemical Co., Bridgeport, Conn.....	Cullman Bros., Inc., Hartford.....	9.02	9.45	6.49	5.00
7600	Menhaden. Berkshire Chemical Co., Bridgeport, Conn.....	Cullman Bros., Inc., Hartford.....	9.23	9.45	6.36	5.00
9332	Berkshire Menhaden. Berkshire Chemical Co., Bridgeport, Conn.....	Berkshire Chemical Co., Bridgeport..	9.34	9.46	7.57	5.00
9584	Eastern States. Eastern States Farmers' Exchange, Springfield, Mass.....	Eastern States Branch, East Hartford.....	9.85	9.00	5.82	5.00
9570	O & W. Olds & Whipple, Inc., Hartford, Conn....	Olds & Whipple, Inc., Hartford.....	9.53	9.00	7.65	5.00

TABLE 7. ANALYSES OF TANKAGE AND SIMILAR MATERIALS

Station No.	Manufacturer or wholesale dealer	Sampled from stock of	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	
			%	%	%	%	%	%	
9376	Apothecaries Hall Co., Waterbury, Conn.....	J. B. McArdle, Greenwich....	9.34	9.80	9.11	3.00	37.5	62.5	9376
9384	Apothecaries Hall Co., Waterbury, Conn.....	J. B. McArdle, Greenwich....	9.44	9.80	8.90	3.00	38.0	62.0	9384
9194	Ground. Consolidated Rendering Co., Boston, Mass.....	L. T. Frisbie Co., New Haven.	8.28	7.41	11.31	9.15	48.4	51.6	9194
9046	Animal. The Woodruff Fertilizer Works, Orange, Conn.....	Woodruff Fertilizer Works, Orange.....	9.60	9.80	....	....	....	....	9046

Analyses

TABLE 8. ANALYSES OF GROUND BONE

Station No.	Manufacturer and brand	Sampled from stock of	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	
			%	%	%	%	%	%	
9526	Fine Ground. The American Agricultural Chemical Co., North Weymouth, Mass.....	Spencer Bros., Suffield.....	2.35	2.47	26.17	23.00	64.9	35.1	9526
9093	Bone Meal. Apothecaries Hall Co., Waterbury, Conn.....	Big Y Grain Store, Yantic....	3.85	3.70	22.92	21.00	34.4	65.6	9093
9381	Bone Meal. Apothecaries Hall Co., Waterbury, Conn.....	J. B. McArdle, Greenwich....	2.54	2.47	24.27	22.00	63.1	36.9	9381
9175	Baugh's Pure Steamed. The Baugh & Sons Co., Baltimore, Md.....	Hamden Lehigh Grain & Coal Co., Hamden.....	2.56	2.47	23.78	23.00	57.1	42.9	9175
9256	Berkshire Fine Ground. Berkshire Chemical Co., Bridgeport, Conn....	Knowles-Lombard Co., Guilford.....	2.26	2.05	29.51	25.00	60.3	39.7	9256
9325	Ground. Consolidated Rendering Co., Boston, Mass.....	Lightborn and Pond Co., New Haven.....	2.86	2.47	25.08	23.00	66.1	33.9	9325
9074	Eastern States Ground Steamed. Eastern States Farmers' Exchange, Springfield, Mass.....	Eastern States Branch, Willimantic.....	2.95	2.50	23.28	23.00	58.2	41.8	9074
9397	Bone Meal. Faesy & Besthoff, Inc., New York, N. Y.....	Clapboard Hill Co., New Canaan.....	2.53	2.25	28.56	27.00	62.5	37.5	9397
9573	Old Deerfield Ground Steamed. Old Deerfield Fertilizer Co., South Deerfield, Mass.....	Rockville Grain & Coal Co., Rockville.....	2.71	2.47	28.25	22.00	66.5	33.5	9573
9493	O & W. Olds & Whipple, Inc., Hartford, Conn.....	Bloomfield Farmers' Exchange, Bloomfield.....	2.80	2.47	23.02	22.00	62.8	37.2	9493
9097	Strictly Pure Bone. The Rogers & Hubbard Co., Portland, Conn.....	Willimantic Grain Co., Willimantic.....	3.72	3.70	21.01	20.00	47.6	52.4	9097

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9413	Fine Ground. The Rogers & Hubbard Co., Portland, Conn.....	Thomaston Supply Co., Thomaston.....	2.53	2.47	26.61	23.00	66.2	33.8	9413
9511	Pure Raw Knuckle Bone Flour. The Rogers & Hubbard Co., Portland, Conn.....	Cadwell & Jones, Hartford....	3.70	3.70	26.13	24.70	76.5	23.5	9511
8583	Standard Steamed Bone. Standard Wholesale Phosphate & Acid Works, Baltimore, Md.....	Reformatory, Cheshire.....	2.70	2.47	23.59	22.00	56.7	43.3	8583
9364	Sawco Bone. Stumpp & Walter Co., New York, N. Y.....	Stumpp & Walter, Stamford..	2.41	2.47	28.50	24.00	37.2	62.8	9364
9230 <sup>1</sup>	Summers' Bone Meal. Summers Fertilizer Co., Inc., Baltimore, Md.....	Laden Bros., Inc., Wallingford.....	2.74	2.40	26.61	22.80	85.4	14.6	9230
9302	Bone Meal. Swift & Co. Fertilizer Works, Baltimore, Md.....	C. W. Campbell Co., Westerly	2.70	2.47	25.65	23.00	67.6	32.4	9302
9048	The Woodruff Fertilizer Works, Orange, Conn.....	Woodruff Fertilizer Works, Orange.....	2.84	2.47	21.90	23.00	63.9	36.1	9048

<sup>1</sup>Contained ammonium sulphate.

TABLE 9. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and brand	Place of sampling	Acid-forming (A) Non-acid-forming (NA) or near neutral (N)
	<b>Acme Guano Co., Baltimore, Md.</b>		
9473	Acme 4-8-4 . . . . .	Middletown . . . . .	A
9474	Acme 4-8-7 . . . . .	Middletown . . . . .	A
	<b>American Agricultural Chemical Co., North Weymouth, Mass.</b>		
9578	AA Complete Manure with 10% Potash 4-8-10 . . . . .	So. Manchester . . . . .	A
9298	AA Double Strength Fertilizer 8-16-14 . . . . .	Westerly . . . . .	A
9577	AA General Crop Fertilizer 2-10-2 . . . . .	So. Manchester . . . . .	A
9112	AA Monarch Fertilizer 4-8-4 . . . . .	Colchester . . . . .	A
9512	AA Peerless Fertilizer 4-8-7 . . . . .	Hartford . . . . .	A
9252	AA Potato and Vegetable Fertilizer 5-8-7 . . . . .	Guilford . . . . .	A
9514	AA Prolific 10% Potash Fertilizer 2-8-10 . . . . .	Hartford . . . . .	A
9517	AA Tobacco Starter 5-5-15 . . . . .	Hartford . . . . .	NA
9115	AA Top Dresser 7-6-6 . . . . .	Colchester . . . . .	A
9122	Agrico for Aroostook with 10% Potash 5-8-10 . . . . .	Stafford Springs . . . . .	A
9124	Agrico for Corn 3-10-6 . . . . .	Stafford Springs . . . . .	A
9297	Agrico for Corn 3-10-6 . . . . .	Westerly . . . . .	N
9299	Agrico for Corn 4-12-6 . . . . .	Westerly . . . . .	A
9294	Agrico for Fruit 9-6-6 . . . . .	Groton . . . . .	A
9515	Agrico for Gardens 4-10-4 . . . . .	Hartford . . . . .	A
9575	Agrico for Lawns, Trees, and Shrubs 7-7-5 . . . . .	So. Manchester . . . . .	A
9120	Agrico for New England 4-8-10 . . . . .	Stafford Springs . . . . .	A
9119	Agrico for Pastures and Top Dressing 7-6-6 . . . . .	Stafford Springs . . . . .	A
9233	Agrico for Potatoes and Vegetables 5-8-7 . . . . .	Meriden . . . . .	A
9329	Agrico for Seeding Down 4-16-20 . . . . .	West Haven . . . . .	A
9516	Agrico for Tobacco 6-3-6 . . . . .	Hartford . . . . .	N
9396	Agrico for Truck 5-10-5 . . . . .	New Canaan . . . . .	A
9111	Bradley's XL 3-10-4 . . . . .	Colchester . . . . .	A
9601	Double A Tobacco Fertilizer 5-3-5 . . . . .	West Haven . . . . .	NA
9513	Sanderson's Formula B 4-8-7 . . . . .	Hartford . . . . .	A
	<b>American Cyanamid Co., New York, N. Y.</b>		
9125	"Ammo-Phos" 11-48-0 . . . . .	East Hartford . . . . .	
	<b>Apothecaries Hall Co., Waterbury, Conn.</b>		
8808	Liberty 8-6-6 . . . . .	Waterford . . . . .	
9248	Liberty Corn 2-10-2 . . . . .	Stepney . . . . .	A
9536	Liberty Fish Bone & Potash 3-10-4 . . . . .	East Windsor . . . . .	N
9555	Liberty General Fertilizer 5-10-5 . . . . .	East Windsor . . . . .	A
9377	Liberty Green-Gro 6-5-3 . . . . .	Greenwich . . . . .	A
9554	Liberty High Analysis 10-16-14 . . . . .	East Windsor . . . . .	A
9249	Liberty High Grade Corn 2-12-4 . . . . .	Stepney . . . . .	A
9091	Liberty High Grade Market Gardeners 5-8-7 . . . . .	Yantic . . . . .	A
9649	Liberty High Grade Tobacco Manure 6-3-7 . . . . .	East Windsor . . . . .	NA

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	3.04	0.52	0.38	3.94	0.65	9.46	8.81	4.40	4.40	9473
0.00	3.24	0.47	0.31	4.02	0.90	8.66	7.76	7.67	7.67	9474
0.72	2.82	0.06	0.52	4.12	0.56	8.64	8.08	10.54	10.54	9578
0.80	6.76	0.24	0.08	7.88	0.56	16.85	16.29	13.93	13.93	9298
0.00	1.62	0.20	0.26	2.08	1.02	11.21	10.19	2.14	2.14	9577
0.58	2.80	0.08	0.41	3.87	0.66	8.92	8.26	3.86	3.86	9112
0.35	2.98	0.30	0.47	4.10	0.71	9.76	9.05	6.66	6.66	9512
0.62	3.76	0.10	0.49	4.97	0.39	8.63	8.24	6.95	6.95	9252
0.00	1.66	0.14	0.20	2.00	0.89	8.92	8.03	10.05	10.05	9514
2.93	0.16	0.12	1.75	4.96	0.81	6.09	5.28	0.40	17.07	9517
0.52	6.00	0.00	0.36	6.88	0.39	6.90	6.51	6.22	6.22	9115
0.70	3.24	0.14	0.80	4.88	0.43	9.92	9.49	10.01	10.01	9122
0.00	2.14	0.59	0.39	3.12	0.61	11.04	10.43	6.31	6.31	9124
0.45	1.96	0.36	0.31	3.08	0.41	10.49	10.08	6.41	6.41	9297
0.54	2.26	0.58	0.39	3.77	0.66	13.06	12.40	5.76	5.76	9299
0.53	7.88	0.20	0.39	9.00	0.36	7.42	7.06	6.00	6.00	9294
0.22	3.00	0.14	0.87	4.23	0.80	11.44	10.64	4.24	4.24	9515
0.83	4.86	0.22	1.04	6.95	0.46	8.07	7.61	5.00	5.00	9575
0.79	2.86	0.20	0.33	4.18	1.05	9.20	8.15	10.10	10.10	9120
0.53	6.18	0.02	0.35	7.08	0.30	7.15	6.85	6.14	6.14	9119
0.71	3.58	0.18	0.51	4.98	0.60	8.83	8.23	6.88	6.88	9233
0.55	2.60	0.38	0.14	3.67	0.57	16.40	15.83	20.34	20.34	9329
0.64	0.52	0.88	4.09	6.13	0.36	3.83	3.47	0.40	6.04	9516
0.81	3.50	0.16	0.37	4.84	0.98	11.26	10.28	4.92	4.92	9396
0.00	2.75	0.00	0.35	3.10	1.14	11.59	10.45	4.12	4.12	9111
0.64	0.84	0.46	2.89	4.83	0.39	4.31	3.92	0.35	5.23	9601
0.52	2.84	0.00	0.47	3.83	0.60	8.85	8.25	0.86	7.13	9513
0.00	10.18	0.08	0.48	10.74	0.83	50.38	49.55	....	....	9125
6.09	2.10	0.00	0.67	8.86	0.63	7.31	6.68	2.59	6.61	8808
0.16	1.08	0.48	0.48	2.20	1.10	11.38	10.28	2.90	2.90	9248
1.15	1.12	0.52	0.53	3.34	0.85	11.25	10.40	5.01	5.01	9536
1.09	3.26	0.46	0.53	5.34	0.95	11.37	10.42	5.75	5.75	9555
0.70	1.74	1.54	2.32	6.30	0.62	6.95	6.33	1.26	4.12	9377
0.38	6.34	2.86	1.00	10.58	1.12	16.88	15.76	14.16	14.16	9554
0.00	1.40	0.55	0.57	2.52	1.30	14.09	12.79	4.83	4.83	9249
1.14	3.18	0.46	0.40	5.18	0.50	9.46	8.96	7.53	7.53	9091
1.10	0.00	0.40	4.50	6.00	0.10	4.89	4.79	0.52	7.80	9649

TABLE 9. ANALYSES OF MIXED FERTILIZERS—Continued

Station No.	Manufacturer and brand	Place of sampling	Acid-forming (A), Non-acid-forming (NA) or near neutral (N)
9092	Liberty Market Gardeners Special 4-8-4 . . . . .	Yantic . . . . .	A
9324	Liberty Potato and General Crops 4-8-10 . . . . .	Willimantic . . . . .	A
9553	Liberty Potato and Market Gardeners (Potash as Muriate) 4-8-7 . . . . .	East Windsor . . . . .	A
9380	Liberty Special Fertilizer for Fruit 7-8-6 . . . . .	Greenwich . . . . .	A
9631	Liberty Special Fertilizer for Lawns, Gardens, etc. 4-4-0 . . . . .	East Windsor . . . . .	NA
9648	Liberty Tobacco Fertilizer 6-3-6 . . . . .	East Windsor . . . . .	NA
9651	Liberty Tobacco Mixture 7-3-7 . . . . .	East Windsor . . . . .	N
9647	Liberty Tobacco Special 5-3-5 . . . . .	East Windsor . . . . .	NA
9645	Liberty Tobacco Starter 4-10-0 . . . . .	East Windsor . . . . .	A
9650	Liberty Tobacco Starter with Potash 5-4-15 . . . . .	East Windsor . . . . .	NA
9090	Liberty Top Dresser for Grass and Grain 8-8-8	Yantic . . . . .	NA
9393	Liberty Tree and Shrub Food 10-8-8 . . . . .	Greenwich . . . . .	NA
<b>Armour Fertilizer Works, New York, N. Y.</b>			
9644	Armour's Big Crop Fertilizer 3-12-6 . . . . .	Hartford . . . . .	A
9296	Armour's Big Crop Fertilizer 4-8-4 . . . . .	Westerly . . . . .	A
9488	Armour's Big Crop Fertilizer 4-8-7 . . . . .	Hartford . . . . .	N
9486	Armour's Big Crop Fertilizer 4-8-10 . . . . .	Hartford . . . . .	N
9301	Armour's Big Crop Fertilizer 5-8-7 . . . . .	Westerly . . . . .	A
9295	Armour's Big Crop Fertilizer 7-6-6 . . . . .	Westerly . . . . .	A
9571	Armour's Big Crop 8-16-20 . . . . .	Buckland . . . . .	A
9642	Armour's Big Crop Tobacco Special 5-3-5 . . . . .	Hartford . . . . .	NA
9483	Armour's Big Crop Tobacco Special 6-3-6 . . . . .	Hartford . . . . .	NA
9485	Armour's Big Crop Tobacco Starter 5-5-15 . . . . .	Hartford . . . . .	NA
<b>Associated Seed Growers, Inc., New Haven, Conn.</b>			
9042	Clark's 3-10-6 . . . . .	North Haven . . . . .	A
9472	Clark's 3-10-6 . . . . .	Mt. Carmel . . . . .	A
9037	Clark's 4-8-10 . . . . .	North Haven . . . . .	A
9545	Clark's 4-8-10 . . . . .	Milford . . . . .	A
29	Clark's 4-8-10 . . . . .	Milford . . . . .	
9203	Clark's 5-10-5 . . . . .	Milford . . . . .	A
9038	Clark's Tip Top 5-8-7 . . . . .	North Haven . . . . .	A
9546	Clark's Tip Top 5-8-7 . . . . .	Milford . . . . .	A
9668	Clark's Tip Top 5-8-7 . . . . .	Wilson . . . . .	A
<b>F. A. Bartlett Tree Expert Co., Stamford, Conn.</b>			
9361	Bartlett Green Tree Food 6-7-4 . . . . .	Stamford . . . . .	
<b>The Baugh &amp; Sons Co., Baltimore, Md.</b>			
9172	Baugh's Half Century Perfection 4-8-7 . . . . .	Hamden . . . . .	

Nitrogen					Phosphoric acid			Potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total	Citric i soluble	Total	So-called 'A available'	As muriate	tal	
%	%	%	%	%	%	%	%	%	%	
0.35	3.00	0.36	0.41	4.12	0.84	9.55	8.71	4.86	4.86	9092
0.76	2.60	0.46	0.39	4.21	0.67	9.01	8.34	10.77	10.77	9324
0.72	2.76	0.32	0.36	4.16	0.63	9.05	8.42	7.63	7.63	9553
4.01	2.78	0.02	0.37	7.18	0.57	9.45	8.88	6.14	6.14	9380
0.39	0.08	0.20	3.97	4.64	3.65	9.61	5.96	....	....	9631
1.28	0.04	0.22	4.50	6.04	0.28	4.85	4.57	0.89	6.26	9648
1.62	0.00	0.56	4.85	7.03	0.24	5.25	5.01	0.43	7.86	9651
1.33	0.00	0.34	3.33	5.00	0.04	4.71	4.67	0.49	6.11	9647
0.89	1.24	0.56	1.89	4.58	1.10	12.87	11.77	....	....	9645
1.42	0.04	0.36	2.71	4.53	0.20	5.81	5.61	1.17	16.61	9650
8.62	0.04	0.18	0.12	8.96	0.05	6.96	6.91	8.01	8.57	9090
9.80	0.64	0.00	0.20	10.64	0.06	8.08	8.02	1.37	8.64	9393
0.44	1.76	0.22	0.52	2.94	0.76	12.79	12.03	6.02	6.67	9644
0.41	2.70	0.26	0.49	3.86	0.48	9.04	8.56	4.46	4.46	9296
0.69	2.28	0.36	0.63	3.96	0.67	8.99	8.32	7.00	7.00	9488
0.80	2.28	0.36	0.50	3.94	0.34	8.74	8.40	11.00	11.00	9486
0.48	3.36	0.52	0.60	4.96	0.47	8.30	7.83	6.91	7.31	9301
0.70	5.50	0.14	0.54	6.88	0.42	6.64	6.22	6.04	6.04	9295
1.17	6.52	0.16	0.15	8.00	0.23	14.90	14.67	20.94	20.94	9571
0.93	0.08	1.44	2.37	4.82	0.09	3.63	3.54	0.48	5.38	9642
1.85	0.32	1.32	2.73	6.22	0.28	4.14	3.86	0.53	6.82	9483
2.18	0.44	1.36	0.82	4.80	0.39	6.26	5.87	1.50	17.11	9485
0.43	2.04	0.38	0.27	3.12	0.84	10.84	10.00	6.37	6.37	9042
0.34	2.00	0.46	0.20	3.00	0.71	10.93	10.22	5.93	6.25	9472
0.00	3.00	0.69	0.19	3.88	0.44	8.68	8.24	9.87	9.87	9037
0.00	3.06	0.46	0.18	3.70	0.44	7.44	7.00	8.67	9.72	9545
....	....	....	....	3.82	0.48	8.15	7.67	....	9.60	29
0.82	3.16	0.64	0.37	4.99	0.66	11.00	10.34	4.32	4.83	9203
0.75	3.56	0.40	0.21	4.92	0.55	8.35	7.80	7.05	7.05	9038
0.69	3.92	0.48	0.41	5.50	0.56	8.89	8.33	6.26	7.86	9546
0.71	3.32	0.46	0.33	4.82	0.82	8.81	7.99	7.00	7.00	9668
0.00	6.62	0.00	0.96	7.58	1.78	9.15	7.37	4.41	4.41	9361
0.74	2.02	0.70	0.64	4.10	0.74	9.15	8.41	7.04	7.04	9172

TABLE 9. ANALYSES OF MIXED FERTILIZERS—Continued

Station No.	Manufacturer and brand	Place of sampling	Acid-forming (A) Non-acid-forming (NA) or near neutral (N)
9176	Baugh's $\frac{3}{4}$ Century Perfection 3-10-6.....	Hamden.....	N
9174	Baugh's Fish Bone & Potash 4-8-4.....	Hamden.....	A
9133	Baugh's Peruvian Guano Substitute 5-8-7.....	Hamden.....	A
9254	Baugh's Peruvian Guano Substitute 5-8-7.....	Guilford.....	A
9173	Baugh's Special Top Dresser 7-6-6.....	Hamden.....	N
9253	Baugh's Special Top Dresser 7-6-6.....	Guilford.....	N
9170	Baugh's Truckers Favorite 5-10-5.....	Hamden.....	A
<b>Berkshire Chemical Co., Bridgeport, Conn.</b>			
9178	Berkshire Berry and Tomato Special 3-10-6....	Hamden.....	A
9662	Berkshire Berry and Tomato Special 3-10-6....	Bridgeport.....	A
9399	Berkshire Complete Fertilizer 2-12-2.....	New Canaan.....	A
9331	Berkshire Golf Green Fertilizer 8-5-2.....	Bridgeport.....	A
9374	Berkshire Grass Special Fertilizer 6-6-5.....	Stamford.....	A
9179	Berkshire Long Island Special Fertilizer 4-8-7..	Hamden.....	A
9726	Berkshire Long Island Special Fertilizer 4-8-7..	Bridgeport.....	A
9201	Berkshire Market Garden Fertilizer 4-8-4.....	Milford.....	A
9250	Berkshire Potato and Garden Special Fertilizer 5-8-7.....	Stepney.....	A
9727	Berkshire Potato and Garden Special Fertilizer 5-8-7.....	Bridgeport.....	A
<b>Consolidated Rendering Co., Boston, Mass.</b>			
6	Corenco 3-10-4 Animal Brand.....	New Haven.....	..
9634	Corenco 3-10-4 Animal Brand.....	Unionville.....	N
9600	Corenco 3-12-6.....	North Haven.....	N
9255	Corenco 4-8-4 for Corn and Vegetable.....	Guilford.....	N
9231	Corenco 4-8-7 Market Garden.....	Meriden.....	A
9401	Corenco 4-8-10 Potato Grower.....	Bethel.....	N
9529	Corenco 5-5-5 Lawn and Shrub Fertilizer.....	Thompsonville.....	A
9974	Corenco 5-5-15.....	Enfield.....	..
9081	Corenco 5-8-7 General Crop Manure.....	Lebanon.....	A
9232	Corenco 5-8-10 Peerless Potato.....	Meriden.....	A
9358	Corenco 5-10-5 Super Truck.....	Westport.....	A
9635	Corenco 7-3-7 Super Tobacco Grower.....	Unionville.....	NA
9080	Corenco 7-6-6 Complete Fruit and Top Dressing	Lebanon.....	A
9257	Corenco 7-6-6 Complete Fruit and Top Dressing	Guilford.....	A
9180	Corenco 8-16-14 Two-in-One.....	New Haven.....	A
<b>C &amp; R Sales Co., Worcester, Mass.</b>			
9653	Nitro-Organure 10-6-4.....	Norwich.....	A
<b>Davey Tree Expert Co., Kent, Ohio</b>			
9375	Davey Tree Food 10-3-3.....	Old Greenwich.....	A

Nitrogen					Phosphoric acid			Potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total	Citrate-insoluble	Total	So-called "Available"	As muriate	Total	
%	%	%	%	%	%	%	%	%	%	
1.87	0.76	0.76	0.51	3.90	0.76	10.72	9.96	3.75	8.20	9176
1.00	1.94	0.70	0.29	3.93	0.83	9.02	8.19	4.12	4.12	9174
0.81	2.60	0.74	0.75	4.90	0.76	8.92	8.16	7.45	7.45	9133
0.85	2.48	0.66	0.67	4.66	0.65	8.89	8.24	6.83	6.83	9254
3.89	2.14	0.76	0.23	7.02	0.51	7.04	6.53	6.02	6.02	9173
3.68	2.24	0.48	0.26	6.66	0.46	7.01	6.55	5.93	5.93	9253
1.10	2.18	0.90	0.63	4.81	0.90	11.16	10.26	5.27	5.27	9170
0.41	2.00	0.36	0.17	2.94	0.24	10.43	10.19	5.79	5.79	9178
0.45	2.06	0.36	0.21	3.08	0.26	10.56	10.30	5.72	5.72	9662
0.23	1.44	0.24	0.21	2.12	0.29	12.37	12.08	2.09	2.09	9399
0.00	2.00	1.40	4.56	7.96	0.85	7.16	6.31	2.61	2.61	9331
0.55	4.62	0.38	0.54	6.09	0.24	6.69	6.45	4.78	4.78	9374
0.34	2.86	0.36	0.39	3.95	0.30	8.49	8.19	6.49	6.49	9179
0.47	2.88	0.36	0.30	4.01	0.55	8.55	8.00	6.49	6.49	9726
0.41	3.00	0.42	0.37	4.20	0.38	8.55	8.17	4.17	4.17	9201
0.39	3.56	0.54	0.45	4.94	0.25	8.66	8.41	6.87	6.87	9250
0.53	3.80	0.26	0.41	5.00	0.39	8.51	8.12	6.34	6.34	9727
0.86	1.16	0.72	0.19	2.93	0.38	10.35	9.97	3.69	3.82	6
0.98	1.12	0.76	0.20	3.06	0.25	10.35	10.10	3.64	3.95	9634
0.98	1.00	0.85	0.14	2.97	0.25	12.19	11.94	6.01	6.01	9600
0.95	2.24	0.76	0.29	4.24	0.10	9.01	8.91	4.08	4.08	9255
1.00	2.48	0.68	0.24	4.40	0.18	8.58	8.40	7.10	7.10	9231
0.99	2.16	0.64	0.21	4.00	0.22	8.50	8.28	10.19	10.19	9401
0.92	1.32	0.68	2.09	5.01	1.48	8.00	6.52	5.02	5.47	9529
.....	.....	.....	.....	5.21	0.23	6.60	6.37	1.32	14.61	9974
1.18	2.86	0.78	0.22	5.04	0.29	8.62	8.33	6.82	6.82	9081
0.85	3.16	0.76	0.21	4.98	0.14	8.37	8.23	10.09	10.09	9232
0.95	2.94	0.68	0.19	4.76	0.67	10.93	10.26	4.92	4.92	9358
1.43	0.82	2.33	2.32	6.90	0.22	4.56	4.34	0.57	7.57	9635
1.03	5.04	0.60	0.33	7.00	0.15	6.42	6.27	6.41	6.41	9080
1.00	5.02	0.58	0.37	6.97	0.15	6.47	6.32	5.49	6.00	9257
1.00	5.76	0.68	0.46	7.90	0.50	15.18	14.68	14.80	14.80	9180
0.41	2.38	5.92	1.49	10.20	0.22	7.27	7.05	4.05	5.28	9953
1.23	6.40	0.29	1.90	9.82	0.46	3.90	3.44	1.13	3.07	9375

TABLE 9. ANALYSES OF MIXED FERTILIZERS—Continued

State No.	Manufacturer and brand	Place of sampling	Acid-forming (A) Non-acid-forming (NA) or near neutral (N)
<b>Eastern States Farmers' Exchange, Springfield, Mass.</b>			
9076	Eastern States 0-20-20	Willimantic	NA
9056	Eastern States 4-8-8	Willimantic	NA
9057	Eastern States 4-12-4	Willimantic	NA
9072	Eastern States 4-16-20	Willimantic	NA
9657	Eastern States 5-5-15 Tobacco	Thompsonville	NA
9071	Eastern States 6-8-6	Willimantic	NA
9078	Eastern States 7-14-19	Willimantic	A
9199	Eastern States 7-14-19	Orange	A
9528	Eastern States 8-4-8 Tobacco	East Granby	NA
9073	Eastern States 8-16-16	Willimantic	A
9412	Eastern States 8-16-16	Torrington	A
9583	Eastern States 8-16-16 L.C.S.	East Hartford	A
9077	Eastern States 8-20-12	Willimantic	A
9070	Eastern States 8-24-8	Willimantic	A
9411	Eastern States 8-24-8	Torrington	A
9527	Eastern States 10-5-10 Tobacco	East Granby	N
9130	Eastern States 12-4-4	East Hartford	A
9075	Eastern States 12-16-12	Willimantic	A
9418	Eastern States 12-16-12	Southington	A
<b>International Agricultural Corp., Boston, Mass.</b>			
9320	Caribee Market Garden Fertilizer 5-10-10	Norwich	A
9468	International 4-8-4	Plainville	A
9469	International 4-8-10	Plainville	A
9419	International 5-8-7	Plainville	A
9470	International 7-6-6	Plainville	A
<b>Killen &amp; Hall, Inc., Darien, Conn.</b>			
9394	Killen and Hall Tree Food 8-5-2	Darien	A
<b>Old Deerfield Fertilizer Co., South Deerfield, Mass.</b>			
9654	Old Deerfield Complete Tobacco 5-3-5	Windsor Locks	NA
9655	Old Deerfield High Grade Tobacco 6-3-7	West Suffield	N
9656	Old Deerfield Tobacco Starter Bone and Potash 5-8-12	Suffield	NA
9533	Old Deerfield Grass Top Dressing 7-6-6	Hazardville	N
9532	Valley Brand 4-8-4	Hazardville	NA
9531	Valley Brand 5-8-7	Hazardville	NA



In nitrates	Nitrogen				Phosphoric acid			Potash		Station No.
	In monia	Organic water-soluble	Organic water-insoluble	Total	Citrate-insoluble	Total	So-called Available	As muriate	Total	
%	%	%	%	%	%	%	%	%	%	%
1.20	2.84	0.08	0.26	4.38	0.28	20.68	20.40	21.12	21.12	9076
0.18	2.72	0.96	0.28	4.14	0.82	9.48	8.66	8.04	8.04	9056
1.13	2.80	0.20	0.27	4.40	1.76	13.76	12.00	4.76	4.76	9057
2.23	0.04	0.36	2.65	5.28	0.47	18.90	18.43	20.01	20.01	9072
1.84	4.04	0.24	0.30	6.42	0.07	6.22	6.15	0.66	16.60	9657
1.74	5.16	0.12	0.18	7.20	0.65	9.85	9.20	5.93	6.73	9071
1.73	4.84	0.18	0.19	6.94	0.16	13.72	13.56	21.26	21.26	9078
1.43	0.62	2.88	2.82	7.75	0.26	16.33	16.07	17.48	18.27	9199
2.13	5.64	0.06	0.17	8.00	0.17	5.75	5.58	1.74	8.79	9528
2.13	6.00	0.06	0.14	8.33	0.35	17.83	17.48	16.36	16.36	9073
2.23	5.40	0.32	0.17	8.12	0.33	15.99	15.66	17.28	17.28	9412
1.99	6.06	0.22	0.16	8.43	0.18	14.47	14.29	0.96	17.39	9583
0.00	6.44	1.80	0.10	8.34	0.39	19.49	19.10	12.85	13.36	9077
0.12	6.48	1.62	0.12	8.34	0.61	23.81	23.20	7.07	7.86	9070
2.22	0.30	5.68	2.85	11.05	0.54	25.32	24.78	8.19	8.19	9411
4.12	7.68	0.00	0.20	12.00	0.14	6.31	6.17	0.40	11.16	9527
3.59	8.52	0.10	0.23	12.44	0.14	5.11	4.97	4.74	4.74	9130
3.67	8.32	0.04	0.27	12.30	0.06	16.90	16.84	2.13	13.27	9075
					0.06	16.72	16.66	2.19	12.81	9418
0.87	1.40	1.56	1.39	5.22	0.60	10.80	10.20	1.49	10.78	9320
0.61	2.48	0.56	0.18	3.83	0.16	8.10	7.94	0.92	3.76	9468
0.82	2.60	0.46	0.16	4.04	0.21	8.55	8.34	9.00	9.72	9469
0.66	3.36	0.48	0.22	4.72	0.14	8.89	8.75	5.34	6.34	9416
0.91	5.52	0.28	0.38	7.09	0.17	6.20	6.03	5.06	5.06	9470
0.66	4.80	0.42	2.34	8.22	0.37	5.90	5.53	2.26	2.26	9394
1.24	0.08	0.60	3.58	5.50	0.35	5.44	5.09	0.58	5.97	9654
0.52	0.30	1.98	3.41	6.21	0.32	5.34	5.02	0.76	7.85	9655
1.36	0.18	2.08	1.64	5.26	0.39	9.88	9.49	0.40	12.97	9656
0.61	5.24	1.12	0.10	7.07	0.45	7.64	7.19	4.98	6.37	9533
1.45	2.48	0.08	0.22	4.23	0.70	9.45	8.75	3.19	4.59	9532
1.66	3.40	0.12	0.14	5.32	0.52	9.06	8.54	5.91	7.04	9531

TABLE 9. ANALYSES OF MIXED FERTILIZERS—Continued

Station No.	Manufacturer and brand	Place of sampling	Acid-forming (A), Non-acid-forming (NA) or near neutral (N)
<b>Olds &amp; Whipple, Inc., Hartford, Conn.</b>			
9569	Luxura 5-8-6.....	Hartford.....	A
9490	O & W 3-10-4 Corn Special Fertilizer.....	Bloomfield.....	NA
9491	O & W 4-8-4 Market Garden Fertilizer.....	Bloomfield.....	NA
9492	O & W 4-8-7 Potato and General Purpose Fertilizer.....	Bloomfield.....	NA
9636	O & W 5-3-5 Complete Tobacco.....	East Hartford.....	NA
9637	O & W 5-4-15 High Grade Tobacco Starter and Potash Compound.....	East Hartford.....	NA
9564	O & W 5-8-7 Potato and General Purpose Fertilizer.....	East Hartford.....	A
9638	O & W 6-3-5 Blue Label Tobacco Fertilizer Potash derived from Cottonhull Ashes.....	East Hartford.....	NA
9639	O & W 6-3-6 Blue Label Tobacco Fertilizer Potash derived from Cottonhull Ashes.....	East Hartford.....	NA
9640	O & W 6-3-6 Blue Label Tobacco Fertilizer....	East Hartford.....	NA
9633	O & W 6-3-7 Special Tobacco Fertilizer.....	Unionville.....	NA
9489	O & W 8-6-6 Top Dressing and Grass Fertilizer	Bloomfield.....	A
<b>Outpost Nurseries, Inc., Ridgefield, Conn.</b>			
9400	Outpost Plant Food 8-5-2.....	Ridgefield.....	A
<b>Plantspur Products Co., Ridgefield, N. J.</b>			
9658	Plantspur Fertilizer 3-3-2.....	New Haven.....	A
<b>Frank S. Platt Co., New Haven, Conn.</b>			
9198	Platt's Special 5-8-7 Fertilizer.....	New Haven.....	A
9197	Platt's Special 10-5-5 Lawn Fertilizer.....	New Haven.....	A
<b>The Rogers &amp; Hubbard Co., Portland, Conn.</b>			
9478	Golf Course Fertilizer 8-6-2.....	Portland.....	A
9109	Gro-Fast Plant Foods 5-6-6.....	Norwich.....	A
9117	Hubbard's All Soils Fertilizer 4-8-4.....	Willimantic.....	NA
9599	Hubbard's Climax Tobacco Fertilizer 5-3-5.....	Portland.....	N
9403	Hubbard's Corn and Grain Fertilizer 3-10-4....	New Milford.....	NA
9475	Hubbard's Corn Fertilizer 4-8-7.....	Portland.....	NA
9041	Hubbard's High Potash Fertilizer 4-8-10.....	North Haven.....	NA
9099	Hubbard's Potato Fertilizer 5-8-7.....	Norwich.....	N
9479	Hubbard's Seeding Fertilizer 3-7-6.....	Portland.....	NA
9597	Hubbard's Tobacco Grower 6-3-6.....	Portland.....	NA
9588	Hubbard's Tobacco Manure 5-8-10.....	Portland.....	NA

Nitrogen					Phosphoric acid			Potash		Station No.
In nit	In ammonia	Organic water-soluble	Organic water-insoluble	Total	Citrate-insoluble	Total	So-called "Available"	As muriate	Total	
%	%	%	%	%	%	%	%	%	%	
0.56	2.32	0.32	2.24	5.44	1.76	12.07	10.31	1.52	6.50	9569
0.54	1.68	0.24	0.65	3.11	0.64	11.26	10.62	4.34	4.34	9490
0.66	2.56	0.20	0.65	4.07	0.45	9.01	8.56	5.30	5.30	9491
0.56	2.76	0.22	0.70	4.24	0.45	9.25	8.80	7.75	7.75	9492
0.97	0.14	0.74	3.19	5.04	0.37	4.08	3.71	0.43	5.87	9636
1.18	0.12	1.88	1.39	4.57	0.41	4.45	4.04	1.00	17.66	9637
0.98	3.48	0.16	0.67	5.29	0.48	9.05	8.57	7.15	7.15	9564
1.01	0.00	1.72	3.53	6.26	0.65	4.34	3.69	0.53	5.63	9638
1.09	0.16	1.40	3.73	6.38	0.26	4.23	3.97	0.80	6.34	9639
0.98	0.08	1.28	3.75	6.09	0.29	4.02	3.73	0.40	6.79	9640
0.70	0.20	1.52	3.70	6.12	0.31	4.10	3.79	1.46	7.92	9633
3.85	3.72	0.02	0.49	8.08	0.40	7.43	7.03	6.12	6.12	9489
0.00	2.34	0.82	4.38	7.54	0.93	7.25	6.32	2.50	2.50	9400
0.15	2.58	0.02	0.35	3.10	0.29	3.24	2.95	2.25	2.25	9658
0.95	3.04	0.86	0.26	5.11	0.20	8.64	8.44	5.46	6.76	9198
0.00	6.88	1.26	2.39	10.53	0.43	7.55	7.12	5.87	5.87	9197
0.24	1.60	2.24	4.12	8.20	1.87	9.34	7.47	2.72	2.72	9478
0.27	1.80	0.24	3.14	5.45	0.53	7.79	7.26	0.69	6.78	9109
0.54	1.74	1.26	0.60	4.14	0.87	9.56	8.69	4.41	4.41	9117
0.81	0.20	0.72	3.49	5.22	0.13	3.85	3.72	0.48	5.52	9599
0.54	1.54	0.46	0.55	3.09	0.92	11.31	10.39	4.55	4.55	9403
0.94	1.72	0.82	0.64	4.12	1.12	9.62	8.50	7.50	7.50	9475
0.46	1.68	1.24	0.56	3.94	0.88	9.63	8.75	9.45	9.45	9041
0.73	2.28	1.24	0.83	5.08	1.35	9.57	8.22	7.92	7.92	9099
0.15	1.28	0.72	0.90	3.05	1.69	12.79	11.10	5.86	5.86	9479
1.20	0.12	1.16	3.53	6.01	0.51	5.25	4.74	0.60	6.76	9597
1.86	0.84	0.72	1.38	4.80	1.25	11.27	10.02	0.78	10.04	9588

TABLE 9. ANALYSES OF MIXED FERTILIZERS—Continued

Station No.	Manufacturer and brand	Place of sampling	Acid-forming (A), Non-acid-forming (NA) or near neutral (N)
9098	Hubbard's Top Dressing 8-5-8.	Norwich	NA
9094	Red H 4-8-4.	Norwich	NA
9404	Red H 4-8-7.	New Milford	NA
9482	Red H 4-8-8.	Portland	N
9477	Red H 4-8-10.	Portland	NA
9095	Red H 5-8-7.	Norwich	A
9408	Red H 5-8-7.	New Milford	A
9598	Red H 5-10-10.	Portland	N
9100	Red H 7-6-6.	Norwich	A
9581	Red H 7-6-6.	Colchester	A
9476	Red H 8-16-14.	Portland	A
<b>O. M. Scott &amp; Sons Co., Marysville, Ohio</b>			
9235	Scott's Turf Builder 10-6-4.	Meriden	A
<b>Sewerage Commissioner of the City of Milwaukee, Milwaukee, Wis.</b>			
9409	Milorganite.	Litchfield	A
<b>M. L. Shoemaker &amp; Co., Philadelphia, Pa.</b>			
9518	Shoemaker's "Swift-Sure" Tobacco Starter 4-10-0.	Windsor Locks	
<b>Standard Wholesale Phosphate &amp; Acid Works, Baltimore, Md.</b>			
8804 <sup>1</sup>	Standard 3-10-6.	Niantic	..
8810 <sup>1</sup>	Standard 3-10-6.	Mansfield	..
9292	Standard 4-8-4.	New London	A
8581 <sup>1</sup>	Standard 4-8-7.	Cheshire	..
8809 <sup>1</sup>	Standard 4-8-7.	Norwich	..
8801 <sup>1</sup>	Standard 4-16-20.	Meriden	..
8580 <sup>1</sup>	Standard 5-8-7.	Cheshire	..
8663 <sup>1</sup>	Standard 5-8-7.	Middletown	..
9669	Standard 5-8-7.	Wilson	A
8579 <sup>1</sup>	Standard 5-8-10.	Cheshire	..
8807 <sup>1</sup>	Standard 5-8-10.	Niantic	..
8802 <sup>1</sup>	Standard 5-10-5.	Newtown	..
8806 <sup>1</sup>	Standard 5-10-5.	Niantic	..
8662 <sup>1</sup>	Standard 7-6-6.	Cheshire	..
8803 <sup>1</sup>	Standard 7-6-6.	Newtown	..
8690 <sup>1</sup>	Standard 8-6-6.	Hartford	..
8805 <sup>1</sup>	Standard 8-16-14.	Niantic	..

<sup>1</sup>Supplied on order from State Purchasing Department.

Nitrogen					Phosphoric acid			Potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Tal	Citrate-insoluble	Tal	So-called Available	As muriate	Tal	
%	%	%	%	%	%	%	%	%	%	
8.36	0.00	0.08	0.26	8.70	0.87	8.02	7.15	8.87	8.87	9098
0.63	3.00	0.44	0.33	4.40	0.71	9.31	8.60	4.52	4.52	9094
0.56	3.00	0.48	0.18	4.22	0.67	8.86	8.19	7.16	7.16	9404
0.57	3.30	0.14	0.16	4.17	0.24	8.58	8.34	8.74	8.74	9482
0.61	2.92	0.36	0.37	4.26	0.69	9.13	8.44	9.90	9.90	9477
0.88	3.64	0.36	0.36	5.24	0.76	9.29	8.53	7.07	7.07	9095
0.67	3.82	0.30	0.29	5.08	0.75	9.14	8.39	7.05	7.05	9408
1.04	2.52	0.60	0.83	4.99	0.47	10.81	10.34	10.16	10.16	9598
0.65	5.88	0.40	0.33	7.26	0.41	7.07	6.66	7.65	7.65	9100
0.62	5.22	0.70	0.62	7.16	0.40	6.71	6.31	5.89	6.36	9581
0.00	7.88	0.00	0.86	8.74	0.70	15.73	15.03	14.06	14.38	9476
0.00	6.40	0.40	3.40	10.20	0.09	6.43	6.34	3.16	4.64	9235
....	....	....	....	6.04	0.71	3.26	2.55	....	....	9409
0.31	2.48	0.52	0.58	3.89	1.66	11.55	9.89	....	....	9518
0.37	1.86	0.30	0.59	3.12	0.84	12.24	11.40	6.30	6.30	8804
0.34	1.76	0.34	0.64	3.08	0.85	11.95	11.10	6.05	6.05	8810
0.00	3.00	0.43	0.43	3.86	0.84	9.27	8.43	3.96	3.96	9292
0.36	3.00	0.08	0.80	4.24	0.58	9.61	9.03	7.40	7.40	8581
0.43	2.92	0.04	0.79	4.18	0.66	8.85	8.19	7.03	7.03	8809
0.43	2.92	1.44	0.11	4.90	0.68	14.29	13.61	17.76	17.76	8801
0.61	3.56	0.04	0.91	5.12	0.64	9.76	9.12	7.31	7.31	8580
0.59	3.62	0.10	0.92	5.23	0.67	9.24	8.57	7.29	7.29	8663
0.42	3.36	0.54	0.70	5.02	0.81	10.53	9.72	5.89	6.35	9669
1.09	3.48	0.18	0.85	5.60	0.60	8.99	8.39	11.34	11.34	8579
0.34	3.76	0.08	0.84	5.02	0.66	9.84	9.18	10.23	10.23	8807
0.61	3.44	0.18	0.93	5.16	1.02	11.80	10.78	5.95	5.95	8802
0.54	3.04	0.32	1.00	4.90	0.97	12.02	11.05	5.48	5.48	8806
0.71	4.34	0.58	1.28	6.91	0.88	7.59	6.71	6.05	6.05	8662
0.96	4.36	0.42	1.30	7.04	0.84	9.25	8.41	5.95	5.95	8803
0.60	5.02	0.67	1.56	7.85	0.88	8.12	7.24	6.28	6.28	8690
1.08	5.42	1.69	0.15	8.34	0.61	14.70	14.09	14.15	14.89	8805

TABLE 9. ANALYSES OF MIXED FERTILIZERS—Continued

Station No.	Manufacturer and brand	Place of sampling	Acid-forming (A), Non-acid-forming (NA) or near neutral (N)
<b>Stumpp &amp; Walter Co., New York, N. Y.</b>			
9362	Sawco Emerald Grass Fertilizer 5-7-3 . . . . .	Stamford . . . . .	A
9363	Sawco General Garden Fertilizer 5-10-5 . . . . .	Stamford . . . . .	A
<b>Summers Fertilizer Co., Inc., Baltimore, Md.</b>			
9204	Summers "Best-on-Earth" 3-10-6 Fertilizer . . . . .	Wallingford . . . . .	NA
9227	Summers "Best-on-Earth" 4-8-4 Fertilizer . . . . .	Wallingford . . . . .	NA
9226	Summers "Best-on-Earth" 4-8-10 Fertilizer . . . . .	Wallingford . . . . .	NA
9225	Summers "Best-on-Earth" 5-8-7 Fertilizer . . . . .	Wallingford . . . . .	N
9667	Summers "Best-on-Earth" 5-8-7 Fertilizer . . . . .	Wilson . . . . .	A
<b>Swift &amp; Co. Fertilizer Works, Baltimore, Md.</b>			
9416	Swift's Special Golf Fertilizer 12-6-4 . . . . .	Watertown . . . . .	A
9234	Vigoro 4-12-4 . . . . .	Meriden . . . . .	N
<b>Tennessee Corp., Lockland, Ohio</b>			
9360	Loma 5-10-4 . . . . .	So. Norwalk . . . . .	
<b>I. P. Thomas &amp; Son Co., Camden, N. J.</b>			
9051	I. P. Thomas 3-10-6 . . . . .	North Haven . . . . .	A
9050	I. P. Thomas 5-8-7 . . . . .	North Haven . . . . .	A
9724	I. P. Thomas 5-8-7 . . . . .	North Haven . . . . .	A
<b>Virginia-Carolina Chemical Co., Richmond, Va.</b>			
9367	V-C Fairway Fertilizer (New Process) 6-6-4 . . . . .	Stamford . . . . .	A
9373	BloomAid (New Process) 4-10-3 . . . . .	Stamford . . . . .	A
<b>F. H. Woodruff &amp; Sons, Milford, Conn.</b>			
9330	Gro-Sod Lawn Food 10-6-4 . . . . .	Milford . . . . .	
<b>The Woodruff Fertilizer Works, Inc., Orange, Conn.</b>			
8265	Woodruff's Big Crop Fertilizer 5-8-7 . . . . .	North Haven . . . . .	
9200	Woodruff's Big Crop Fertilizer 5-8-7 . . . . .	Orange . . . . .	NA
9040	Woodruff's Corn Fertilizer 4-16-4 . . . . .	North Haven . . . . .	A
9047	Woodruff's Market Garden Fertilizer 4-8-4 . . . . .	Orange . . . . .	NA
8264	Woodruff's Top Dresser 7-6-6 . . . . .	North Haven . . . . .	
9052	Woodruff's Yankee Special Fertilizer 5-10-5 . . . . .	North Haven . . . . .	N

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	
%	%	%	%	%	%	%	%	%	%	
0.38	3.64	0.40	1.08	5.50	0.96	10.21	9.25	4.30	4.30	9362
0.00	4.00	0.44	0.65	5.09	0.61	10.25	9.64	5.47	5.47	9363
0.64	2.40	0.18	0.28	3.50	1.09	11.04	9.95	5.66	6.68	9204
0.54	3.06	0.34	0.28	4.22	0.68	8.51	7.83	4.60	4.60	9227
0.70	3.20	0.04	0.26	4.20	0.74	8.94	8.20	9.57	10.22	9226
0.68	3.60	0.38	0.34	5.00	0.64	8.67	8.03	2.63	7.04	9225
0.64	3.76	0.24	0.28	4.92	0.80	9.36	8.56	7.39	7.39	9667
0.00	11.56	0.40	0.08	12.04	0.25	6.29	6.04	4.14	4.14	9416
0.49	3.30	0.06	0.19	4.04	0.62	13.16	12.54	4.37	4.37	9234
0.38	4.00	0.08	0.47	4.93	0.22	10.64	10.42	4.19	4.19	9360
0.39	1.90	0.90	0.46	3.65	0.92	11.17	10.25	6.37	6.37	9051
0.51	3.16	0.90	0.35	4.92	0.84	8.84	8.00	6.57	6.57	9050
0.43	3.12	1.04	0.41	5.00	1.00	9.24	8.24	7.45	7.45	9724
0.18	4.66	0.49	0.57	5.90	0.10	7.35	7.25	2.06	4.48	9367
0.20	3.18	0.31	0.52	4.21	0.45	11.46	11.01	1.86	3.39	9373
0.28	5.16	2.62	1.94	10.00	0.41	7.50	7.09	4.30	4.30	9330
0.51	2.12	0.93	1.37	4.93	0.60	9.02	8.42	7.52	7.52	8265
0.86	2.40	0.66	0.95	4.87	0.46	9.29	8.83	7.54	7.54	9200
0.97	1.76	0.66	0.67	4.06	0.94	17.49	16.55	4.52	4.52	9040
0.15	1.96	0.62	1.09	3.82	0.65	9.06	8.41	4.30	4.30	9047
0.85	4.48	0.84	0.91	7.08	0.24	6.38	6.14	6.14	6.14	8264
0.89	2.18	0.78	1.09	4.94	0.75	11.31	10.56	5.25	5.25	9052

TABLE 10. ANALYSES OF SPECIAL AND HOME MIXTURES

Station No.	Name of mixture	Place of sampling	Total nitrogen	Phosphoric acid			Potash			Station No.
				Citrate insoluble	Total	So-called "Available"	As muriate	Total	Chloride	
Sampled by Station			%	%	%	%	%	%		
9032	Home Mixture for Potatoes.....	T. W. Ryan, Stratford.....	4.33	1.03	11.01	9.98	9.69	9.69	....	9032
9033	High Grade Home Mixture for Vegetables.....	T. W. Ryan, Stratford.....	5.03	0.53	10.56	10.03	8.10	8.10	....	9033
9535	Special Mixture for Potatoes.....	Henry Cybulski, Somers.....	5.06	0.66	10.10	9.44	8.54	8.54	....	9535
Sampled by Purchaser										
8798	Our Own Mixture—Formula D— No. 2.....	American Sumatra Tobacco Corp., Bloomfield.....	5.09	0.14	4.72	4.58	0.53	7.74	0.40	8798
8797	Our Own Mixture—Formula C— No. 2.....	American Sumatra Tobacco Corp., Bloomfield.....	5.52	0.15	2.70	2.55	0.43	10.16	0.32	8797
7983	Mixed Formula—No. 1P.....	Consolidated Cigar Corp., Hartford	5.53	0.66	4.15	3.49	....	8.18	0.41	7983
7984	Mixed Fertilizer—No. 2-P.....	Consolidated Cigar Corp., Hartford	5.89	0.46	3.71	3.25	....	7.04	0.38	7984
8244	Mixed Formula A.....	Consolidated Cigar Corp., Hartford	5.51	0.36	4.77	4.41	0.47	7.97	0.35	8244
8306	Mixed Formula B.S.....	Consolidated Cigar Corp., Hartford	5.59	0.25	4.32	4.07	0.51	7.52	0.38	8306
8307	Mixed Formula B.A.....	Consolidated Cigar Corp., Hartford	5.73	0.26	3.96	3.70	0.53	7.69	0.40	8307
8338	Mixed Formula A—B.B.....	Consolidated Cigar Corp., Hartford	5.30	0.55	4.55	4.00	0.58	8.02	0.44	8338
8564	Fertilizer Formula A—Ch.....	Consolidated Cigar Corp., Hartford	5.10	0.44	4.15	3.71	0.64	7.98	0.48	8564
8565	Fertilizer Formula A—M.....	Consolidated Cigar Corp., Hartford	5.18	0.47	4.60	4.13	0.54	7.33	0.41	8565
8566	Fertilizer Formula B—C.....	Consolidated Cigar Corp., Hartford	5.72	0.33	3.96	3.63	0.61	7.17	0.46	8566
8567	Fertilizer Formula B—W.....	Consolidated Cigar Corp., Hartford	5.74	0.39	4.14	3.75	0.58	7.40	0.44	8567
8568	Fertilizer Formula B <sub>2</sub> —P.....	Consolidated Cigar Corp., Hartford	5.62	0.32	4.05	3.73	0.62	7.56	0.47	8568
8569	Fertilizer Formula B <sub>2</sub> —Ch.....	Consolidated Cigar Corp., Hartford	5.76	0.44	4.16	3.72	0.57	7.17	0.43	8569
8570	Fertilizer Formula A <sub>2</sub> —Ch.....	Consolidated Cigar Corp., Hartford	5.27	0.56	4.49	3.93	0.70	7.97	0.53	8570
8571	Fertilizer Formula B <sub>2</sub> S—P.....	Consolidated Cigar Corp., Hartford	5.70	0.51	4.06	3.55	0.66	7.29	0.50	8571



8572	Fertilizer Formula AS—P.X. ....	Consolidated Cigar Corp., Hartford	5.78	0.45	4.04	3.59	0.56	6.72	0.42	8572
8344	Potato Fertilizer. ....	Cullman Bros. Inc., Simsbury. ....	5.40	0.65	9.22	8.57	1.26	8.17	0.95	8344
9505	Mixed Fertilizer No. 1. ....	S. A. Fassler & Co., Hartford. ....	6.36	0.23	5.23	5.00	0.58	7.04	0.44	9505
9506	Mixed Fertilizer No. 2. ....	S. A. Fassler & Co., Hartford. ....	6.13	0.20	4.87	4.67	0.54	6.72	0.41	9506
9720	Fertilizer. ....	S. A. Fassler & Co., Hartford. ....	5.98	0.30	5.71	5.41	0.66	6.46	0.50	9720
8417	Mixed Fertilizer No. 16. ....	L. B. Haas & Co., Inc., Hartford. .	6.30	0.42	4.15	3.73	0.48	6.84	0.36	8417
8941	Tobacco Mixture Fertilizer. ....	L. W. Newberry, So. Windsor. ....	7.12	0.34	4.74	4.40	0.37	7.94	0.28	8941
9717	Fertilizer—No. 1. ....	Rand & Christiansen, Wilson. ....	5.22	0.79	8.86	8.07	7.25	7.25	....	9717
9718	Fertilizer—No. 2. ....	Rand & Christiansen, Wilson. ....	4.81	0.76	8.99	8.23	7.09	7.09	....	9718
9719	Fertilizer—No. 3. ....	Rand & Christiansen, Wilson. ....	4.86	0.75	10.20	9.45	6.01	6.71	4.52	9719
9721	Special Mixture. ....	T. R. Swanback, Tob. Sta., Wind- sor. ....	6.28	0.25	6.24	5.99	2.21	12.26	1.66	9721
8947	Fertilizer Formula A—Hv. ....	Silberman—Kahn Corp., Hartford.	5.66	0.58	4.73	4.15	0.53	6.33	0.40	8947
8946	Fertilizer Formula A S—D E E. ....	Silberman—Kahn Corp., Hartford.	5.30	0.64	4.32	3.68	0.62	8.25	0.47	8946
8945	Fertilizer Formula B 2—D E E. ....	Silberman—Kahn Corp., Hartford.	5.72	0.45	4.25	3.80	0.54	7.20	0.41	8945
8944	Fertilizer Formula B—HV. ....	Silberman—Kahn Corp., Hartford.	5.76	0.45	4.12	3.67	0.58	6.95	0.44	8944
8943	Fertilizer Formula B 2 S—DV. ....	Silberman—Kahn Corp., Hartford.	5.93	0.42	4.21	3.79	0.56	7.17	0.42	8943
8942	Fertilizer Formula B 2 S—DV. ....	Silberman—Kahn Corp., Hartford.	5.85	0.51	3.99	3.48	0.58	7.45	0.44	8942

Analyses

TABLE 11. ANALYSES OF SHEEP MANURE, ETC.

Station No.	Manufacturer and brand	Place of sampling	Nitrogen		Total phosphoric acid		Potash		Station No.
			Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	
			%	%	%	%	%	%	
9327	Pulverized Sheep and Goat Manure. The American Agricultural Chemical Co., North Weymouth, Mass.	American Agricultural Chemical Co. West Haven.....	1.50	1.25	0.94	1.00	3.11	2.00	9327
9359	Pulverized Sheep and Goat Manure. The American Agricultural Chemical Co., North Weymouth, Mass....	Libner Grain Co., Norwalk.....	1.50	1.25	1.01	1.00	3.19	2.00	9359
9382	Sheep Manure. Apothecaries Hall Co., Waterbury, Conn.....	J. B. McArdle, Greenwich.....	1.35	1.00	0.83	0.50	1.10	1.00	9382
9646	Sheep Manure. Apothecaries Hall Co., Waterbury, Conn.....	Apothecaries Hall Co., East Windsor.	1.68	1.00	1.01	0.50	3.86	1.00	9646
9484	Sheep and Goat Manure. Armour Fertilizer Works, New York, N. Y....	Warehouse, Hartford.....	1.53	1.25	1.25	1.00	3.13	2.00	9484
9417	Henure. Atkins & Durbrow, Inc., New York, N. Y.....	Seymour Grain & Coal Co., Seymour.	3.11	2.00	3.76	1.00	1.41	1.00	9417
9356	Berkshire Sheep and Goat Manure. Berkshire Chemical Co., Bridgeport, Conn.....	Berkshire Chemical Co., Bridgeport..	1.59	1.25	1.01	1.00	3.36	2.00	9356
9195	Sheep Manure. Consolidated Rendering Co., Boston, Mass.....	L. T. Frisbie Co., New Haven.....	1.81	1.25	1.17	1.00	3.31	2.00	9195
9402	Sheep Manure. Consolidated Rendering Co., Boston, Mass.....	Morrison & Dunham, Bethel.....	1.54	1.25	1.00	1.00	3.29	2.00	9402
9608	Davey Shredded Cattle Manure. Davey Tree Expert Co., Kent, Ohio....	R. E. Landis. Old Greenwich.....	2.00	1.00	2.97	1.00	2.69	2.00	9608
9510	Sheeps Head Pulverized Sheep Manure. Natural Guano Co., Aurora, Ill.	Cadwell and Jones, Hartford.....	1.94	2.00	1.23	1.00	2.49	2.00	9510

9326	Premier Brand Pulverized Poultry Manure. North American Car Corp. Premier Poultry Manure Div., Chicago, Ill.	Lightborn & Pond Co., New Haven..	5.28	4.93	2.51	2.75	1.27	1.30	9326
9378	Wizard Brand Pulverized Sheep Manure. Pulverized Manure Co., Chicago, Ill.	J. B. McArdle, Greenwich.....	2.32	2.00	1.67	... 3	2.78	2.00	9378
9383	Wizard Brand Cow Manure. Pulverized Manure Co., Chicago, Ill.	J. B. McArdle, Greenwich.....	2.06	2.00	1.40	... 3	1.83	1.00	9383
9110	Sheep and Goat Manure. The Rogers & Hubbard Co., Portland, Conn.	Norwich Grain Co., Norwich.....	1.76	1.25	2.20	... 4	3.52	2.00	9110
9365	Sawco Pulverized Sheep Manure. Stumpp & Walter Co., New York, N. Y.	Stumpp & Walter, Stamford.....	2.03	2.00	1.70	1.00	3.15	2.00	9365
9366	Sawconure 3-1-1. Stumpp & Walter Co., New York, N. Y.	Stumpp & Walter, Stamford.....	2.93	3.00	3.45	... 5	1.24	1.00	9366
9224	Summers' Venezuelan Goat Manure. Summers Fertilizer Co., Baltimore, Md.	Laden Bros Inc., Wallingford.....	1.93	1.00	2.82	1.25	4.00	3.00	9224
9395	Bovung. Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J.	Killen & Hall, Darien.....	2.12	2.00	3.17	2.00	3.07	2.00	9395
9607	Woodgro Pure Cow Manure Dehydrated. Thomas Wood & Sons, Inc., Montclair, N. J.	Wm. J. Rice, Stamford.....	1.92	2.00	2.41	... 6	1.52	3.00	9607

Analyses

<sup>1</sup>Guaranteed "available" phosphoric acid 1.00%; found 2.67%.  
<sup>2</sup>Guaranteed "available" phosphoric acid 1.00%; found 1.43%.  
<sup>3</sup>Guaranteed "available" phosphoric acid 1.00%; found 1.14%.  
<sup>4</sup>Guaranteed "available" phosphoric acid 1.00%; found 1.59%.  
<sup>5</sup>Guaranteed "available" phosphoric acid 1.00%; found 3.20%.  
<sup>6</sup>Guaranteed "available" phosphoric acid 2.00%; found 2.17%.

TABLE 12. ANALYSES OF LIMESTONE AND SIMILAR MATERIALS

Station No.	Manufacturer and brand	Sampled from stock of or sent by
	<b>Coe's Lime Works, Northford, Conn.</b>	
5	Limestone.....	Coe's Lime Works, Northford.....
8658	Lime.....	R. S. Coe, Northford.....
8524	Agricultural Lime.....	Lilly Dairy Farm, Branford.....
9065	Lime.....	State Highway Dept., Portland.....
	<b>Conklin Limestone Co. East Canaan, Conn.</b>	
9838	Ground Limestone.....	W. S. Middaugh, Hartford.....
	<b>Conn. Agstone Co., Danbury, Conn.</b>	
9996	Agstone Phoenix Brand Limestone.....	Stepney Big Y Feed Store, Stepney..
	<b>Granger's Manufacturing Co., West Stockbridge, Mass.</b>	
4	Granger's Agricultural Limestone.....	A. E. Hall, Wallingford.....
	<b>Lee Lime Corp., Lee, Mass.</b>	
9997	Tobey Pulverized Limestone.....	Wirthmore Grain & Coal Co., Step- ney.....
3	Lee Pulverized Limestone.....	P. Levson & Son, Middletown.....
8383	Lee Lime.....	Cullman Bros. Inc., Simsbury.....
	<b>Clifford L. Miller, West Stockbridge, Mass.</b>	
2	Monarque Agricultural Hydrated Lime.	Sunshine Feed Store, Plainville.....
	<b>New England Lime Co. Canaan, Conn.</b>	
9995	Agricultural Limestone.....	Meriden Grain & Coal Co., Meriden..
9999	Nelco Hydrated Lime.....	Libner Grain Co., Norwalk.....
	<b>New England Lime Co., Adams, Mass.</b>	
8659	Limestone.....	W. P. Hotchkiss, East Haven.....
	<b>The Redding Marble Co., Bethel, Conn.</b>	
9992	Redding Quality Pulverized Limestone	Geo. Clark's Farm, Orange.....

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							
%	%	%	%	%	%	%	%	%	%	
51.07	.....	trace	.....	.....	94.5	79.5	70.5	60.0	56.6	5
44.60	.....	0.94	.....	45.54	98.0	90.8	84.4	73.4	68.5	8658
49.67	.....	1.05	.....	50.72	87.2	67.4	57.5	46.7	43.3	8524
49.39	.....	0.80	.....	50.19	99.7	97.4	92.2	82.2	78.2	9065
30.27	.....	21.46	.....	51.73	99.9	97.9	86.9	59.5	49.3	9838
35.62	40.00	11.11	5.00	46.73	94.4	85.7	78.7	66.3	60.6	9996
45.53	30.00	5.75	1.00	51.28	100.0	98.0	86.8	62.8	54.1	4
36.62	30.00	13.08	5.00	49.70	99.6	98.9	97.8	95.3	93.7	9997
30.45	30.00	20.90	20.00	51.35	98.9	97.5	92.9	75.4	66.7	3
46.54	.....	32.62	.....	79.16	.....	.....	.....	.....	.....	8383
60.28	60.00	12.50	4.00	72.78	.....	.....	.....	.....	.....	2
31.28	30.00	21.10	20.00	52.38	99.7	97.6	93.3	80.5	73.3	9995
44.55	47.00	30.10	31.00	74.65	.....	.....	.....	.....	.....	9999
54.29	.....	0.65	.....	54.94	100.0	100.0	100.0	100.0	100.0	8659
28.05	.....	18.88	20.00	46.93	100.0	79.3	61.6	41.4	35.4	9992

TABLE 12. ANALYSES OF LIMESTONE AND SIMILAR MATERIALS—Continued

Station No.	Manufacturer and Brand	Sampled from stock of or sent by
	<b>Rockland-Rockport Lime Co., Inc., Rockland, Maine</b>	
9994	RR Land Lime.....	Associated Seed Growers, Inc., Milford.....
	<b>D. W. Smith &amp; Bro., Ashley Falls, Mass.</b>	
9993	Ashley White Dolomite Agricultural Limestone.....	Associated Seed Growers, Inc., Milford.....
	<b>U. S. Gypsum Co., Falls Village, Conn.</b>	
9998	Agricultural Limestone.....	A. J. Beebe, Mgr., Niantic.....
1	Eastern States Magnesian Limestone..	Eastern States Branch, Torrington.
	<b>Manufacturer Unknown</b>	
8343	Land Plaster.....	Cullman Bros. Inc., Simsbury.....
8442	Lime <sup>1</sup> .....	Henry Russell, Bethany.....
8456	Limestone No. 1.....	John Forline, Durham.....
8457	Limestone No. 2.....	John Forline, Durham.....
8133	Lime—Sample No. 6 P.....	Consolidated Cigar Corp., Hartford..
8114	Lime.....	Nicholas Edmonds, Gaylordsville....
8995	Hydrated Lime and Magnesia.....	A. N. Shepard & Son, Hartford.....
8990	Land Plaster (Gypsum).....	A. N. Shepard & Son, Hartford.....
8892	Magnesium Lime.....	Hatheway & Steane, Inc., Hartford..
8890	Land Plaster—T 21—612.....	Hatheway & Steane, Inc., Hartford..
8889	Land Plaster-T474.....	Hatheway & Steane, Inc., Hartford..
8852	Land Plaster.....	Hatheway & Steane, Inc., Hartford..
8722	Limestone.....	Gilbert F. Lee, Soil Conservation Service, Rockville.....
9923	Lime.....	C. R. Burr & Co., Inc., Manchester..

<sup>1</sup>Said to have been sold for "lime".



TABLE 13. ANALYSES OF MISCELLANEOUS MATERIALS

Station No.	Material	Moisture	Ash	Organic and volatile	Nitrogen	Phosphoric acid	Potash
		%	%	%	%	%	%
8113	Star fish <sup>1</sup> . . . . .	74.88	10.90	14.22	1.27	0.22	0.81
7421	"Chemi-grow" <sup>2</sup> . . . . .	.....	.....	.....	10.90	4.90	16.77
7463	Horn shavings . . . . .	.....	.....	.....	14.81 <sup>3</sup>	.....	.....
9790	Horn meal . . . . .	.....	.....	.....	12.59	3.84	.....
7960	Cocoa shells . . . . .	.....	.....	.....	2.68 <sup>4</sup>	1.38	2.62
9447	Chimney soot <sup>5</sup> . . . . .	.....	.....	.....	0.48	.....	0.17
6338	Peat. Sonnichson, Madison . . . . .	14.29	3.17	82.54	0.99	0.08	0.06
9670	Native muck. Sonnichson, Madison . . . . .	.....	5.92	.....	0.90	.....	.....
9507	Vegetable waste "top dressing" <sup>6</sup> . . . . .	69.75	8.45	21.80	0.67	0.10	0.03
9839	Muck. Meriden . . . . .	(dry)	21.10	78.90	3.21	.....	.....
9840	Sand and muck. Meriden . . . . .	(dry)	87.77	12.23	2.96	.....	.....
9830	Maine Peat. Yale . . . . .	.....	10.64	.....	2.40	0.67	none
9831	Maine Peat. Yale . . . . .	.....	4.26	.....	0.66	0.13	none
9786	Sewage sludge. New Britain <sup>7</sup> . . . . .	72.00	11.38	16.62	0.68	.....	.....
9392	Humus. Meriden . . . . .	59.70	10.58	29.72	0.78	.....	.....
8520	Sewage sludge. Stamford . . . . .	52.30	29.28	18.42	0.86	.....	.....
8518	Muck. Hamden . . . . .	(dry)	76.00	24.00	0.68	.....	.....
8519	Muck. Hamden . . . . .	(dry)	54.44	45.56	1.34	.....	.....
8518	Muck. Highway Dept., Portland . . . . .	(dry)	30.55	69.45	1.34	.....	.....
8353	Sludge cake. Conn. River Plant, Middletown <sup>8</sup> . . . . .	(dry)	66.26	33.74	1.60	2.09	.....
8339	Muck. Hy Way Construction Co., Bridgeport . . . . .	79.00	3.69	17.31	0.52	.....	.....
8197	Raw sludge filter cake. West Haven <sup>9</sup> . . . . .	69.30	9.40	21.30	0.79	0.37	.....
8072	Activated Peat Moss. Tobacco Station <sup>10</sup> . . . . .	(dry)	44.30	55.70	3.34	6.50	2.69
8053	Peat. West Hartford . . . . .	61.40	21.05	17.55	0.52	.....	.....
8054	Peat. West Hartford . . . . .	84.60	1.59	13.81	0.31	.....	.....
7244	Sewage sludge. Mt. Carmel <sup>11</sup> . . . . .	69.00	13.56	17.44	0.71	.....	.....
6344	Humus. Darien <sup>12</sup> . . . . .	72.59	6.39	21.02	0.72	0.05	0.03
6288	Humus, Florida <sup>13</sup> . . . . .	21.32	9.03	69.65	2.64	0.21	0.05
8127	Tobacco stems, Canadian . . . . .	(dry)	.....	.....	1.08	0.70	5.39
8320	Tobacco stems . . . . .	(dry)	.....	.....	1.26	0.61	5.70
9522	Tobacco stems . . . . .	(dry)	11.90	.....	3.17	0.52	4.91
8395	Tobacco stems . . . . .	(dry)	.....	.....	2.88	0.53	5.79
8396	Tobacco stems . . . . .	(dry)	.....	.....	1.47	0.51	3.37

<sup>1</sup>Cu. 0.004%, Fe 0.004%, Cl 0.51%, CaO 5.88%, MgO 0.57%.

<sup>2</sup>N in nitrates 10.58%, CaO 12.95%, MgO 2.58%. Sulphates, chlorides, ammonia and manganese present. Supplementary package chiefly ferrous sulphate and boric acid.

<sup>3</sup>Availability very low due to slow decomposition in soil.

<sup>4</sup>Insol. organic 1.84%, activity insol. org. 34.4%.

<sup>5</sup>Fertilizer value negligible.

<sup>6</sup>CaO 1.00%. Fertilizer constituents negligible; some agricultural value as a mulch and as a source of organic matter.

<sup>7</sup>Total iron 1.40%, ferrous iron not more than 0.70%.

<sup>8</sup>Ca(OH)<sub>2</sub> 10.28%, Fe 3.67%, Cl 0.48%.

<sup>9</sup>Ca(OH)<sub>2</sub> 3.23%, Fe 0.66%, Cl 0.10%, Insol. Org. N. 0.67%. Activity of insol. org. N. 34.4%.

<sup>10</sup>N in nitrates none, in ammonia 1.24%, Insol. org. N. 1.99%, activity of insol. org. N. 54.8%.

<sup>11</sup>CaO 4.06%.

<sup>12</sup>CaO 1.85%, MgO 0.20%.

<sup>13</sup>CaO 2.32%, MgO 0.67%.



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