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# COMMERCIAL FERTILIZERS

## Report for 1947

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H. J. FISHER  
Chemist in Charge

CONNECTICUT AGRICULTURAL EXPERIMENT  
STATION, NEW HAVEN, CONNECTICUT

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# REPORT ON INSPECTION AND ANALYSIS OF COMMERCIAL FERTILIZERS, 1947

H. J. FISHER, *Chemist in Charge*<sup>1</sup>

## CONNECTICUT LAW AND REGULATIONS REGARDING COMMERCIAL FERTILIZERS

The 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. But no commercial fertilizer containing less than 0.82 per cent of nitrogen, or less than 1 per cent of phosphoric acid, or less than 1 per cent of potash is acceptable for registration.

*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 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.

*Cottonseed, linseed and soybean meals, when sold or used for fertilizer purposes, must be registered as fertilizers and the specified fees paid thereon. For such products the registration fee is \$10.00 for each brand, payable annually, and six cents per ton tonnage fee, payable semi-annually.*

*These fees are entirely apart from those required by the feeding stuffs statute.*

<sup>1</sup> Analyses were made by Messrs. O. L. Nolan and L. G. Keirstead and Miss Helen Kocaba; inspection and sampling by Mr. Richard Nichols; and compilations by Mr. Nolan and Mrs. M. B. Vosburgh.

Because manufacturers or jobbers do not know how much, if any, of their vegetable meal tonnage is sold or used as fertilizer, local dealers and purchasers report their sales or purchases to this Station. The information is not for publication but is used to inform manufacturers of the total sales of their meal as fertilizer in this state. It is expected that the fees provided for by statute will be paid by the manufacturer or other party responsible for the brands.

#### Official Definitions of Fertilizer Terms and Materials<sup>1</sup>

An *acid-forming fertilizer* is one that is capable of increasing the residual acidity of soil.

A *non-acid-forming fertilizer* is one that is not capable of increasing the residual acidity of the soil.

*Acidulated fish tankage or acidulated fish scrap* is the rendered product derived from fish and treated with sulfuric acid.

*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, filtered with or without the aid of coagulants, dried, ground and screened.

*Agricultural liming material* is material whose calcium and magnesium content is capable of neutralizing soil acidity.

*Air-slaked lime* is a product composed of varying proportions of the oxide, hydroxide and carbonate of calcium, or of calcium and magnesium, and derived from exposure of quicklime.

*Ammoniated superphosphate* is the product obtained when superphosphate is treated with ammonia or with a solution containing free ammonia and other forms of nitrogen dissolved therein.

The word *analysis*, as applied to fertilizers, shall designate the percentage composition of the product expressed in those terms that the law requires and permits.

*Ashes from leached wood* are unleached ashes resulting from burning 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.

*Available phosphoric acid* is the sum of the water-soluble and the citrate-soluble phosphoric acid.

"*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.

*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, **2.19** or **2.20**. Any phosphate slag not conforming to this definition shall be designated *low grade*.

<sup>1</sup> Cited from Methods of Analysis, 6th Ed. 1945, Association Official Agricultural Chemists.

*Bat guano* is partially decomposed bat manure.

*Bat manure* is the dry excrement from bats.

A *brand* is a term, design or trademark used in connection with one or several grades of fertilizers.

A *brand name* is a specific designation applied to an individual fertilizer.

*Calcium nitrate* (nitrate of lime) is a commercial product consisting chiefly of calcium nitrate, and it shall contain not less than fifteen per cent (15%) of nitrogen.

*Citrate-soluble* ("reverted") *phosphoric acid* is that part of the total phosphoric acid in fertilizer that is insoluble in water but soluble in a solution of citrate of ammonia according to the method adopted by the Association of Official Agricultural Chemists.

*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 50% and 80%, respectively).

*Cyanamid* is a commercial product composed chiefly of calcium cyanamide ( $\text{CaCN}_2$ ), and it shall contain not less than twenty-one per cent (21%) of nitrogen.

*Dicalcium phosphate* is a manufactured product consisting chiefly of a dicalcic salt of phosphoric acid.

*Dissolved bone* is ground bone or bone meal that has been treated with sulfuric acid.

*Dolomite* is a mineral composed chiefly of carbonates of magnesium and calcium in substantially unimolal (1-1.19) proportions.

*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.

*Dried, pulverized, or shredded manures* are what the name indicates, and not mixtures of manures and other materials.

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

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

*Garbage tankage* is the rendered, dried and ground product derived from waste household food materials.

*Pulverized limestone (fine-ground limestone)* is the product obtained by grinding either calcitic or dolomitic limestone so that all the material will pass a 20-mesh sieve and at least seventy-five per cent (75%) will pass a 100-mesh sieve.

*Ground limestone (coarse-ground limestone)* is the product obtained by grinding either calcitic or dolomitic limestone so that all the material will pass a 10-mesh sieve, and at least fifty per cent (50%) will pass a 100-mesh sieve.

*Ground shells* is the product obtained by grinding the shells of mollusks

so that not less than fifty per cent (50%) shall pass a 100-mesh sieve. The product shall also carry the name of the mollusk from which said product is made.

*Ground shell marl* is the product obtained by grinding natural deposits of shell marl so that at least seventy-five per cent (75%) shall pass a 100-mesh sieve.

*Ground raw bone* is dried ground animal bones that have not been steamed previously under pressure.

*Ground steamed bone* is ground animal bones that have been steamed previously under pressure.

*Gypsum, land plaster or crude calcium sulfate* is a product consisting chiefly of calcium sulfate. It may contain twenty per cent (20%) of combined water. (It does not neutralize acid soils.)

*High calcic products* are materials of which ninety per cent (90%) or more of the total calcium and magnesium content consists of calcium oxide.

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

*Hoof and horn meal* is processed, dried, ground hoofs and horns.

*Hydrated or slaked lime* is a dry product consisting chiefly of the hydroxide of calcium and oxide-hydroxide of magnesium.

*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 ( $K_2O$ ).

*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.

The word *lime* when applied to liming materials means either calcium oxide or calcium and magnesium oxides.

*Magnesia* (magnesium oxide) is a product consisting chiefly of the oxide of magnesium. Its grade shall be stipulated. Example: Magnesia—75 per cent  $MgO$ .

*Manganese*. The water-soluble (or available) manganese in fertilizers shall be expressed as manganese ( $Mn$ ).

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

*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* should be discontinued.

*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.

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

*Nitrate of ammonia* (ammonium nitrate) is a product composed chiefly of nitrate of ammonium. Its nitrogen content shall be stipulated. Example: Ammonium nitrate—30 per cent N.

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

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

*Nitrate of soda and potash* is a commercial product containing nitrates of sodium and potassium, and it shall contain not less than fourteen per cent (14%) of nitrogen (N) and fourteen per cent (14%) of potash ( $K_2O$ ).

*Peat* is a partly decayed vegetable matter of natural occurrence. It is composed chiefly of organic matter that contains some nitrogen of low activity.

*Charred peat* is peat artificially dried at a temperature that causes partial decomposition.

*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.

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

The term *potash* designates potassium oxide ( $K_2O$ ).

*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.

*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.

*Primary fertilizer components* are those at present generally recognized by law as necessary to be guaranteed in fertilizers, namely: nitrogen, phosphoric acid ( $P_2O_5$ ), and potash ( $K_2O$ ).

*Secondary fertilizer components* are those other than the "primary fertilizer components" that are essential to the proper growth of plants and that may be needed by some soils. Some of these components are calcium, magnesium, sulfur, manganese, copper, zinc and boron.

*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.

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

*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.

*Sheep manure—wool waste* is the by-product from wool-carding establishments consisting chiefly of sheep manure, seeds, and wool fiber.

*Soft phosphate with colloidal clay* is a 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.

*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.

*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 per cent (2.5%) of chlorine.

*Sulfate of potash (commercial potassium sulfate)* 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.

*Superphosphate* is a commercial phosphate, the phosphoric acid ( $P_2O_5$ ) content of which is due chiefly to monocalcium phosphate. (The grade that shows the available phosphoric acid should always be used as a prefix to the name. Example: 16 per cent superphosphate.)

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

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

*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 ( $K_2O$ ).

*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 prefixing 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.



## REGISTRATIONS

### Late Registrations for 1946

To the brands registered for 1946 in our last report should be added the following:

**American Agricultural Chemical Co., No. Weymouth 91, Mass.**  
Agrinite

**Berkshire Chemical Co., Bridgeport, Conn.**  
Castor Pomace

**Central Cotton Oil Co., Macon, Ga.**  
Prosperity Brand—Cottonseed Meal

**Humphreys-Godwin Co., Memphis, Tenn.**  
Dixie Brand 41% Protein Prime Cottonseed Meal

**Marianna Sales Co., Memphis, Tenn.**  
White Mule Brand Prime 41% Protein Cottonseed Meal

**Old Deerfield Fertilizer Co., Inc., So. Deerfield, Mass.**  
Old Deerfield Cottonseed Meal 43%

**Olds & Whipple, Inc., Hartford, Conn.**  
Precipitated Bone Phosphate 38%

**Pendleton Oil Mill, Pendleton, S. C.**  
Pendleton Cottonseed Meal

**Perkins Oil Co., Memphis, Tenn.**  
Golden Rod Brand Cottonseed Meal

**E. H. Rollins & Sons, Inc., East Granby, Conn.**  
Linseed Meal 32%

**Swift & Co. Oil Mill, Blythville, Ark.**  
Swift's 41% Cottonseed Meal

### Registrations for 1947

For 1947 63 firms and individuals registered 234 brands of fertilizers at this Station for sale in the State. As required by statute, the brands are listed as follows:

**The Acme Guano Co., Baltimore 2, Md.**  
Acme 5-8-7

**ADCO Works, Carlisle, Pa.**  
VIVO 11-40-15

**Agricultural Supply Co., P.O. Box 57, West Haven, Conn.**  
Yale Special Mixture 8-6-2

**Ted Alkire, Lubbock, Texas**  
Kireal Cotton Hull Ash

**Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y.**  
Arcadian, The American Nitrate of Soda

**American Agricultural Chemical Co., No. Weymouth 91, Mass.**

AA Quality Fertilizer 5-8-7

AA Quality Fertilizer 5-10-10

Agrico Broadleaf Evergreens 6-10-4

Agrico Country Club Fertilizer 6-10-4

Agrico Country Club Fertilizer 8-6-2

Agrico for Corn 3-12-6

Agrico for Corn 4-12-4

Agrico for Gardens 5-10-5

Agrico for Lawns, Trees and Shrubs 6-10-4

Agrico for New England 5-8-7

Agrico for Potatoes 5-10-10

Agrico for Seeding Down 3-12-12

Agrico for Tobacco 6-3-6  
Agrico for Top Dressing 7-7-7  
Agrinite  
Bonemeal  
Castor Pomace  
18% Normal Superphosphate  
Pulverized Sheep Manure  
Sulphate of Potash

**American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.**

20.6% AERO Cyanamid Granular  
Aero-Phos Florida Natural Phosphate<sup>1</sup>  
Aeroprills Ammonium Nitrate Fertilizer Compound

**American Potash & Chemical Corp., 122 East 42nd St., New York 17, N. Y.**

Trona Muriate of Potash

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

Bone Meal  
Castor Pomace  
Cotton Hull Ashes  
Dry Ground Fish  
Liberty Fertilizer 0-14-14  
Liberty Fertilizer 4-12-4  
Liberty Fertilizer 5-10-5  
Liberty Fertilizer 5-10-10  
Liberty Fertilizer Special for Fruit and Grass 7-7-7  
Liberty Fertilizer with Sulphate of Potash 5-10-10  
Liberty Green Gro Fertilizer 6-7-4  
Liberty High Grade Market Gardeners 5-8-7  
Liberty High Grade Market Gardeners with Sulphate of Potash 5-8-7  
Liberty Tobacco Mixture 5-3-5  
Liberty Tobacco Mixture 6-3-6  
Liberty Tobacco Mixture with Cotton Hull Ashes 6-3-6  
Liberty Tobacco Starter 4-10-0  
Liberty Tobacco Starter 5-5-15  
Muriate of Potash  
Precipitated Bone  
Sheep Manure  
Sulphate of Ammonia  
Sulphate Potash and Magnesia  
Super Phosphate

**Archer-Daniels-Midland Co., Minneapolis, Minn.**

Archer Quality 41% Protein Soybean Oil Meal

**Armour Fertilizer Works, 120 Broadway, New York 5, N. Y.**

Armour's Big Crop Fertilizer 0-14-7  
Armour's Big Crop Fertilizer 4-12-4  
Armour's Big Crop Fertilizer 4-12-3  
Armour's Big Crop Fertilizer 5-8-7  
Armour's Big Crop Fertilizer 5-10-5  
Armour's Big Crop Fertilizer 5-10-10  
Armour's Big Crop Fertilizer 7-7-7  
Armour's Big Crop Superphosphate 20%  
Armour's Big Crop Tobacco Special 5-3-5  
Armour's Big Crop Tobacco Special 6-3-6  
Armour's Pulverized Sheep Manure

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

Cow-Eta Brand 41% Protein Cottonseed Meal

**Associated Seed Growers, Inc., Milford, Conn.**

Asgrow Lawn Food 10-6-4  
Clark's Tip Top 5-8-7

**Atkins & Durbrow, Inc., 165 John St., New York 7, N. Y.**

DRICONURE

<sup>1</sup> Formerly called "Ground Raw Phosphate Rock".

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

Bartlett Green Tree Food 6-8-6

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

Berkshire 0-14-14

Berkshire 4-12-4

Berkshire 5-8-7

Berkshire 5-10-5

Berkshire 5-10-10

Berkshire 5-10-10-2

Berkshire 5-10-10 Potash from Sulphate

Berkshire 6-3-6 Tobacco

Berkshire 6-6-4 Specialty

Berkshire 7-7-7

Berkshire Bone Meal

**Bisbee Linseed Co., Philadelphia, Pa.**

Bisbee Brand 41% Protein Soybean Oil Meal

**Buckeye Cotton Oil Co., Cincinnati, Ohio**

Buckeye 41% Cottonseed Meal

**Chilean Nitrate Sales Corp., 120 Broadway, New York 5, N. Y.**

Chilean Nitrate of Soda—Champion Brand

**Consolidated Chemical Industries, Inc., 630 Fifth Ave., New York 20, N. Y.**

Fertilizer Steamed Bone Meal

**Consolidated Rendering Co., 178 Atlantic Ave., Boston 10, Mass.**

Castor Pomace

Corenco 0-14-14 Top Dresser

Corenco 4-12-4 Complete Manure

Corenco 5-8-7 Potato and General Crop

Corenco 5-10-5 Home Garden

Corenco 5-10-10 Peerless Potato

Corenco 6-3-6 Special Tobacco Grower

Corenco 7-7-7 Complete Fruit and Top Dresser

Corenco 8-6-4 Landscape

Corenco Ground Bone

Corenco Sheep Manure

Corenco Superphosphate 18%

Corenco Superphosphate 20%

Muriate of Potash

Spurz-on

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

Davey Shredded Manure

Davey Tree Food 12-4-4

**Davison Chemical Corp., 20 Hopkins Place, Baltimore 3, Md.**

Davco Granulated Superphosphate 20%

**E. I. du Pont de Nemours & Co., Wilmington 98, Del.**

DUPONT URAMON Fertilizer Compound

**Eastern States Farmers' Exchange, Inc., West Springfield, Mass.**

Cottonhull Ash 30% K<sub>2</sub>O

Eastern States 0-19-19 W/Borax

Eastern States 0-20-20

Eastern States 5-10-5 Garden

Eastern States 5-10-10

Eastern States 5-15-10

Eastern States 5-15-15

Eastern States 8-4-8 Tobacco

Eastern States 8-12-16 LCS

Eastern States 8-16-16

Eastern States 8-24-8

Eastern States 10-10-10

Eastern States 13-30-0

Eastern States Muriate of Potash

Eastern States Super-Granulated and Pulverized

- Faesy & Besthoff, Inc., 220 E. 42nd St., New York 17, N. Y.**  
Bone Meal
- Ford Motor Co., 3000 Schaefer Road, Dearborn, Mich.**  
Ford Ammonium Sulphate
- Goulard & Olena, Inc., Skillman, N. J.**  
G & O Rose Food 7-8-5  
Rhodo-Azalea-Camellia Food 3-20-3
- D. M. Henderson Co., P.O. Box 473, Lubbock, Tex.**  
Cotton Burr Ashes containing Water Soluble Potash
- A. H. Hoffman, Inc., Landisville, Lancaster County, Pa.**  
Hoffman Cow Manure (Dehydrated)  
Hoffman Sheep Manure (Kiln Dried)
- Humphreys-Godwin Co., Memphis, Tenn.**  
Dixie Brand 41% Protein Prime Cottonseed Meal
- Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo 5, N. Y.**  
Castor Pomace  
Spencer Kellogg's 34% Protein Old Process Linseed Oil Meal
- A. L. Koster, 1121 Farmington Ave., West Hartford, Conn.**  
Plant Food 5-8-7  
Plant Food 7-7-7
- L. B. Lovitt & Co., Memphis, Tenn.**  
"Lovit Brand" 41% Protein Cottonseed Meal
- McCormick & Co., Inc., Baltimore 2, Md.**  
Hy-Gro 13-26-13
- Miller Chemical & Fertilizer Corp., Baltimore 31, Md.**  
V H P F 5-25-15
- "Na-Churs" Plant Food Co., 121-127 Garden St., Marion, Ohio**  
"Na-Churs" Plant Food 5-5-10  
"Na-Churs" Plant Food 5-10-5
- Norwood Brand Fertilizer Co., No. Reading, Mass.**  
Norwood Brand Sheep Manure
- Old Deerfield Fertilizer Co., Inc., So. Deerfield, Mass.**  
Old Deerfield 5-5-15 Tobacco Starter  
Old Deerfield 5-8-7 All Crop  
Old Deerfield 5-10-10 Potato  
Old Deerfield 6-3-6 Complete Tobacco  
Old Deerfield Double Sulphate Potash Magnesium
- Olds & Whipple, Inc., Hartford, Conn.**  
O & W Bone Meal  
O & W Castor Pomace  
O & W Cotton Hull Ash  
O & W Luxura 5-8-7  
O & W Menhaden Dry Ground Fish  
O & W Muriate of Potash 60%  
O & W Sulphate of Potash  
O & W Superphosphate  
O & W Triple Superphosphate  
O & W 4-8-4 Complete Lawn Grass Fertilizer  
O & W 4-12-4 Market Garden Fertilizer  
O & W 5-3-5 Complete Tobacco Fertilizer  
O & W 5-3-5 Complete Tobacco Fertilizer Potash derived from Cotton Hull Ash  
O & W 5-5-15 High Grade Tobacco Starter and Potash  
O & W 5-8-7 Potato and General Purpose Fertilizer  
O & W 5-8-7 Potato and General Purpose Fertilizer with Sulphate of Potash  
O & W 5-10-5 Fertilizer  
O & W 5-10-10 Potato Fertilizer  
O & W 6-3-6 Blue Label Tobacco Fertilizer  
O & W 6-3-6 Blue Label Tobacco Fertilizer Potash derived from Cotton Hull Ash  
O & W 7-7-7 Top Dressing and Grass Fertilizer  
Precipitated Bone Phosphate 38%

- Perkins Oil Co., 727 Beale Ave., Memphis, Tenn.**  
Golden Rod Brand Cottonseed Meal
- Plantspur Products Co., 1072 West Side Ave., Jersey City 6, N. J.**  
Plantspur 4-4-2
- Frank S. Platt Co., 450 State St., New Haven, Conn.**  
Platt's Special Lawn Fertilizer 10-5-5
- Premier Peat Moss Corp., 535 Fifth Ave., New York 17, N. Y.**  
Premier-Nure
- The Pulverized Manure Co., Chicago 9, Ill.**  
Wizard Brand Cow Manure  
Wizard Brand Pulverized Sheep Manure
- Ralston Purina Co., St. Louis 2, Mo.**  
Purina Plant Food 5-10-5
- Ray & King, P.O. Box 696, Lubbock, Tex.**  
Bulk, Cotton Bur Ashes
- The Rogers & Hubbard Co., Portland, Conn.**  
Gro-Fast Bone Meal  
Gro-Fast Cow Manure  
Gro-Fast Plant Food 5-8-5  
Gro-Fast Sheep Manure  
Hubbard Castor Pomace  
Hubbard Cotton Hull Ash  
Hubbard Dry Ground Fish  
Hubbard High Potash Fertilizer 5-10-10  
Hubbard Muriate of Potash  
Hubbard Potato Fertilizer 5-8-7  
Hubbard Raw Knuckle Bone Flour  
Hubbard Superphosphate  
Hubbard Tobacco Grower 6-3-6  
Red H 0-14-14  
Red H 4-12-4  
Red H 4-12-8  
Red H 5-8-7  
Red H 5-10-5  
Red H 5-10-10  
Red H 7-7-7  
Red H 8-16-16
- Ruhm Phosphate & Chemical Co., Mt. Pleasant, Tenn.**  
Red Seal Brand Ruhm's Phosphate Rock 30%
- O. M. Scott & Sons Co., Marysville, Ohio**  
Scott's Lawn Food Plus Weed Control 9-9-9  
Scott's Turf Builder 8-7-3
- Sears, Roebuck & Co., Chicago 7, Ill.**  
Cross Country Bulb Food 4-12-8  
Garden Master Plant Food 5-10-5  
Garden Master Sheep Manure
- Sewerage Commission of the City of Milwaukee, Milwaukee, Wis.**  
Milorganite
- M. L. Shoemaker, Div. Wilson & Co., Inc., Philadelphia 34, Pa.**  
M. L. Shoemaker's "Swift-Sure" 4-10-0  
M. L. Shoemaker's "Swift-Sure" 5-8-7  
M. L. Shoemaker's "Swift-Sure" 6-3-6
- Stump & Walter Co., 132 Church St., New York 8, N. Y.**  
Sawco Bone  
Sawco Emerald Grass 5-10-5  
Sawco General Garden 5-10-5  
Sawco Superphosphate  
Sawconure 2-1-1

**Summers Fertilizer Co., Inc., Baltimore 2, Md.**

"Summers" Nitrate of Soda  
"Summers" 0-20-20  
"Summers" 4-12-4  
"Summers" 10-10-10

**Swift & Co., 25 Faneuil Hall Square, Boston 9, Mass.**

Blenn 5-10-5  
Brimm 5-10-10  
Sheep Manure  
Vigoro 4-12-4

**Tennessee Corp., Lockland, Ohio**

5-10-5 Loma  
10-6-4 Superior Quality

**I. P. Thomas & Son Co., 721 Market St., Camden, N. J.**

I. P. Thomas 5-8-7  
I. P. Thomas 5-10-10  
I. P. Thomas 7-7-7  
20% Superphosphate

**Van Iderstine Co., Railroad & Greenpoint Ave., Long Island City, N. Y.**

Vico Fertilizer Bone Meal

**Walker-Gordon Laboratory Co., Plainsboro, N. J.**

Bovung

**Stewart H. Willson, 1087 Enfield St., Thompsonville, Conn.**

Willson's Old Enfield Tree Food 6-7-4

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

Gro-Plant Food 5-10-5  
Gro-Sod Lawn Food 10-6-4

**Woodruff Fertilizer Works, No. Haven, Conn.**

Castor Pomace  
Woodruff's 0-14-14 Fertilizer  
Woodruff's 5-8-7 Fertilizer  
Woodruff's 5-8-10 Fertilizer  
Woodruff's 7-7-7 Fertilizer  
Woodruff's 10-6-4 Fertilizer  
Woodruff's Tobacco Fertilizer 6-3-6

### FERTILIZER INSPECTION FOR 1947

During the war, under War Food Order No. 5 the sale of fertilizers throughout the United States was limited to the grades specified by the order for each district. This order was revoked as of September 30, 1945. Since that time some states have restricted by law or regulation the number of grades that may be sold, but the present Connecticut law contains no provision that confers authority on this Station to limit the number of grades that may be registered or to require a minimum percentage of plant food. The New England agronomists have from time to time, however, compiled lists of recommended fertilizer ratios and minimum grades that in their opinion would meet all the requirements of New England agriculture. It is hoped that manufacturers will voluntarily confine their mixtures to these grades as such limitation will be to the advantage of both manufacturers and farmers.

The latest list (for the 1947-48 season) is as follows:

| Ratio | Minimum Grade                  |
|-------|--------------------------------|
| 0-1-1 | 0-14-14                        |
| 1-1-1 | 7- 7- 7                        |
| 1-1-3 | 5- 5-15 (Tobacco)              |
| 1-2-1 | 5-10- 5                        |
| 1-2-2 | 5-10-10                        |
| 1-3-2 | 4-12- 8                        |
| 1-3-3 | 4-12-12 (New Hampshire potato) |
| 1-3-4 | 4-12-16                        |
| 2-1-2 | 6- 3- 6 (Tobacco)              |
| 2-3-3 | 6- 9- 9 (Maine potato)         |
| 2-3-4 | 5- 7-10 (Maine potato)         |
| 2-3-5 | 6- 9-15 (Maine potato)         |
| 5-8-7 | 5- 8- 7                        |

During the season the Station agent has collected samples of all registered brands that could be found on the market. Certain registered fertilizers, particularly vegetable meals and some potash salts, are purchased almost wholly by tobacco growers for their own use direct from sources outside the State. Most growers submit samples of their purchases to this Station for analysis but, because such samples are not official, the results of the analyses are not included in this report. The following tabulation does, however, list the number of samples analyzed, both official and unofficial, of each class of fertilizer, as well as the tonnage sold in the period between July 1, 1946 and June 30, 1947. These tonnage figures do not include fertilizer distributed under the Federal Agricultural Adjustment Program.

**CLASSIFICATION OF FERTILIZER MATERIALS AND FERTILIZER TONNAGE**

(Tonnage is for the period July 1, 1946 to June 30, 1947)

|  | Page | No. of<br>samples | Tonnage             |        |
|--|------|-------------------|---------------------|--------|
| I. Containing chiefly nitrogen:              |      |                   |                     |        |
| Nitrate of ammonia .....                     |      | 0                 | 33                  |        |
| Nitrate of soda .....                        | 22   | 6                 | 2,013               |        |
| Sulphate of ammonia .....                    |      | 2                 | 115                 |        |
| Cyanamid and urea .....                      | 22   | 3                 | 169                 |        |
| Castor pomace .....                          | 22   | 9                 | 2,621               |        |
| Cottonseed meal .....                        |      | 82                | 4,838               |        |
| Linseed meal .....                           |      | 1                 | 149                 |        |
| Soybean meal .....                           |      | 0                 | 30                  |        |
| Other materials .....                        | 22   | 2                 | 71                  |        |
|  |      |                   | <hr/>               | 10,039 |
| II. Containing chiefly phosphoric acid:      |      |                   |                     |        |
| Superphosphate 18% .....                     | 23   | 2                 | 741                 |        |
| 20% .....                                    | 23   | 10                | 6,092               |        |
| 47% .....                                    |      | 0                 | 21                  |        |
| Precipitated bone .....                      | 23   | 2                 | 515                 |        |
|  |      |                   | <hr/>               | 7,369  |
| III. Containing chiefly potash:              |      |                   |                     |        |
| Carbonate of potash .....                    |      | 2                 | .....               |        |
| Muriate of potash .....                      | 24   | 4                 | 434                 |        |
| Sulphate of potash .....                     |      | 2                 | 182                 |        |
| Sulphate of potash-magnesia .....            |      | 3                 | 223                 |        |
| Cottonhull ashes .....                       | 24   | 42                | 1,809               |        |
|  |      |                   | <hr/>               | 2,648  |
| IV. Containing nitrogen and phosphoric acid: |      |                   |                     |        |
| Dry ground fish .....                        | 25   | 7                 | 1,248               |        |
| Ground bone .....                            | 25   | 16                | 777                 |        |
| Other materials .....                        | 25   | 1                 | 130                 |        |
|  |      |                   | <hr/>               | 2,155  |
| V. Containing nitrogen and potash:           |      |                   |                     |        |
| Nitrate of potash .....                      |      | 3                 | .....               |        |
|  |      |                   | <hr/>               | 0      |
| VI. Mixed fertilizers:                       |      |                   |                     |        |
| Commercial mixtures .....                    | 26   | 131               | 55,692 <sup>1</sup> |        |
| Special and home mixtures .....              |      | 146               | .....               |        |
|  |      |                   | <hr/>               | 55,692 |
| VII. Miscellaneous:                          |      |                   |                     |        |
| Sheep manure, etc .....                      | 34   | 20                | 516                 |        |
| Limestone and similar materials .....        | 36   | 4                 | .....               |        |
| Fertilizers sold in small packages .....     | 37   | 4                 | .....               |        |
| Other miscellaneous materials .....          | 38   | 36                | .....               |        |
| Check meals and fertilizers .....            |      | 42                | .....               |        |
|  |      |                   | <hr/>               | 516    |
| Totals .....                                 |      | 580               |                     | 78,419 |

<sup>1</sup> For distribution of this tonnage see next page.



**Mixed Fertilizer Tonnage**

*Grades Approved for Connecticut*

| Grade   | Tons   | Grade        | Tons          |
|---------|--------|--------------|---------------|
| 0-14-14 | 1,095  | 5-10-10      | 8,999         |
| 0-19-19 | 128    | 5-15-10      | 341           |
| 0-20-20 | 140    | 5-15-20      | 51            |
| 4-12- 8 | 67     | 6- 3- 6      | 15,638        |
| 4-12-16 | 82     | 7- 7- 7      | 2,979         |
| 5- 5-15 | 683    | 8- 4- 8      | 864           |
| 5- 8- 7 | 12,836 | 8-16-16      | 1,145         |
| 5-10- 5 | 1,713  | 10-10-10     | 690           |
|         |        | 13-26-13     | 1             |
|         |        | <b>Total</b> | <b>47,452</b> |

*Specialty and Other Grades  
(Over 50 tons)*

|         |       |              |              |
|---------|-------|--------------|--------------|
| 2- 1- 1 | 492   | 6- 8- 6      | 153          |
| 3-12- 6 | 431   | 6-10- 4      | 227          |
| 3-12-12 | 146   | 8- 6- 2      | 252          |
| 4-10- 0 | 518   | 8- 6- 4      | 180          |
| 4-12- 4 | 3,068 | 8- 7- 3      | 158          |
| 5- 3- 5 | 758   | 8-12-16      | 143          |
| 5- 8- 5 | 169   | 8-24- 8      | 561          |
| 5- 8-10 | 345   | 10- 6- 4     | 89           |
| 6- 6- 4 | 72    | 13-13- 0     | 71           |
| 6- 7- 4 | 151   |              |              |
|         |       | <b>Total</b> | <b>7,984</b> |

*(Less than 50 tons)*

|             |    |                    |               |
|-------------|----|--------------------|---------------|
| 0-14- 7     | 36 | 5-15-15            | 38            |
| 3.5-3.5-1.5 | 8  | 5-25-15            | 5             |
| 3-20- 3     | 3  | 6-12- 4            | 4             |
| 4- 4- 2     | 23 | 7- 8- 5            | 11            |
| 4- 8- 4     | 34 | 10- 5- 5           | 43            |
| 4-10-10     | 6  | 10- 6- 3           | 1             |
| 5- 5-10     | 12 | 12- 4- 4           | 13            |
| 5- 8- 6     | 19 |                    |               |
|             |    | <b>Total</b>       | <b>256</b>    |
|             |    | <b>Grand Total</b> | <b>55,692</b> |

**1. Raw Materials Chiefly Valuable for Nitrogen**

While sulphate of ammonia is the cheapest source of nitrogen and probably supplies the bulk of the nitrogen in mixed fertilizers, 93 per cent of the tonnage of unmixed inorganic nitrogenous fertilizers sold in this State in the 1946-1947 season was nitrate of soda. The influence of tobacco raising on the pattern of fertilizer consumption in Connecticut is shown both by this fact and by the fact that 79 per cent of the primarily nitrogenous fertilizers sold were organic materials, 97 per cent of these being vegetable meals, mostly cottonseed meal and castor pomace. In a bulletin recently published by this Station<sup>1</sup> there is a discussion of the reasons for these fertilizer practices.

Analyses of official samples of nitrogenous fertilizers are given in Table 1. Actually more samples of cottonseed meal were analyzed than of any other material, but these were all samples taken by the growers themselves from shipments purchased directly by them from sources outside the State.

<sup>1</sup> T. R. Swanback and P. J. Anderson, "Fertilizing Connecticut Tobacco". Conn. Agri. Expt. Sta. Bull. 503 (1947).

## II. Raw Materials Chiefly Valuable for Phosphoric Acid

Analyses of nine official samples of 20 per cent superphosphate and two of the 18 per cent grade are given in Table 2. All samples except one met or exceeded their guaranties.

One sample of precipitated bone exceeded the guaranty of 38 per cent.

## III. Raw Materials Chiefly Valuable for Potash

Four official samples of muriate of potash were analyzed; only one was found not to meet its guaranty of 60 per cent potash ( $K_2O$ ). One sample of cottonhull ashes fell considerably below its guaranty of 30 per cent potash ( $K_2O$ ). A number of samples of carbonate and sulphate of potash, sulphate of potash-magnesia and cottonhull ashes were also analyzed for purchasers.

Analyses of official samples are given in Table 3.

## IV. Raw Materials Supplying Nitrogen and Phosphoric Acid

This group is comprised chiefly of dry ground fish and ground bone. Of nine official samples of ground bone, only one failed to meet its guaranty of 24 per cent total phosphoric acid ( $P_2O_5$ ). The three official samples of dry ground fish all complied with their guaranties. One sample of "Milorganite", a treated sewage sludge, was deficient in nitrogen.

Two samples of monoammonium phosphate were analyzed for a tobacco grower; these analyses are given in Table 9. Pure monoammonium phosphate contains 12.17 per cent of nitrogen (N) and 61.72 per cent of phosphoric acid ( $P_2O_5$ ), but the fertilizer grade need contain only 10 per cent of nitrogen and 46 per cent of phosphoric acid. Our samples contained 12 per cent of nitrogen and 64 per cent of phosphoric acid, and were therefore quite pure.

Analyses of official samples are given in Table 4.

## V. Raw Materials Supplying Nitrogen and Potash

The only fertilizer falling in this class is nitrate of potash. This salt should contain not less than 12 per cent of nitrogen (N) and 44 per cent of potash ( $K_2O$ ). Three unofficial samples analyzed for tobacco growers all met their guaranties of 13 per cent of nitrogen and 44 per cent of potash.

## VI. Mixed Fertilizers

### Commercial Mixtures

Analyses of 131 official samples of mixed fertilizers are given in Table 5. Results are summarized as follows:

|  |                  |
|--|------------------|
| Total number of samples .....                  | 131              |
| Samples deficient in                           |                  |
| one item .....                                 | 30               |
| two items .....                                | 7                |
| three items .....                              | 2                |
| Percentage of samples meeting guaranties ..... | 70               |
| Total guaranties made .....                    | 385 <sup>1</sup> |
| Guaranties not met:                            |                  |
| nitrogen .....                                 | 22               |
| phosphoric acid .....                          | 17               |
| potash .....                                   | 11               |
| Percentage met .....                           | 87               |

<sup>1</sup> Eight samples with only two guaranties.

Eighty-seven per cent of all guaranties were substantially met or exceeded.

### *Special and Home Mixtures*

One hundred and forty-six samples of special and home mixtures were analyzed for tobacco growers during the year. Because the composition of these mixtures, none of which were on the market, is not a matter of public interest, analyses of these samples are not tabulated in this bulletin.

### *State Purchases of Fertilizer*

Raw materials and mixed goods supplied to State institutions on State purchase orders are regularly included in our usual inspection. Fertilizers so supplied are subject to registration and tonnage tax.

Samples representing Station purchases are indicated in the several tables. They are summarized as follows:

| Materials                                    | No. of samples | Reference |
|--|----------------|-----------|
| Supplying nitrogen .....                     | 5              | Table 1   |
| Supplying phosphoric acid .....              | 2              | Table 2   |
| Supplying nitrogen and phosphoric acid ..... | 2              | Table 4   |
| Mixed fertilizers .....                      | 13             | Table 5   |
| Total .....                                  | 22             |           |

### VII. Miscellaneous

*Sheep manure.* Eighteen official samples of sheep manure and other dried manures were analyzed. Analyses are given in Table 6.

*Limestone and similar materials.* Because the Connecticut fertilizer law specifically exempts "marl and lime", no regular inspection of liming materials is made. Four samples of limestone, lime and gypsum were submitted by purchasers and analyses of these samples are given in Table 7.

*Fertilizers sold in small packages.* Fertilizers sold only in packages of 10 pounds or less are not required to be registered. In the 1946-1947 season no special survey was made of these fertilizers, but samples of four brands were obtained. Analyses are given in Table 8.

*Other miscellaneous materials.* Thirty-six other miscellaneous products were examined. Analyses are given in Table 9.

*Check meals and fertilizers.* Collaboration was continued with the check analysis programs sponsored by the American Oil Chemists' Society and the F. S. Royster Guano Company.

### MAINTENANCE OF GUARANTIES

The maintenance of guaranties as compiled from analyses of official samples of ingredient materials and mixed goods, Tables 1-6 and 8, is shown in the following tabulation. Deficiencies of 0.1 per cent or less in nitrogen and of 0.2 per cent or less in phosphoric acid and potash are not considered. The proportion of guaranties substantially met was 88 per cent.

|                               | No. of samples | No. of guaranties | Deficiencies |
|-------------------------------|----------------|-------------------|--------------|
| Agrinite .....                | 1              | 1                 | 0            |
| Nitrate of soda .....         | 4              | 4                 | 1            |
| Cyanamid .....                | 2              | 2                 | 0            |
| Urea .....                    | 1              | 1                 | 0            |
| Castor pomace .....           | 5              | 5                 | 0            |
| Superphosphate .....          | 11             | 11                | 1            |
| Precipitated bone .....       | 1              | 1                 | 0            |
| Muriate of potash .....       | 4              | 4                 | 1            |
| Cottonhull ashes .....        | 1              | 1                 | 1            |
| Dry ground fish .....         | 3              | 6                 | 0            |
| Ground bone .....             | 9              | 18                | 1            |
| Milorganite .....             | 1              | 2                 | 1            |
| Mixed fertilizer .....        | 135            | 397               | 51           |
| Sheep manure .....            | 18             | 58                | 3            |
| Totals .....                  | 196            | 511               | 60           |
| Per cent guaranties met ..... |                |                   | 88           |

TABLE 1. ANALYSES OF MATERIALS SUPPLYING CHIEFLY NITROGEN<sup>1</sup>

| Station No.                       | Manufacturer or jobber   | Sampled from stock of                             | Per cent nitrogen |              |
|-----------------------------------|--|---|-------------------|--------------|
|                                   |  |   | Found             | Guaranteed   |
| <b>Agrinite</b>                   |  |   |                   |              |
| 9857                              | American Agricultural Chemical Co., No. Weymouth 91, Mass. ....              | Hamden: American Agricultural Chemical Co. ....   | 8.40 <sup>2</sup> | 8.25         |
| <b>Nitrate of Soda</b>            |  |   |                   |              |
| 9685 <sup>3</sup>                 | Arcadian, The American Allied Chemical & Dye Corp., New York 6, N. Y. ....   | Niantic: Conn. State Farm for Women .....         | 16.20             | 16.00        |
| 9816 <sup>3</sup>                 | Arcadian, The American Allied Chemical & Dye Corp., New York 6, N. Y. ....   | Meriden: Conn. School for Boys                    | 16.14             | 16.00        |
| 9675                              | Chilean, Champion Brand. Chilean Nitrate Sales Corp., New York 5, N. Y. .... | Plainville: Sunshine Feed Store                   | 16.08             | 16.00        |
| 9788 <sup>3</sup>                 | Summers Fertilizer Co., Baltimore, Md. ....                                  | Cheshire: Conn. Reformatory ..                    | <b>14.64</b>      | <b>16.00</b> |
| <b>Cyanamid</b>                   |  |   |                   |              |
| 9602 <sup>3</sup>                 | 20.6% 'Aero'. American Cyanamid Co., New York 20, N. Y.                      | Cheshire: Conn. Reformatory ..                    | 20.60             | 20.60        |
| 9682 <sup>3</sup>                 | 20.6% 'Aero'. American Cyanamid Co., New York 20, N. Y.                      | Middletown: Conn. State Hospital .....            | 20.64             | 20.60        |
| <b>Uramon Fertilizer Compound</b> |  |   |                   |              |
| 9713                              | Du Pont, E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del. ....      | North Haven: Woodruff Fertilizer Works, Inc. .... | 42.35             | 42.00        |
| <b>Castor Pomace</b>              |  |   |                   |              |
| 9841                              | Apothecaries Hall Co., Waterbury, Conn. ....                                 | East Windsor: Apothecaries Hall Co. ....          | 5.84              | 4.50         |
| 9854                              | Consolidated Rendering Co., Boston, Mass. ....                               | West Suffield: H. L. Oppenheimer & Son .....      | 5.86              | 4.50         |
| 9724                              | Spencer Kellogg & Sons, Inc., Buffalo, N. Y. ....                            | Glastonbury: E. J. Bantle .....                   | 5.83              | 5.55         |
| 9895                              | O & W. Olds & Whipple, Inc., Hartford, Conn. ....                            | East Hartford: Olds & Whipple, Inc. ....          | 6.09              | 4.50         |
| 9821                              | Hubbard, The Rogers & Hubbard Co., Portland, Conn. ....                      | Portland: The Rogers & Hubbard Co. ....           | 5.70              | 4.50         |

<sup>1</sup> Deficiencies are in bold face.

<sup>2</sup> Found: nitrogen in nitrates, 0.00%; nitrogen in ammonia, 0.16%; water soluble, 1.05%; water insoluble, 7.19%.

<sup>3</sup> State purchase.

TABLE 2. ANALYSES OF SUPERPHOSPHATE, ETC.<sup>1</sup>

| Station No.       | Manufacturer or jobber   | Sampled from stock of                               | Per cent phosphoric acid |       |              |              |
|-------------------|--|---|--------------------------|-------|--------------|--------------|
|                   |  |   | Citrate-insoluble        | Total | "Available"  |              |
|                   |  |   |                          |       | Found        | Guaranteed   |
|                   | <b>Superphosphate</b>  |   |                          |       |              |              |
| 9622              | 18% Normal. The American Agricultural Chemical Co., No. Weymouth, Mass. ....             | Hamden: The American Agricultural Chemical Co. .... | 0.62                     | 19.43 | 18.81        | 18.00        |
| 9638              | 20%. Apothecaries Hall Co., Waterbury, Conn. ....  | Canaan: Community Service, Inc. ....                | 1.23                     | 22.40 | 21.17        | 20.00        |
| 9852              | Corenco 18%. Consolidated Rendering Co., Boston 10, Mass. ....                           | West Suffield: H. L. Oppenheimer & Son ....         | 0.93                     | 19.00 | 18.07        | 18.00        |
| 9645              | 20%. Consolidated Rendering Co., Boston 10, Mass. ....                                   | East Canaan: Floyd A. Laird ....                    | 0.35                     | 21.15 | 20.80        | 20.00        |
| 9742              | Davco Granulated 20%. Davison Chemical Corp., Baltimore 3, Md. ....                      | Ridgefield: The Ridgefield Supply Co. ....          | 0.88                     | 22.45 | 21.57        | 20.00        |
| 9891 <sup>2</sup> | Davco Granulated 20%. Davison Chemical Corp., Baltimore 3, Md. ....                      | Somers: State Prison Farm ....                      | 0.83                     | 24.05 | 23.23        | 20.00        |
| 9735              | Eastern States 20%. Eastern States Farmers' Exchange, Inc., West Springfield, Mass. .... | Bethel: Eastern States Farmers' Exchange, Inc. .... | 1.20                     | 22.80 | 21.60        | 20.00        |
| 9681 <sup>2</sup> | O & W 20%. Olds & Whipple, Inc., Hartford, Conn. ....                                    | Middletown: Connecticut State Hospital ....         | 0.90                     | 22.65 | 21.75        | 20.00        |
| 9698              | Hubbard 20%. The Rogers & Hubbard Co., Portland, Conn. ....                              | Norwich: Norwich Grain Co. ....                     | 0.13                     | 20.60 | 20.47        | 20.00        |
| 9664              | Sawco 20%. Stumpp & Walter Co., New York 8, N. Y. ....                                   | Stamford: Stumpp & Walter Co. ....                  | 0.18                     | 20.20 | 20.02        | 20.00        |
| 9709              | 20%. I. P. Thomas & Son Co., Camden, N. J. ....  | North Haven: Joseph P. Beach ....                   | 1.15                     | 20.90 | <b>19.75</b> | <b>20.00</b> |
|                   | <b>Precipitated Bone Phosphate</b>   |   |                          |       |              |              |
| 9867              | Olds & Whipple, Inc., Hartford, Conn. ....   | Hazardville: L. B. Haas & Co. ....                  | 0.18                     | 40.90 | 40.72        | 38.00        |

<sup>1</sup> Deficiencies are in bold face.

<sup>2</sup> State purchase.

TABLE 3. ANALYSES OF POTASH SALTS, ETC.<sup>1</sup>

| Station No.              | Manufacturer or jobber  | Sampled from stock of                                       | Per cent potash |              |
|--------------------------|---|---|-----------------|--------------|
|                          |   |   | Found           | Guaranteed   |
| <b>Muriate of Potash</b> |   |   |                 |              |
| 9837                     | Apothecaries Hall Co., Waterbury, Conn. ....  | East Windsor: Apothecaries Hall Co. ....                    | 60.00           | 60.00        |
| 9619                     | Corenco 60% Consolidated Rendering Co., Boston 10, Mass. ....                       | Waterbury: H. S. Coe & Co. ....                             | 61.48           | 60.00        |
| 9833                     | Eastern States Eastern States Farmers' Exchange, Inc., West Springfield, Mass. .... | So. Windsor: Chester Mudgett                                | <b>58.88</b>    | <b>60.00</b> |
| 9727                     | Olds & Whipple, Inc., Hartford, Conn. ....  | Manchester: Central Conn. Co-Op. Farmers' Assoc., Inc. .... | 60.24           | 60.00        |
| <b>Cottonhull Ashes</b>  |   |   |                 |              |
| 9897                     | O & W. Olds & Whipple, Inc., Hartford, Conn. ....                                   | East Hartford: Olds & Whipple, Inc. ....                    | <b>24.78</b>    | <b>30.00</b> |

<sup>1</sup> Deficiencies are in bold face.

TABLE 4. ANALYSES OF GROUND FISH, BONE, ETC.<sup>1</sup>

| Station No.            | Manufacturer or jobber   | Sampled from stock of                           | Per cent nitrogen |                  | Per cent phosphoric acid |                  | Mechanical analysis (in percentage) |                        |
|------------------------|--|---|-------------------|------------------|--------------------------|------------------|-------------------------------------|------------------------|
|                        |  |   | Total found       | Total guaranteed | Total found              | Total guaranteed | Finer than 1/50 inch                | Coarser than 1/50 inch |
| <b>Dry Ground Fish</b> |  |   |                   |                  |                          |                  |                                     |                        |
| 9840 <sup>2</sup>      | Apothecaries Hall Co., Waterbury, Conn. ....                                   | East Windsor: Apothecaries Hall Co.             | 10.07             | 9.00             | 7.80                     | 5.00             | .....                               | .....                  |
| 9866 <sup>3</sup>      | O & W. Menhaden. Olds & Whipple, Inc., Hartford ..                             | Hazardville: L. B. Haas & Co. ....              | 9.53              | 9.00             | 7.28                     | 5.00             | .....                               | .....                  |
| 9820 <sup>3</sup>      | Hubbard. The Rogers & Hubbard Co., Portland, Conn. ....                        | Portland: The Rogers & Hubbard Co. ....         | 10.40             | 9.56             | 6.70                     | 5.00             | .....                               | .....                  |
| <b>Ground Bone</b>     |  |   |                   |                  |                          |                  |                                     |                        |
| 9858                   | American Agricultural Chemical Co., North Weymouth 91, Mass. ....              | Hamden: American Agricultural Chemical Co. .... | 2.68              | 2.00             | 27.05                    | 25.00            | 61.0                                | 39.0                   |
| 9730                   | Apothecaries Hall Co., Waterbury, Conn. ....                                   | Newtown: Newtown Coal & Grain Co. ....          | 2.25              | 2.25             | 24.45                    | 22.00            | 58.7                                | 41.3                   |
| 9761                   | Berkshire. Berkshire Chemical Co., Bridgeport, Conn.                           | Southport: C. Buckingham & Co. ....             | 3.15              | 2.47             | 25.60                    | 23.00            | 71.5                                | 28.5                   |
| 9616                   | Corenc. Consolidated Rendering Co., Boston 10, Mass. ....                      | Naugatuck: Valley Grain & Supply                | 2.16 <sup>4</sup> | 2.00             | 27.30                    | 23.00            | 65.0                                | 35.0                   |
| 9896                   | O & W. Olds & Whipple, Inc., Hartford, Conn. ....                              | East Hartford: Olds & Whipple, Inc.             | 2.82              | 2.47             | 27.45                    | 22.00            | 63.7                                | 36.3                   |
| 9818 <sup>5</sup>      | Hubbard Raw Knuckle Bone Flour. The Rogers & Hubbard Co., Portland, Conn. .... | Middletown: Long Lane School .....              | 4.05              | 4.00             | 24.20                    | 23.00            | 87.0                                | 13.0                   |
| 9848 <sup>5</sup>      | Hubbard Raw Knuckle Bone Flour. The Rogers & Hubbard Co., Portland, Conn. .... | Southbury: Southbury Training School .....      | 4.06              | 4.00             | 24.50                    | 23.00            | 92.8                                | 7.2                    |
| 9661                   | Sawco Bone. Stumpp & Walter Co., New York 8, N. Y. ....                        | Stamford: Stumpp & Walter Co. ....              | 3.00 <sup>6</sup> | 2.47             | <b>22.25</b>             | <b>24.00</b>     | 78.0                                | 22.0                   |
| 9646                   | Vico Fertilizer Bone Meal. The Van Iderstine Co., L. I. City, New York .....   | Greenwich: J. B. McArdle Seed Store .....       | 2.96 <sup>7</sup> | 2.47             | 26.15                    | 23.00            | 63.7                                | 36.3                   |
| <b>Milorganite</b>     |  |   |                   |                  |                          |                  |                                     |                        |
| 9759                   | Sewerage Commission of the City of Milwaukee, Milwaukee, Wis. ....             | Saugatuck: L. H. Gault & Son., Inc.             | 5.69 <sup>8</sup> | 6.00             | 3.65 <sup>9</sup>        | 2.75             | .....                               | .....                  |

<sup>1</sup> Deficiencies are in bold face.<sup>2</sup> Chlorine 0.23%.<sup>3</sup> Chlorine 0.27%.<sup>4</sup> Nitrogen in ammonia 0.10%.<sup>5</sup> State sample.<sup>6</sup> Nitrogen in ammonia 0.01%.<sup>7</sup> Nitrogen in ammonia 0.14%.<sup>8</sup> Found: Nitrogen in nitrates, 0.00%; nitrogen in ammonia, 0.16%; nitrogen organic water-soluble, 0.34%; nitrogen organic insoluble, 3.46%.<sup>9</sup> Guaranteed "available" phosphoric acid 3.17%.

TABLE 5. ANALYSES OF MIXED FERTILIZERS

| Station No. | Manufacturer and brand  | Place of sampling       |
|-------------|---|-------------------------|
|             | <b>The Acme Guano Co.,<br/>Baltimore 2, Md.</b>                         |                         |
| 9850        | Acme 5-8-7 .....  | Suffield .....          |
|             | <b>Agricultural Supply Co.,<br/>West Haven, Conn.</b>                   |                         |
| 9607        | Yale Special Mixture 8-6-2 .....  | New Haven .....         |
|             | <b>American Agricultural Chemical Co.,<br/>North Weymouth 91, Mass.</b> |                         |
| 9844        | AA Quality Fertilizer 5-8-7 .....                                       | Southbury .....         |
| 9769        | Agrico for Broadleaf Evergreens 6-10-4 .....                            | East Hartford .....     |
| 9620        | Agrico for Corn 3-12-6 .....  | Hamden .....            |
| 9690        | Agrico for Corn 3-12-6 .....  | Pawcatuck .....         |
| 9621        | Agrico Country Club Fertilizer 6-10-4 .....                             | Hamden .....            |
| 9768        | Agrico Country Club Fertilizer 8-6-2 .....                              | East Hartford .....     |
| 9627        | Agrico for Gardens 5-10-5 .....   | West Cheshire .....     |
| 9691        | Agrico for Lawns, Trees and Shrubs 6-10-4 .....                         | Pawcatuck .....         |
| 9668        | Agrico for New England 5-8-7 .....                                      | Southington .....       |
| 9667        | Agrico for Potatoes 5-10-10 .....                                       | Southington .....       |
| 9849        | Agrico for Potatoes 5-10-10 .....                                       | Avon .....              |
| 9623        | Agrico for Seeding Down 3-12-12 .....                                   | Hamden .....            |
| 9767        | Agrico for Tobacco 6-3-6 .....  | East Hartford .....     |
|             | <b>Apothecaries Hall Co.,<br/>Waterbury, Conn.</b>                      |                         |
| 9642        | Liberty Fertilizer 4-12-4 .....   | Canaan .....            |
| 9648        | Liberty Fertilizer 5-10-5 .....   | Greenwich .....         |
| 9643        | Liberty Fertilizer 5-10-10 .....  | Canaan .....            |
| 9836        | Liberty Fertilizer with Sulphate of Potash 5-10-10 .....                | East Windsor .....      |
| 9834        | Liberty Fertilizer Special for Fruit and Grass 7-7-7 .....              | East Windsor .....      |
| 9676        | Liberty Green Gro Fertilizer 6-7-4 .....                                | Plainville .....        |
| 9639        | Liberty High Grade Market Gardeners 5-8-7 .....                         | Canaan .....            |
| 9731        | Liberty High Grade Market Gardeners 5-8-7-Sulphate<br>of Potash .....   | Newtown .....           |
| 9839        | Liberty Tobacco Mixture 5-3-5 .....                                     | East Windsor .....      |
| 9783        | Liberty Tobacco Mixture 6-3-6 .....                                     | Buckland .....          |
| 9838        | Liberty Tobacco Mixture with Cotton Hull Ashes<br>6-3-6 .....           | East Windsor .....      |
| 9843        | Liberty Tobacco Starter 4-10-0 .....                                    | East Windsor .....      |
|             | <b>Armour Fertilizer Works,<br/>New York 5, N. Y.</b>                   |                         |
| 9784        | Armour's Big Crop Fertilizer 4-12-4 .....                               | East Windsor Hill ..... |
| 9689        | Armour's Big Crop Fertilizer 5-8-7 .....                                | Pawcatuck .....         |
| 9785        | Armour's Big Crop Fertilizer 5-10-5 .....                               | East Windsor Hill ..... |
| 9786        | Armour's Big Crop Fertilizer 7-7-7 .....                                | East Windsor Hill ..... |
| 9865        | Armour's Big Crop Tobacco Special 5-3-5 .....                           | East Windsor Hill ..... |
| 9787        | Armour's Big Crop Tobacco Special 6-3-6 .....                           | East Windsor Hill ..... |
|             | <b>Associated Seed Growers, Inc.,<br/>Milford, Conn.</b>                |                         |
| 9758        | Asgrow Lawn Food 10-6-4 .....   | Milford .....           |
| 9745        | Clark's Tip Top 5-8-7 Fertilizer .....                                  | Milford .....           |
|             | <b>The F. A. Bartlett Tree Expert Co.,<br/>Stamford, Conn.</b>          |                         |
| 9660        | Bartlett Green Tree Food 6-8-6 .....                                    | Stamford .....          |

1 Deficiencies are in bold face type.



CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH<sup>1</sup>

| In nitrates | Per cent nitrogen |                       |                         |             | Per cent phosphoric acid |       |                       | Per cent potash |             | Station No. |
|-------------|-------------------|-----------------------|-------------------------|-------------|--------------------------|-------|-----------------------|-----------------|-------------|-------------|
|             | In ammonia        | Organic water-soluble | Organic water-insoluble | Total       | Citrate-insoluble        | Total | So-called "available" | As muriate      | Total       |             |
| 0.00        | 4.60              | 0.41                  | 0.07                    | 5.08        | 1.05                     | 9.83  | 8.78                  | 5.90            | 6.94        | 9850        |
| 0.00        | 4.56              | 3.31                  | 0.29                    | 8.16        | 0.18                     | 6.23  | 6.05                  | 2.24            | 2.24        | 9607        |
| 0.25        | 3.90              | 0.40                  | 0.18                    | <b>4.73</b> | 0.75                     | 10.65 | 9.90                  | 5.27            | 6.90        | 9844        |
| 0.00        | 5.46              | 0.10                  | 0.54                    | 6.10        | 0.60                     | 10.73 | 10.13                 | 4.10            | 4.10        | 9769        |
| 0.58        | 2.28              | 0.10                  | 0.12                    | 3.08        | 0.15                     | 12.93 | 12.78                 | 4.39            | 6.34        | 9620        |
| 0.65        | 2.00              | 0.22                  | 0.13                    | 3.00        | 0.73                     | 12.45 | <b>11.72</b>          | 2.95            | 6.14        | 9690        |
| 0.57        | 4.32              | 0.24                  | 0.53                    | <b>5.66</b> | 0.70                     | 11.38 | 10.68                 | 4.02            | 4.02        | 9621        |
| 0.39        | 4.10              | 0.70                  | 2.77                    | 7.96        | 0.53                     | 6.68  | 6.15                  | 2.72            | 2.72        | 9768        |
| 0.27        | 4.28              | 0.42                  | 0.15                    | 5.12        | 1.15                     | 11.53 | 10.38                 | 3.79            | 5.34        | 9627        |
| 0.53        | 5.06              | 0.16                  | 0.19                    | 5.94        | 0.40                     | 10.73 | 10.33                 | 3.07            | 4.26        | 9691        |
| 0.39        | 4.36              | 0.08                  | 0.17                    | 5.00        | 0.80                     | 8.70  | 7.90                  | 3.88            | 7.10        | 9668        |
| 0.58        | 4.04              | 0.21                  | 0.08                    | 4.91        | 0.77                     | 10.88 | 10.11                 | 6.18            | <b>9.52</b> | 9667        |
| 0.45        | 4.00              | 0.20                  | 0.20                    | 5.01        | 0.80                     | 11.23 | 10.43                 | 9.80            | 9.80        | 9849        |
| 0.56        | 2.16              | 0.20                  | 0.08                    | 3.00        | 0.80                     | 12.85 | 12.05                 | 10.13           | 12.24       | 9623        |
| 0.00        | 0.82              | 2.24                  | 2.68                    | <b>5.74</b> | 0.38                     | 4.23  | 3.85                  | 0.28            | <b>5.78</b> | 9767        |
| 0.66        | 3.20              | 0.18                  | 0.46                    | 4.50        | 0.40                     | 12.83 | 12.43                 | 2.75            | 4.58        | 9642        |
| 0.76        | 3.80              | 0.12                  | 0.42                    | 5.10        | 0.25                     | 10.43 | 10.18                 | 3.93            | 5.68        | 9648        |
| 0.57        | 3.88              | 0.10                  | 0.61                    | 5.16        | 0.30                     | 10.85 | 10.55                 | 8.93            | 10.28       | 9643        |
| 0.44        | 4.02              | 0.12                  | 0.56                    | 5.14        | 0.38                     | 11.00 | 10.62                 | 0.80            | 10.08       | 9836        |
| 0.45        | 5.94              | 0.00                  | 0.67                    | 7.06        | 0.50                     | 8.65  | 8.15                  | 7.12            | 7.12        | 9834        |
| 0.12        | 4.74              | 0.38                  | 0.96                    | 6.20        | 0.23                     | 8.33  | 8.10                  | 2.51            | 4.70        | 9676        |
| 0.41        | 4.34              | 0.14                  | 0.52                    | 5.41        | 0.65                     | 9.30  | 8.65                  | 3.15            | 7.36        | 9639        |
| 0.39        | 3.90              | 0.28                  | 0.63                    | 5.20        | 0.28                     | 9.60  | 9.32                  | 4.54            | 7.74        | 9731        |
| 0.00        | 0.16              | 2.28                  | 3.06                    | 5.50        | 0.25                     | 6.33  | 6.08                  | 0.64            | 5.80        | 9839        |
| 1.16        | 0.28              | 1.50                  | 3.25                    | 6.19        | 0.28                     | 4.68  | 4.40                  | 0.28            | 6.54        | 9783        |
| 0.33        | 0.28              | 1.50                  | 3.92                    | 6.03        | 0.40                     | 5.63  | 5.23                  | 0.56            | 6.06        | 9838        |
| 0.76        | 2.20              | 0.34                  | 0.87                    | 4.17        | 0.55                     | 12.45 | 11.90                 | 0.00            | 0.00        | 9843        |
| 0.36        | 3.06              | 0.24                  | 0.34                    | 4.00        | 0.80                     | 13.13 | 12.33                 | 2.63            | 4.64        | 9784        |
| 0.45        | 3.92              | 0.82                  | 0.25                    | 5.44        | 0.60                     | 9.28  | 8.68                  | 4.62            | 7.12        | 9689        |
| 0.95        | 3.56              | 0.24                  | 0.19                    | 4.94        | 0.73                     | 10.80 | 10.08                 | 3.83            | 5.66        | 9785        |
| 0.00        | 3.52              | 3.00                  | 0.25                    | <b>6.77</b> | 0.73                     | 7.90  | 7.17                  | 5.74            | 6.94        | 9786        |
| 0.46        | 0.58              | 1.42                  | 2.19                    | <b>4.65</b> | 0.55                     | 4.18  | 3.63                  | 0.51            | 5.96        | 9865        |
| 1.00        | 0.96              | 1.98                  | 2.41                    | 6.35        | 0.38                     | 3.70  | 3.32                  | 0.32            | 6.04        | 9787        |
| 0.62        | 2.24              | 5.56                  | 1.20                    | <b>9.62</b> | 0.30                     | 6.40  | 6.10                  | 5.02            | 5.02        | 9758        |
| 0.38        | 3.20              | 0.68                  | 0.75                    | 5.01        | 0.98                     | 8.95  | 7.97                  | 5.82            | 7.16        | 9745        |
| 0.97        | 4.56              | 0.08                  | 0.49                    | 6.10        | 0.58                     | 8.80  | 8.22                  | 5.42            | 6.36        | 9660        |

TABLE 5. ANALYSES OF MIXED FERTILIZERS

| Station No.  | Manufacturer and brand                       | Place of sampling       |
|--|--|-------------------------|
| <b>The Berkshire Chemical Co.,<br/>Bridgeport, Conn.</b>             |  |                         |
| 9764   | Berkshire 0-14-14 .....                      | Bridgeport .....        |
| 9763   | Berkshire 4-12-4 .....                       | Bridgeport .....        |
| 9659   | Berkshire 5-8-7 .....                        | Stamford .....          |
| 9693   | Berkshire 5-10-5 .....                       | Norwich .....           |
| 9644   | Berkshire 5-10-10 .....                      | East Canaan .....       |
| 9902   | Berkshire 5-10-10-2 .....                    | Bridgeport .....        |
| 9765   | Berkshire 5-10-10-Potash from Sulphate ..... | Bridgeport .....        |
| 9692   | Berkshire 7-7-7 .....                        | Norwich .....           |
| 9762   | Berkshire 6-3-6 Tobacco .....                | Bridgeport .....        |
| 9740   | Berkshire 6-6-4 Specialty Fertilizer .....   | Ridgefield .....        |
| <b>Consolidated Rendering Co.,<br/>Boston 10, Mass.</b>              |  |                         |
| 9611   | Corenco 0-14-14 Top Dresser .....            | Ansonia .....           |
| 9678   | Corenco 4-12-4 Complete Manure .....         | Kensington .....        |
| 9606   | Corenco 5-8-7 Potato and General Crop .....  | New Haven .....         |
| 9618   | Corenco 5-10-5 Home Garden .....             | Waterbury .....         |
| 9626   | Corenco 5-10-10 Peerless Potato .....        | West Cheshire .....     |
| 9716   | Corenco 6-3-6 Specialty Tobacco Grower ..... | New Haven .....         |
| 9666   | Corenco 8-6-4 .....                          | Plantsville .....       |
| <b>Davey Tree Expert Co.,<br/>Kent, Ohio</b>                         |  |                         |
| 9657   | Davey Tree Food 12-4-4 .....                 | Old Greenwich .....     |
| <b>Eastern States Farmers' Exchange,<br/>West Springfield, Mass.</b> |  |                         |
| 9729   | Eastern States 0-20-20 .....                 | East Hartford .....     |
| 9715   | Eastern States 5-10-5 Garden .....           | North Haven .....       |
| 9695   | Eastern States 5-10-10 .....                 | Norwich .....           |
| 9832   | Eastern States 5-15-10 .....                 | East Hartford .....     |
| 9720   | Eastern States 8-4-8 Tobacco .....           | South Glastonbury ..... |
| 9860   | Eastern States 8-12-16 L.C.S. ....           | West Granby .....       |
| 9714   | Eastern States 8-16-16 .....                 | North Haven .....       |
| 9734   | Eastern States 8-24-8 .....                  | Bethel .....            |
| 9825   | Eastern States 10-10-10 .....                | East Hartford .....     |
| 9728   | Eastern States 13-30-0 .....                 | East Hartford .....     |
| <b>A. L. Koster,<br/>West Hartford, Conn.</b>                        |  |                         |
| 9679   | Plant Food 5-8-7 .....                       | Middletown .....        |
| 9684   | Plant Food 5-8-7 .....                       | Durham .....            |
| 9683   | Plant Food 7-7-7 .....                       | Durham .....            |
| <b>McCormick &amp; Co.,<br/>Baltimore 2, Md.</b>                     |  |                         |
| 9855   | Hy-Gro 13-26-13 .....                        | New Haven .....         |
| <b>Miller Chemical &amp; Fertilizer Corp.,<br/>Baltimore 31, Md.</b> |  |                         |
| 9864   | V H P F 5-25-15 .....                        | Warehouse Point .....   |
| <b>"Na-Churs" Plant Food Co.,<br/>Marion, Ohio</b>                   |  |                         |
| 9861   | "Na-Churs" Plant Food 5-5-10 .....           | Windsor Locks .....     |

<sup>1</sup> Deficiencies are in bold face type.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH<sup>1</sup>

| In nitrates | Per cent nitrogen |                       |                         |              | Per cent phosphoric acid |       |                       | Per cent potash |              | Station No. |
|-------------|-------------------|-----------------------|-------------------------|--------------|--------------------------|-------|-----------------------|-----------------|--------------|-------------|
|             | In ammonia        | Organic water-soluble | Organic water-insoluble | Total        | Citrate-insoluble        | Total | So-called "available" | As muriate      | Total        |             |
| .....       | .....             | .....                 | .....                   | .....        | 0.28                     | 14.35 | 14.07                 | 10.29           | 14.14        | 9764        |
| 0.40        | 3.44              | 0.12                  | 0.21                    | 4.17         | 0.65                     | 12.28 | <b>11.63</b>          | 3.07            | 4.80         | 9763        |
| 0.93        | 3.96              | 0.00                  | 0.16                    | 5.05         | 0.63                     | 9.22  | 8.59                  | 4.66            | 7.32         | 9659        |
| 0.46        | 4.48              | 0.04                  | 0.22                    | 5.20         | 0.30                     | 10.60 | 10.30                 | 3.67            | 5.20         | 9693        |
| 0.53        | 4.24              | 0.18                  | 0.16                    | 5.11         | 0.85                     | 11.10 | 10.25                 | 5.58            | 10.14        | 9644        |
| 0.49        | 4.50              | 0.00                  | 0.13                    | 5.12         | 0.43                     | 10.78 | 10.35                 | 7.26            | 9.84         | 9902        |
| 0.15        | 4.02              | 0.50                  | 0.17                    | <b>4.84</b>  | 0.90                     | 11.20 | 10.30                 | 0.00            | <b>9.48</b>  | 9765        |
| 0.47        | 6.20              | 0.16                  | 0.09                    | 6.92         | 0.25                     | 7.60  | 7.35                  | 4.70            | 7.12         | 9692        |
| 0.00        | 0.24              | 2.90                  | 2.92                    | 6.06         | 0.35                     | 3.68  | 3.33                  | 0.36            | 5.90         | 9762        |
| 0.56        | 5.16              | 0.20                  | 0.16                    | 6.08         | 0.40                     | 7.03  | 6.63                  | 2.79            | 4.20         | 9740        |
| .....       | .....             | .....                 | .....                   | .....        | 0.10                     | 14.18 | 14.08                 | 12.83           | 15.00        | 9611        |
| 0.64        | 2.92              | 0.40                  | 0.11                    | 4.07         | 0.13                     | 11.50 | <b>11.37</b>          | 3.35            | 4.56         | 9678        |
| 0.63        | 4.00              | 0.40                  | 0.07                    | 5.10         | 0.35                     | 8.85  | 8.50                  | 6.38            | 7.06         | 9606        |
| 0.00        | 3.78              | 1.13                  | 0.15                    | 5.06         | 0.20                     | 9.85  | <b>9.65</b>           | 2.66            | 5.46         | 9618        |
| 0.78        | 3.86              | 0.34                  | 0.14                    | 5.12         | 0.33                     | 10.23 | 9.90                  | 6.22            | 10.46        | 9626        |
| 0.15        | 0.30              | 2.46                  | 3.34                    | 6.25         | 0.23                     | 4.93  | 4.70                  | 0.40            | 6.50         | 9716        |
| 0.44        | 5.28              | 2.00                  | 0.21                    | 7.93         | 0.33                     | 6.40  | 6.07                  | 3.07            | 4.14         | 9666        |
| 1.48        | 9.64              | 0.16                  | 0.27                    | <b>11.55</b> | 0.40                     | 4.80  | 4.40                  | 2.43            | 4.26         | 9657        |
| .....       | .....             | .....                 | .....                   | .....        | 0.33                     | 19.55 | <b>19.22</b>          | 11.48           | 22.78        | 9729        |
| 0.62        | 4.06              | 0.18                  | 0.20                    | 5.06         | 0.20                     | 10.43 | 10.23                 | 5.38            | 5.38         | 9715        |
| 1.04        | 4.00              | 0.06                  | 0.14                    | 5.24         | 0.38                     | 10.70 | 10.32                 | 6.02            | 10.58        | 9695        |
| 1.15        | 3.64              | 0.32                  | 0.17                    | 5.28         | 0.58                     | 16.10 | 15.52                 | 10.12           | 10.12        | 9832        |
| 0.00        | 0.34              | 4.27                  | 3.71                    | 8.32         | 0.28                     | 4.38  | 4.10                  | 0.32            | 8.70         | 9720        |
| 1.70        | 6.34              | 0.14                  | 0.14                    | 8.32         | 0.15                     | 11.73 | <b>11.58</b>          | 0.84            | 17.18        | 9860        |
| 1.08        | 6.38              | 0.28                  | 0.22                    | 7.96         | 0.25                     | 19.35 | 19.10                 | 6.42            | <b>14.80</b> | 9714        |
| 1.59        | 6.38              | 0.08                  | 0.23                    | 8.28         | 1.10                     | 25.75 | 24.65                 | 4.90            | 7.98         | 9734        |
| 2.09        | 7.54              | 0.30                  | 0.25                    | 10.18        | 0.15                     | 10.40 | 10.25                 | 11.48           | 11.48        | 9825        |
| 3.49        | 9.42              | 0.24                  | 0.23                    | 13.38        | 0.54                     | 29.61 | 29.07                 | .....           | .....        | 9738        |
| 0.60        | 3.08              | 0.64                  | 0.68                    | 5.00         | 0.33                     | 8.35  | 8.02                  | 5.66            | 7.48         | 9679        |
| 0.80        | 3.06              | 0.60                  | 0.57                    | 5.03         | 0.20                     | 8.25  | 8.05                  | 4.59            | 7.14         | 9684        |
| 0.96        | 1.82              | 4.02                  | 0.73                    | 7.53         | 0.23                     | 6.85  | <b>6.62</b>           | 3.58            | 7.40         | 9683        |
| 2.19        | 5.12              | 6.52                  | 0.17                    | 14.00        | 0.60                     | 28.38 | 27.78                 | 9.82            | 15.94        | 9855        |
| 4.92        | 1.06              | 0.05                  | 0.03                    | 6.06         | 0.23                     | 26.35 | 26.12                 | 0.08            | 16.71        | 9864        |
| 2.55        | 2.56              | 0.27                  | 0.00                    | 5.38         | 0.15                     | 7.08  | 6.93                  | 0.00            | <b>7.88</b>  | 9861        |

TABLE 5. ANALYSES OF MIXED FERTILIZERS

| Station No.   | Manufacturer and brand   | Place of sampling   |
|---|--|---------------------|
| <b>Old Deerfield Fertilizer Co.,<br/>South Deerfield, Mass.</b> |  |                     |
| 9722  | Old Deerfield 5-8-7 .....  | Glastonbury .....   |
| 9726  | Old Deerfield 5-5-15 Tobacco Starter .....   | Glastonbury .....   |
| 9723  | Old Deerfield 5-10-10 Potato Fertilizer .....  | Glastonbury .....   |
| 9725  | Old Deerfield 6-3-6 Complete Tobacco Fertilizer .....                                  | Glastonbury .....   |
| <b>Olds &amp; Whipple, Inc.,<br/>Hartford, Conn.</b>            |  |                     |
| 9894  | O & W Luxura 5-8-6 .....   | East Hartford ..... |
| 9859  | O & W 4-8-4 Complete Lawn Grass Fertilizer .....                                       | Bloomfield .....    |
| 9780  | O & W 4-12-4 Market Garden Fertilizer .....  | East Hartford ..... |
| 9892  | O & W Complete Tobacco Fertilizer .....  | East Hartford ..... |
| 9779  | O & W 5-3-5 Complete Tobacco Fertilizer, Potash<br>derived from Cotton Hull Ash .....  | East Hartford ..... |
| 9781  | O & W 5-8-7 Potato and General Purpose Fertilizer ..                                   | East Hartford ..... |
| 9823 <sup>2</sup>   | O & W 5-8-7 Potato and General Purpose Fertilizer ..                                   | Portland .....      |
| 9817 <sup>2</sup>   | O & W 5-8-7 Potato and General Purpose Fertilizer ..                                   | Middletown .....    |
| 9603 <sup>2</sup>   | O & W 5-10-5 Fertilizer .....  | Cheshire .....      |
| 9815 <sup>2</sup>   | O & W 5-10-5 Fertilizer .....  | Meriden .....       |
| 9778  | O & W 5-5-15 High Grade Tobacco Starter and Pot-<br>ash .....                          | East Hartford ..... |
| 9605 <sup>2</sup>   | O & W 5-10-10 Potato Fertilizer .....  | Cheshire .....      |
| 9686 <sup>2</sup>   | O & W 5-10-10 Potato Fertilizer .....  | Niantic .....       |
| 9893  | O & W 6-3-6 Blue Label Tobacco Fertilizer .....  | East Hartford ..... |
| 9851  | O & W 6-3-6 Blue Label Tobacco Fertilizer-Potash<br>derived from Cotton Hull Ash ..... | Suffield .....      |
| 9782  | O & W 7-7-7 Top Dressing and Grass Fertilizer .....                                    | East Hartford ..... |
| 9822 <sup>2</sup>   | O & W 7-7-7 Top Dressing and Grass Fertilizer .....                                    | Portland .....      |
| 9846 <sup>2</sup>   | O & W 7-7-7 Top Dressing and Grass Fertilizer .....                                    | Southbury .....     |
| <b>The Frank S. Platt Co.,<br/>New Haven, Conn.</b>             |  |                     |
| 9604  | Platt's Special 10-5-5 Lawn Fertilizer .....   | New Haven .....     |
| 9979  | Platt's Special 10-5-5 Lawn Fertilizer .....   | New Haven .....     |
| <b>Ralston Purina Co.,<br/>St. Louis, Mo.</b>                   |  |                     |
| 9694  | Purina Plant Food 5-10-5 .....   | Norwich .....       |
| <b>The Rogers &amp; Hubbard Co.,<br/>Portland, Conn.</b>        |  |                     |
| 9609  | Gro-Fast Plant Food 5-8-5 .....  | New Haven .....     |
| 9674  | Hubbard Potato Fertilizer 5-8-7 .....  | Plainville .....    |
| 9706  | Hubbard High Potash Fertilizer 5-10-10 .....   | Portland .....      |
| 9707  | Hubbard Tobacco Grower 6-3-6 .....   | Portland .....      |
| 9640  | Red H 0-14-14 Fertilizer .....   | Canaan .....        |
| 9699  | Red H 4-12-4 .....   | Norwich .....       |
| 9704  | Red H 4-12-8 .....   | Portland .....      |
| 9608  | Red H 5-8-7 .....  | New Haven .....     |
| 9696  | Red H 5-10-5 .....   | Norwich .....       |
| 9705  | Red H 5-10-10 .....  | Portland .....      |
| 9697  | Red H 7-7-7 .....  | Norwich .....       |
| 9641  | Red H 8-16-16 .....  | Canaan .....        |

<sup>1</sup> Deficiencies are in bold face type.<sup>2</sup> State purchase.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH<sup>1</sup>

| In nitrates | Per cent nitrogen |                       |                         |             | Per cent phosphoric acid |       |                       | Per cent potash |             | Station No. |
|-------------|-------------------|-----------------------|-------------------------|-------------|--------------------------|-------|-----------------------|-----------------|-------------|-------------|
|             | In ammonia        | Organic water-soluble | Organic water-insoluble | Total       | Citrate-insoluble        | Total | So-called "available" | As muriate      | Total       |             |
| 0.00        | 4.11              | 0.78                  | 0.18                    | 5.07        | 0.35                     | 9.00  | 8.65                  | 2.07            | 8.14        | 9722        |
| 1.84        | 0.24              | 1.42                  | 1.92                    | 5.42        | 0.10                     | 7.25  | 7.15                  | 0.24            | 16.02       | 9726        |
| 0.00        | 3.76              | 1.10                  | 0.12                    | 4.98        | 0.70                     | 11.03 | 10.33                 | 0.12            | 10.12       | 9723        |
| 0.63        | 1.00              | 1.72                  | 2.52                    | <b>5.87</b> | 0.25                     | 3.45  | 3.20                  | 0.25            | 6.10        | 9725        |
| 0.99        | 1.50              | 1.04                  | 1.93                    | 5.46        | 1.28                     | 13.93 | 12.65                 | 0.48            | 7.00        | 9894        |
| 0.64        | 2.80              | 0.28                  | 1.02                    | 4.74        | 0.50                     | 9.70  | 9.20                  | 2.88            | 4.70        | 9859        |
| 0.38        | 2.36              | 0.70                  | 0.92                    | 4.36        | 0.85                     | 13.63 | 12.78                 | 2.59            | 4.62        | 9780        |
| 0.80        | 0.12              | 1.56                  | 2.53                    | 5.01        | 0.28                     | 4.15  | 3.87                  | 0.72            | 5.92        | 9892        |
| 1.01        | 0.12              | 1.70                  | 2.41                    | 5.24        | 0.40                     | 4.65  | 4.25                  | 0.56            | 5.62        | 9779        |
| 0.33        | 4.04              | 0.22                  | 0.69                    | 5.28        | 0.40                     | 9.35  | 8.95                  | 2.25            | 7.42        | 9781        |
| 0.00        | 4.30              | 0.42                  | 0.44                    | 5.16        | 0.30                     | 8.60  | 8.30                  | 5.70            | 6.86        | 9823        |
| 0.64        | 4.32              | 0.08                  | 0.38                    | 5.42        | 0.33                     | 8.73  | 8.40                  | 5.70            | <b>6.38</b> | 9817        |
| 0.56        | 2.66              | 1.10                  | 0.68                    | 5.00        | 0.43                     | 10.73 | 10.30                 | 4.15            | 5.28        | 9603        |
| 0.40        | 2.78              | 1.14                  | 0.81                    | 5.13        | 0.65                     | 11.37 | 10.72                 | 4.07            | 5.90        | 9815        |
| 2.34        | 0.08              | 1.30                  | 1.50                    | 5.22        | 0.38                     | 6.15  | 5.72                  | 0.84            | 15.66       | 9778        |
| 0.70        | 4.38              | 0.06                  | 0.36                    | 5.50        | 0.28                     | 10.75 | 10.47                 | 7.32            | 10.44       | 9605        |
| 0.68        | 4.16              | 0.24                  | 0.36                    | 5.44        | 0.28                     | 11.07 | 10.79                 | 6.70            | 10.04       | 9686        |
| 1.21        | 0.14              | 1.48                  | 3.19                    | 6.02        | 0.25                     | 3.93  | 3.68                  | 0.72            | 6.92        | 9893        |
| 0.36        | 0.52              | 1.70                  | 3.52                    | 6.10        | 0.28                     | 3.68  | 3.40                  | 0.54            | 6.40        | 9851        |
| 0.00        | 5.54              | 0.84                  | 0.70                    | 7.08        | 0.35                     | 7.55  | 7.20                  | 6.65            | 8.52        | 9782        |
| 0.00        | 5.20              | 1.30                  | 0.86                    | 7.36        | 0.28                     | 8.35  | 8.07                  | 6.93            | 7.66        | 9822        |
| 0.00        | 6.12              | 0.26                  | 0.68                    | 7.06        | 0.23                     | 7.78  | 7.55                  | 7.11            | 7.78        | 9846        |
| 0.00        | 8.00              | 0.48                  | 1.29                    | <b>9.77</b> | 0.23                     | 6.70  | 6.47                  | 2.23            | 5.68        | 9604        |
| 0.00        | 6.20              | 2.63                  | 1.25                    | 10.08       | 0.28                     | 6.28  | 6.00                  | 4.62            | 5.53        | 9979        |
| 0.66        | 3.88              | 0.12                  | 0.12                    | <b>4.78</b> | 0.80                     | 10.90 | 10.10                 | 1.44            | 5.08        | 9694        |
| 0.40        | 1.88              | 1.96                  | 1.10                    | 5.34        | 0.78                     | 9.40  | 8.62                  | 5.58            | 5.78        | 9609        |
| 0.23        | 2.92              | 1.02                  | 1.21                    | 5.38        | 0.30                     | 9.03  | 8.73                  | 6.14            | 7.21        | 9674        |
| 0.53        | 2.82              | 0.86                  | 1.15                    | 5.36        | 0.30                     | 10.53 | 10.23                 | 5.58            | 10.16       | 9706        |
| 1.33        | 0.24              | 1.56                  | 3.04                    | 6.17        | 0.23                     | 5.00  | 4.77                  | 1.58            | 5.78        | 9707        |
| .....       | .....             | .....                 | .....                   | .....       | 0.28                     | 14.33 | 14.05                 | 4.31            | 14.08       | 9640        |
| 0.66        | 3.06              | 0.34                  | 0.39                    | 4.45        | 0.45                     | 12.50 | 12.05                 | 2.51            | 4.54        | 9699        |
| 1.05        | 3.18              | 0.06                  | 0.21                    | 4.50        | 0.63                     | 12.33 | <b>11.70</b>          | 4.62            | 8.36        | 9704        |
| 0.91        | 4.03              | 0.21                  | 0.13                    | 5.28        | 0.25                     | 8.73  | 8.48                  | 9.84            | 9.84        | 9608        |
| 0.75        | 4.16              | 0.14                  | 0.21                    | 5.26        | 0.33                     | 10.93 | 10.60                 | 1.39            | 6.03        | 9696        |
| 0.71        | 4.45              | 0.19                  | 0.26                    | 5.61        | 0.40                     | 10.93 | 10.53                 | 6.02            | 10.38       | 9705        |
| 0.25        | 6.36              | 0.60                  | 0.16                    | 7.37        | 0.20                     | 7.50  | 7.30                  | 4.31            | 7.50        | 9697        |
| 1.41        | 6.44              | 0.28                  | 0.15                    | 8.28        | 0.20                     | 15.83 | <b>15.63</b>          | 13.23           | 16.32       | 9641        |

TABLE 5. ANALYSES OF MIXED FERTILIZERS

| Station No.       | Manufacturer and brand  | Place of sampling   |
|-------------------|---|---------------------|
| 9649              | <b>O. M. Scott &amp; Sons Co.,<br/>Marysville, Ohio</b><br>Scott's Turf Builder 8-7-3 .....                           | Greenwich .....     |
| 9856              | <b>Sears, Roebuck &amp; Co.,<br/>Chicago 7, Ill.</b><br>Garden Master Plant Food 5-10-5 .....                         | New Haven .....     |
| 9853              | <b>M. L. Shoemaker, Div. Wilson &amp; Co., Inc.<br/>Philadelphia 34, Pa.</b><br>Shoemaker's "Swift-Sure" 4-10-0 ..... | West Suffield ..... |
| 9662              | <b>Stumpp &amp; Walter Co.,<br/>New York 3, N. Y.</b><br>Sawco Emerald Grass 5-10-5 .....                             | Stamford .....      |
| 9665              | Sawco General Garden 5-10-5 .....   | Stamford .....      |
| 9845 <sup>2</sup> | <b>Summers Fertilizer Co., Inc.,<br/>Baltimore 2, Md.</b><br>Summers 0-20-20 .....                                    | Southbury .....     |
| 9847 <sup>2</sup> | Summers 4-12-4 .....  | Southbury .....     |
| 9680 <sup>2</sup> | Summers 10-10-10 .....  | Middletown .....    |
| 9789 <sup>2</sup> | Summers 10-10-10 .....  | Cheshire .....      |
| 9890 <sup>2</sup> | Summers 10-10-10 .....  | Somers .....        |
| 9612              | <b>Swift &amp; Co.,<br/>Boston, Mass.</b><br>Vigoro 4-12-4 .....  | Ansonia .....       |
| 9647              | <b>Tennessee Corp.,<br/>Lockland, Ohio</b><br>10-6-4 Superior Quality .....   | Greenwich .....     |
| 9624              | <b>I. P. Thomas &amp; Son Co.,<br/>Camden, N. J.</b><br>I. P. Thomas 5-8-7 .....                                      | Hamden .....        |
| 9625              | I. P. Thomas 5-10-10 .....  | Hamden .....        |
| 9700              | I. P. Thomas 7-7-7 .....  | Norwich .....       |
| 9863              | <b>Stewart H. Willson,<br/>Thompsonville, Conn.</b><br>Willson's Old Enfield Tree Food 6-7-4 .....                    | Thompsonville ..... |
| 9744              | <b>F. H. Woodruff &amp; Sons, Inc.,<br/>Milford, Conn.</b><br>Gro Plant Food 5-10-5 .....                             | Milford .....       |
| 9743              | Gro Sod Lawn Food 10-6-4 .....  | Milford .....       |
| 9710              | <b>Woodruff Fertilizer Works, Inc.,<br/>North Haven, Conn.</b><br>Woodruff's 5-8-7 Fertilizer .....                   | North Haven .....   |
| 9711              | Woodruff's 5-8-10 Fertilizer .....  | North Haven .....   |
| 9708              | Woodruff's 7-7-7 Fertilizer .....   | North Haven .....   |
| 9814              | Woodruff's Tobacco Fertilizer 6-3-6 .....   | North Haven .....   |
| 9898              | Woodruff's Tobacco Fertilizer 6-3-6 .....   | North Haven .....   |
| 9712              | Woodruff's 10-6-4 Fertilizer .....  | North Haven .....   |

<sup>1</sup> Deficiencies are in bold face type.

<sup>2</sup> State purchase.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH<sup>1</sup>

| In nitrates | Per cent nitrogen |                       |                         |             | Per cent phosphoric acid |       |                       | Per cent potash |              | Station No. |
|-------------|-------------------|-----------------------|-------------------------|-------------|--------------------------|-------|-----------------------|-----------------|--------------|-------------|
|             | In ammonia        | Organic water-soluble | Organic water-insoluble | Total       | Citrate-insoluble        | Total | So-called "available" | As muriate      | Total        |             |
| 0.19        | 4.56              | 0.68                  | 2.45                    | <b>7.88</b> | 0.23                     | 6.10  | <b>5.87</b>           | 3.70            | 3.70         | 9649        |
| 0.59        | 3.70              | 0.44                  | 0.29                    | 5.02        | 1.00                     | 11.53 | 10.53                 | 5.24            | 5.24         | 9856        |
| 0.17        | 2.46              | 0.52                  | 1.35                    | 4.50        | 0.95                     | 11.68 | 10.73                 | .....           | .....        | 9853        |
| 0.78        | 3.80              | 0.18                  | 0.28                    | 5.04        | 0.48                     | 11.00 | 10.52                 | 1.16            | 5.34         | 9662        |
| 0.88        | 4.00              | 0.00                  | 0.20                    | 5.08        | 0.43                     | 10.57 | 10.14                 | 2.71            | 5.34         | 9665        |
| .....       | .....             | .....                 | .....                   | .....       | 0.65                     | 17.55 | <b>16.90</b>          | 13.23           | <b>13.23</b> | 9845        |
| 1.23        | 2.44              | 0.10                  | 0.28                    | 4.05        | 0.68                     | 13.35 | 12.67                 | 3.95            | 4.42         | 9847        |
| 0.60        | 7.06              | 1.82                  | 0.18                    | <b>9.66</b> | 0.25                     | 9.53  | <b>9.28</b>           | 4.86            | <b>9.64</b>  | 9680        |
| 0.65        | 7.20              | 1.72                  | 0.19                    | <b>9.74</b> | 0.33                     | 10.05 | <b>9.72</b>           | 0.29            | <b>9.66</b>  | 9789        |
| 0.39        | 6.88              | 2.00                  | 0.41                    | <b>9.68</b> | 0.35                     | 10.10 | <b>9.75</b>           | 9.08            | 10.02        | 9890        |
| 0.33        | 3.58              | 0.00                  | 0.18                    | 4.09        | 1.25                     | 12.75 | <b>11.50</b>          | 3.43            | 4.66         | 9612        |
| 1.05        | 6.44              | 1.20                  | 0.17                    | <b>8.86</b> | 0.28                     | 9.80  | 9.52                  | 4.36            | 4.36         | 9647        |
| 0.49        | 3.80              | 0.32                  | 0.15                    | <b>4.76</b> | 0.85                     | 9.00  | 8.15                  | 5.58            | <b>6.78</b>  | 9624        |
| 0.78        | 3.80              | 0.00                  | 0.14                    | <b>4.72</b> | 0.65                     | 11.25 | 10.60                 | 9.58            | <b>9.78</b>  | 9625        |
| 0.70        | 5.50              | 0.06                  | 0.24                    | <b>6.50</b> | 0.40                     | 9.45  | 9.05                  | 4.70            | 6.82         | 9700        |
| 0.00        | 2.36              | 0.56                  | 1.89                    | <b>4.81</b> | 0.18                     | 7.06  | 6.88                  | 10.30           | 10.30        | 9863        |
| 1.24        | 1.46              | 0.18                  | 1.98                    | <b>4.86</b> | 0.68                     | 10.93 | 10.25                 | 3.32            | 5.36         | 9744        |
| 0.48        | 5.08              | 2.76                  | 1.15                    | <b>9.47</b> | 0.45                     | 7.43  | 6.98                  | 4.10            | 4.10         | 9743        |
| 0.53        | 3.32              | 0.68                  | 0.72                    | 5.25        | 0.30                     | 8.33  | 8.03                  | 2.19            | 7.14         | 9710        |
| 0.74        | 3.38              | 0.30                  | 0.66                    | 5.08        | 0.66                     | 8.10  | <b>7.44</b>           | 10.14           | 10.14        | 9711        |
| 0.70        | 1.84              | 3.80                  | 0.62                    | 6.96        | 0.28                     | 7.07  | <b>6.79</b>           | 2.83            | 7.68         | 9708        |
| 1.52        | 0.20              | 1.62                  | 2.78                    | 6.12        | 0.23                     | 3.48  | 3.25                  | 0.16            | 5.88         | 9814        |
| 1.13        | 0.06              | 2.08                  | 2.73                    | 6.00        | 0.45                     | 3.78  | 3.33                  | 0.28            | 6.06         | 9898        |
| 0.50        | 2.42              | 5.86                  | 1.30                    | 10.08       | 0.25                     | 6.90  | 6.65                  | 2.31            | 5.94         | 9712        |

TABLE 6. ANALYSES OF

| Station No. | Manufacturer and Brand   | Place of sampling   |
|-------------|--|---------------------|
| 9739        | Pulverized Sheep Manure. The American Agricultural Chemical Co., North Weymouth 91, Mass. .... | Danbury .....       |
| 9677        | Sheep Manure. Apothecaries Hall Co., Waterbury, Conn. ....                                     | Plainville .....    |
| 9613        | Armour's Pulverized Sheep Manure. Armour Fertilizer Works, New York 5, N. Y. ....              | Ansonia .....       |
| 9737        | Driconure. Atkins & Durbrow, Inc., New York 7, N. Y. ....                                      | Danbury .....       |
| 9718        | Corenco Sheep Manure. Consolidated Rendering Co., Boston 10, Mass. ....                        | New Haven .....     |
| 9717        | Spurz-On. Consolidated Rendering Co., Boston 10, Mass. ....                                    | New Haven .....     |
| 9658        | Davey Shredded Manure. Davey Tree Expert Co., Old Greenwich, Conn. ....                        | Old Greenwich ..... |
| 9901        | Hoffman Sheep Manure (Kiln Dried). A. H. Hoffman, Inc., Landisville, Pa. ....                  | Bridgeport .....    |
| 9617        | Norwood Brand Sheep Manure. Norwood Brand Fertilizer Co., No. Reading, Mass. ....              | Naugatuck .....     |
| 9760        | Premier-Nure. Premier Peat Moss Corp., New York 17, N. Y. ....                                 | Saugatuck .....     |
| 9738        | Wizard Brand Cow Manure. The Pulverized Manure Co., Chicago 9, Ill. ....                       | Danbury .....       |
| 9741        | Wizard Brand Pulverized Sheep Manure. The Pulverized Manure Co., Chicago 9, Ill. ....          | Ridgefield .....    |
| 9819        | Gro-Fast Cow Manure. The Rogers and Hubbard Co., Portland, Conn. ....                          | Portland .....      |
| 9721        | Gro-Fast Sheep Manure. The Rogers and Hubbard Co., Portland, Conn. ....                        | Glastonbury .....   |
| 9736        | Garden Master Sheep Manure. Sears-Roebuck Co., Chicago 7, Ill. ....                            | Danbury .....       |
| 9663        | Sawconure 2-1-1. Stumpp & Walter Co., New York 8, N. Y. ....                                   | Stamford .....      |
| 9688        | Sheep Manure. Swift & Co. (Plant Food Div.), Boston 9, Mass. ....                              | Pawcatuck .....     |
| 9610        | Bovung. Walker-Gordon Laboratory Co., Plainsboro, N. J. ....                                   | New Haven .....     |

1 Deficiencies are in bold face.

2 Guaranteed 1.00%.

3 Guaranteed 0.89%.



SHEEP MANURE, ETC.<sup>1</sup>

| In nitrates | Per cent nitrogen |                       |                         |             |                  | Per cent phosphoric acid |             |                  |                          | Per cent potash |                  | Station No. |
|-------------|-------------------|-----------------------|-------------------------|-------------|------------------|--------------------------|-------------|------------------|--------------------------|-----------------|------------------|-------------|
|             | In ammonia        | Organic water-soluble | Organic water-insoluble | Total found | Total guaranteed | Citrate-insoluble        | Total found | Total guaranteed | So-called "available"    | Total found     | Total guaranteed |             |
| 0.00        | 0.04              | 0.12                  | 1.52                    | 1.68        | 1.25             | .....                    | 1.65        | 1.00             | .....                    | 2.54            | 2.00             | 9739        |
| 0.00        | 0.17              | 0.00                  | 1.08                    | 1.25        | 1.00             | .....                    | 1.00        | 0.50             | .....                    | 2.22            | 1.00             | 9677        |
| 0.00        | 0.06              | 0.29                  | 1.38                    | 1.73        | 1.50             | 0.15                     | 1.78        | 1.00             | 1.63                     | 3.97            | 2.50             | 9613        |
| 0.00        | 0.20              | 1.04                  | 1.64                    | 2.88        | 2.00             | 0.30                     | 2.43        | .....            | 2.13 <sup>2</sup>        | 1.63            | 1.00             | 9737        |
| 0.00        | 0.04              | 0.27                  | 1.54                    | 1.85        | 1.25             | .....                    | 1.88        | 1.00             | .....                    | 4.23            | 2.00             | 9718        |
| 0.00        | 0.24              | 1.18                  | 2.08                    | 3.50        | 3.50             | .....                    | 3.48        | 3.50             | .....                    | 2.13            | 1.50             | 9717        |
| .....       | .....             | .....                 | .....                   | 2.78        | 2.00             | 0.35                     | 3.77        | 1.00             | 3.42 <sup>2</sup>        | 2.26            | 2.00             | 9658        |
| 0.00        | 0.06              | 0.19                  | 1.29                    | 1.54        | 1.50             | .....                    | 1.80        | 1.00             | .....                    | 2.13            | 1.00             | 9901        |
| 0.00        | 0.02              | 0.38                  | 1.14                    | 1.54        | 1.83             | 0.25                     | <b>0.57</b> | .....            | <b>0.32</b> <sup>3</sup> | 3.53            | 1.03             | 9617        |
| 0.00        | 0.60              | 1.07                  | 1.89                    | 3.56        | 2.00             | .....                    | 3.33        | 1.00             | .....                    | 1.91            | 1.00             | 9760        |
| 0.00        | 0.08              | 0.25                  | 1.93                    | 2.26        | 2.00             | 0.38                     | 1.43        | .....            | 1.05 <sup>2</sup>        | 2.33            | 1.00             | 9738        |
| 0.00        | 0.28              | 0.48                  | 1.85                    | 2.61        | 2.00             | 0.33                     | 2.00        | .....            | 1.67 <sup>2</sup>        | 2.55            | 2.00             | 9741        |
| 0.00        | 0.30              | 0.67                  | 1.33                    | 2.30        | 2.00             | .....                    | 4.28        | 1.00             | .....                    | 1.83            | 1.00             | 9819        |
| 0.00        | 0.06              | 0.24                  | 1.32                    | 1.62        | 1.25             | .....                    | 1.75        | 1.00             | .....                    | 4.13            | 2.50             | 9721        |
| 0.00        | 0.10              | 0.29                  | 1.35                    | 1.74        | 1.50             | .....                    | 1.73        | 1.00             | .....                    | 4.30            | 2.50             | 9736        |
| 0.00        | 0.32              | 0.73                  | 2.08                    | 3.13        | 2.00             | 0.35                     | 3.60        | .....            | 3.25 <sup>2</sup>        | 1.86            | 1.00             | 9663        |
| 0.00        | 0.04              | 0.01                  | 1.82                    | <b>1.87</b> | <b>2.00</b>      | 0.75                     | 1.85        | .....            | 1.10 <sup>2</sup>        | 3.23            | 2.00             | 9688        |
| 0.00        | 0.28              | 0.22                  | 1.64                    | 2.14        | 2.00             | 0.25                     | 1.63        | .....            | <b>1.38</b> <sup>2</sup> | 2.35            | 1.00             | 9610        |

TABLE 7. ANALYSES OF LIMESTONE AND SIMILAR MATERIALS

| Station No. | Manufacturer and brand                          | Sampled from stock of<br>or sent by                          | Chemical<br>analysis |                       | Total oxides,<br>per cent | Mechanical<br>analysis<br>(in percentage) |          | Station No. |
|-------------|---|--|----------------------|-----------------------|---------------------------|---|----------|-------------|
|             |   |  | Lime,<br>per cent    | Magnesia,<br>per cent |                           | 20 mesh                                   | 100 mesh |             |
| 8860        | <b>Conklin Limestone Co.,<br/>Canaan, Conn.</b> | Hartford: Production and Marketing Admin-<br>istration ..... | 36.29                | 13.20                 | 49.49                     | 99.8                                      | 55.6     | 8860        |
|             | Ground Limestone .....                          |  |                      |                       |                           |   |          |             |
| 7768        | <b>New England Lime Co.,<br/>Adams, Mass.</b>   | Hartford: Consolidated Cigar Corp. ....                      | 46.88                | 31.88                 | 78.76                     | .....                                     | .....    | 7768        |
|             | Hydrated Lime .....                             |  |                      |                       |                           |   |          |             |
| 8440        | <b>Manufacturer Unknown</b>                     | Simsbury: Cullman Bros., Inc. ....                           | 34.07                | 0.25                  | 34.32                     | .....                                     | .....    | 8440        |
|             | Land Plaster .....                              |  |                      |                       |                           |   |          |             |
| 9831        | Lime .....                                      | Danbury: Production and Marketing Adminis-<br>tration .....  | 30.69                | 21.65                 | 52.34                     | .....                                     | .....    | 9831        |

TABLE 8. ANALYSES OF SMALL PACKAGE FERTILIZERS<sup>1</sup>

| Station No. | Manufacturer and brand                                | Place of sampling | Per cent nitrogen |            |                       |                          |                            |             | Per cent phosphoric acid |       |                       | Per cent potash |       | Station No. |
|-------------|---|-------------------|-------------------|------------|-----------------------|--------------------------|----------------------------|-------------|--------------------------|-------|-----------------------|-----------------|-------|-------------|
|             |   |                   | In nitrates       | In ammonia | Organic water-soluble | Organic active insoluble | Organic inactive insoluble | Total       | Citrate insoluble        | Total | So-called "available" | As muriate      | Total |             |
|             | <b>Goulard &amp; Olena, Inc.,<br/>Skillman, N. J.</b> |                   |                   |            |                       |                          |                            |             |                          |       |                       |                 |       |             |
| 9904        | Dahlia, Lily, Gladiola Bulb Tuber 5-6-15              | New Haven .....   | 0.00              | 3.04       | 0.88                  | 1.28                     | 0.40                       | 5.60        | 0.43                     | 7.83  | 7.40                  | 17.01           | 17.01 | 9904        |
| 9824        | G & O Rose Food 7-8-5 .....                           | Middletown .....  | 1.49              | 2.98       | 0.82                  | 1.10                     | 0.25                       | <b>6.64</b> | 0.65                     | 10.28 | 9.63                  | 5.14            | 5.18  | 9824        |
| 9903        | Rhodo, Azalea, Camellia Food 3-20-3 ....              | New Haven .....   | 0.00              | 2.10       | 0.51                  | 0.64                     | 0.33                       | 3.58        | 0.38                     | 15.70 | <b>15.32</b>          | 8.20            | 8.20  | 9903        |
|             | <b>The Hy-Trous Corp.,<br/>Boston, Mass.</b>          |                   |                   |            |                       |                          |                            |             |                          |       |                       |                 |       |             |
| 9905        | Hy-Trous Liquid Fertilizer 4-8-4 .....                | New Haven .....   | 0.99              | 0.10       | 3.57                  | 0.00                     | 0.00                       | 4.66        | 0.25                     | 8.29  | 8.04                  | 0.00            | 4.86  | 9905        |

<sup>1</sup> Deficiencies are in bold face.

TABLE 9. ANALYSIS OF OTHER MISCELLANEOUS MATERIALS

| Station No. | Material                      | Moisture per cent | Ash per cent | Organic and volatile per cent | Nitrogen per cent | Phosphoric acid per cent |                       | Potash per cent | Other analytical items per cent   |
|-------------|-------------------------------|-------------------|--------------|-------------------------------|-------------------|--------------------------|-----------------------|-----------------|---|
|             |                               |                   |              |                               |                   | Total                    | So-called "available" |                 |   |
| 8241        | Alkemi Soil Activator .....   | 13.85             | 49.17        | 36.98                         | 1.41              | 10.74                    | 1.92                  | 1.38            | No nitrate or ammonia; sol. organic N 0.02; organic active insol. N 0.56; organic inactive insol. N 0.83.<br>Ammonia N 2.85; sol. organic N 1.12; SO <sub>2</sub> 19.21; Cl 0.04. |
| 8774        | Ammonium lignosulfonate ..... | .....             | 4.82         | .....                         | 3.96              | 0.04                     | 0.02                  | 0.19            |   |
| 8460        | Cotton bolls .....            | .....             | 2.69         | .....                         | .....             | .....                    | .....                 | 1.19            |   |
| 8461        | Cottonseed hulls .....        | .....             | 4.01         | .....                         | .....             | .....                    | .....                 | 1.55            |   |
| 340         | Humus .....                   | 56.20             | 10.46        | 33.34                         | 0.99              | 0.16                     | .....                 | 0.04            |   |
| 341         | Humus .....                   | 66.60             | 7.79         | 25.61                         | 0.71              | 0.12                     | .....                 | 0.03            |   |
| 9232        | Humus .....                   | 66.50             | 9.15         | 24.35                         | 1.12              | 0.10                     | 0.03                  | .....           |   |
| 9656        | Humus .....                   | 69.85             | 6.55         | 22.88                         | 0.63              | .....                    | .....                 | .....           |   |
| 6323        | Incinerator ash .....         | .....             | .....        | .....                         | 0.48              | 2.43                     | 1.08                  | 2.68            |   |
| 323         | Manure .....                  | 34.00             | .....        | .....                         | 1.19              | 0.99                     | .....                 | 0.84            |   |
| 9914        | Monoammonium phosphate .....  | .....             | .....        | .....                         | 12.00             | 64.10                    | 63.72                 | .....           |   |
| 9915        | Monoammonium phosphate .....  | .....             | .....        | .....                         | 12.03             | 64.30                    | 63.92                 | .....           |   |
| 65          | Organic fertilizer .....      | 43.75             | .....        | .....                         | 0.92              | 0.24                     | 0.12                  | 0.23            |   |
| 66          | Organic fertilizer .....      | 44.64             | .....        | .....                         | 0.92              | 0.34                     | 0.17                  | 0.12            |   |
| 67          | Peat .....                    | 42.10             | .....        | .....                         | 1.18              | 0.25                     | 0.09                  | 0.19            |   |
| 9977        | Plastic waste (plates) .....  | .....             | .....        | .....                         | 20.32             | .....                    | .....                 | .....           |   |
| 9978        | Plastic waste (powder) .....  | .....             | .....        | .....                         | 20.32             | .....                    | .....                 | .....           |   |

|      |                          |       |       |       |       |       |       |       |   |
|------|--------------------------|-------|-------|-------|-------|-------|-------|-------|---|
| 7902 | Poultry manure .....     | 13.83 | ..... | ..... | 2.72  | 3.65  | ..... | 2.46  |   |
| 7903 | Poultry manure .....     | 12.63 | ..... | ..... | 3.00  | 2.87  | ..... | 1.88  |   |
| 7904 | Poultry manure .....     | 8.27  | ..... | ..... | 1.82  | 1.78  | ..... | 1.16  |   |
| 9672 | Poultry manure .....     | ..... | ..... | ..... | ..... | ..... | ..... | 1.71  |   |
| 9673 | Poultry manure .....     | ..... | ..... | ..... | ..... | ..... | ..... | 0.93  |   |
| 9635 | Premier peat moss .....  | ..... | 2.07  | ..... | ..... | ..... | ..... | ..... | pH 3.22.  |
| 442  | Sewage sludge .....      | 1.46  | 89.93 | 8.61  | 0.44  | ..... | ..... | ..... |   |
| 443  | Sewage sludge .....      | 2.08  | 84.21 | 13.71 | 0.66  | ..... | ..... | ..... |   |
| 8797 | Sewage sludge .....      | 43.50 | 30.35 | 26.15 | 1.54  | 0.82  | 0.66  | 0.15  | Ammonia N 0.02; sol. organic N 0.17; organic active insol. N 0.38; organic inactive insol. N 0.97; Cl 0.04.   |
| 322  | Tankage .....            | 59.50 | ..... | ..... | 2.03  | 0.30  | ..... | 0.00  | Ammonia N 0.02; sol. organic N 1.09; organic active insol. N 0.27; organic inactive insol. N 0.65; NaCl 3.82. |
| 373  | Tankage .....            | 34.00 | ..... | ..... | 3.97  | ..... | ..... | ..... | NaCl 19.15.   |
| 8615 | Tankage .....            | 29.50 | ..... | ..... | 3.75  | 0.60  | 0.54  | 0.53  | Ammonia N 0.08; sol. organic N 2.90; organic active insol. N 0.24; organic inactive insol. N 0.53.            |
| 5443 | Tea waste and lime ..... | 20.46 | 26.22 | 53.32 | 1.94  | 0.65  | ..... | 1.49  |   |
| 399  | Tobacco stems .....      | 25.00 | ..... | ..... | 1.88  | 0.59  | 0.41  | 6.10  |   |
| 8446 | Tobacco stems .....      | 23.10 | ..... | ..... | 2.21  | 0.51  | ..... | 5.87  | Cl 4.98.  |
| 8798 | Tobacco stems .....      | ..... | ..... | ..... | 3.65  | 0.53  | ..... | 8.70  | Cl 1.33.  |
| 9053 | Tobacco stems .....      | ..... | ..... | ..... | 3.15  | 0.71  | ..... | 7.62  | Cl 1.37.  |
| 9538 | Tobacco stems .....      | ..... | ..... | ..... | 1.50  | 0.55  | ..... | 5.71  | Cl 1.58; CaO 9.39; MgO 1.12; SO <sub>3</sub> 4.77.  |
| 9205 | Waste material .....     | ..... | ..... | ..... | 9.08  | 8.63  | 5.95  | 0.76  | Ammonia N 0.09; sol. organic N 2.68; organic active insol. N 1.69.  |

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