

UNIVERSITY OF MISSOURI

COLLEGE OF AGRICULTURE

AGRICULTURAL EXPERIMENT STATION

BULLETIN 239

# Testing Fertilizers for Missouri Farmers; 1925



A high grade fertilizer on tomatoes greatly increases the profits. The two rows at the left were fertilized; those at the right were untreated.

COLUMBIA, MISSOURI

FEBRUARY, 1926

# Agricultural Experiment Station

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# TESTING FERTILIZERS FOR MISSOURI FARMERS; 1925

## Report of the Chemist

L. D. HAIGH

This report covers the record of service of the Missouri Agricultural Experiment Station on fertilizer control for the calendar year 1925, as provided by the Revised Statutes of Missouri. It includes the information gathered by the inspectors and the results found by the chemist from the analysis of the samples collected. Summaries of these results showing the standing of the fertilizer companies and information useful as a guide to buyers in judging quality of goods and reliability of producers are also given. The inspection work in both the spring and fall season included the collection of a total of 558 samples. Of these, 95 samples were obtained in the spring season, 32 towns in 15 counties being visited while 140 towns located in 54 counties were visited in the fall.

A review of the samples collected shows that the tendency to purchase a few well established brands continues to be the rule. For example, while many brands are offered for sale, these are usually nothing more than a variety of names for a few well known mixtures. The 558 samples represent 140 registered brands, but these represent only 54 different mixtures and distinct fertilizer substances. Most of these mixtures are "High Grade" that is, they contain 14 units or more of plant food. A few tons of the brands containing something less than 14 units are still sold, but the tonnage each year is steadily decreasing. The standard brands recommended for agricultural purposes in the state by the Missouri Agricultural Experiment Station are all high grade, and constitute by far the larger proportion of the tonnage sold in the state. The list of these recommended brands is as follows: acid phosphate, bone meal, 2-16-2, 2-14-2, 2-12-2, 2-12-6, 4-12-0, 0-14-4, 3-12-4, 3-8-6.

During the shipping season, the fertilizer manufacturers report the amount and kind of fertilizer which they ship into the state. This information is grouped together in Table 8, and shows the tonnage of each kind of fertilizer sold in each county of the state. A reclassification of the same information gives the tonnage of plant food units shown in Table 9.

The classifications in Table 8 are explained as follows: Under "Bone" is listed all the brands of raw bone meal and steam bone meal, but the list does not include the brand Half & Half; "Acid Phosphate" includes 16, 18 and 20 per cent acid phosphate; "High Grade" lists all fertilizer mixtures containing 14 units or more of plant food including the brand Half & Half; "Medium Grade" all mixtures containing less than 14 but more than 10 units; "Low Grade" all mixtures containing 10 units or less; "Miscellaneous" includes the simple fertilizer materials (with the exception of Bone Meal and Acid Phosphate), such as nitrate of soda, potash salts, ammonium sulphate, dried blood, dried manure, etc. At the close of Table 8 the amount of each kind of fertilizer used, in percentage of the total tonnage, is given. Comparing these percentages

with the corresponding figures for previous years\*; we observe that there has been a large increase in the proportionate use of high grade mixed fertilizer. In absolute tonnage there was an increased use of all kinds of fertilizer with the exception of low grade mixed and bone fertilizers. While the amount of fertilizer used in the spring of 1925 was over 3000 tons more than last year, this amount was proportionally less than that used the previous year. The fall tonnage, on the other hand, increased proportionally from 72 to more than 74 per cent of the total amount used.

### THE MISSOURI FERTILIZER LAW

Protection to the buyer of fertilizer in Missouri is afforded by the Missouri Fertilizer Law under three requirements. These are registration, labels, and affixing registration tags. Further provision under the law is made for inspection of stocks of fertilizer in the state to see that these requirements have been met. Samples of the fertilizer are drawn by the inspectors and submitted to the laboratories of the Missouri Agricultural Experiment Station for chemical analysis in order that the actual composition of the fertilizer sold may be compared with the guaranteed analysis as registered and placed on the sack or container.

The reading of the law as far as it concerns these matters is as follows:

#### REGISTRATION

SECTION 2. Before any commercial fertilizer or material to be used as a fertilizer, the selling price of which exceeds five dollars per ton, is sold, offered or exposed for sale in this state, the manufacturer, importer, corporation, company or person who sells or causes the same to be sold, offered or exposed for sale, shall file annually for registry with the Missouri Agricultural Experiment Station at Columbia, a statement which shall certify as follows: (1) The name, brand, or trade mark under which the fertilizer is sold; (2) the name and address of the manufacturer; (3) the guaranteed chemical composition of the fertilizer expressed in the following terms:

(a) Per centum of nitrogen, (b) per centum of available phosphoric acid and in the case of an undissolved bone, the per centum of insoluble phosphoric acid (c) per centum of potash soluble in distilled water. In case the composition is expressed in equivalent to ammonia, etc. in addition to the above it shall be clearly and unequivocally shown that these terms are used merely as equivalents and not used to represent additional plant food.

#### LABELING FERTILIZER

SECTION 4. Every person, corporation or company who shall sell, offer or expose for sale in this state any commercial fertilizer, the selling price of which exceeds five dollars per ton, shall stamp or affix to each package of such fertilizer in a conspicuous place on the outside thereof a plainly printed statement which shall recite and certify in effect and form the matters and things required to be set forth in the registered statement described in Section 2.

#### ATTACHING REGISTRATION TAGS

SECTION 4. ----- Every person, corporation or company selling or exposing for sale such fertilizer shall ----- attach to every package or quantity of such fertilizer sold or exposed for sale in a conspicuous place on the outside of such package a label or tag furnished by said Experiment Station showing that such brand of commercial fertilizer has been registered at said Experiment Station for that year.

\*Bul. 230 Mo. Agric. Exp. Sta. Table 1.

## INSPECTION AND ANALYSIS

SECTION 6. It shall be the duty of the Experiment Station to collect or cause to be collected from the open market each year one or more samples of each and every brand of fertilizer sold in this state during that year, and make or cause to be made a chemical analysis of the same; to publish each year a full and detailed report.....

SECTION 7. The director of the Experiment Station is hereby authorized in person or by deputy, to take samples of not more than one pound each for analysis from any lot or package of any commercial fertilizer which may be in the possession of any manufacturer or dealer in this state upon tender of the value of the same; and to obtain said samples, said director and his deputies are hereby authorized to enter upon the premises of said manufacturer or his agents or where said fertilizer is stored.

## VIOLATIONS OF THE MISSOURI FERTILIZER LAW

The following violations were found by the inspectors in 1925.

(1) **Violations with Respect to Registration.**—A brand labeled "Special Fertilizer" of the formula 3-12-4 from the American Agricultural Chemical Co. was found at the Farmers Elevator, Exeter, and at the Goodwin Co., Doniphan. This brand had not been registered for sale by the manufacturer.

Stocks of 3-27 Bone Meal had been sold by Armour Fertilizer Works to dealers in Palmyra, Sedalia, Nevada, Aurora, Foristell, and Seligman. This material had not been registered this year for sale.

Sacks of the brands Special Bone Meal and Half and Half sold by the Blood & Bone Fertilizer Co. to Jacob Bischoff, Wentworth, had not been registered by the above company.

Green Seal Agricultural Gypsum sold by the Centerville Gypsum Co., to the I. N. Fehr Milling Co., Trenton, had not been registered according to law by the seller before sale had been made.

Fern Food, a package fertilizer sold by the Central City Fertilizer Co. to Peck Dry Goods Co., Kansas City, had not been registered by the manufacturer.

Pulverized Sheep Manure, Cochrane Packing Co. manufacturer, had been sold to Isherwood Floral Co., Pleasant Hill; Farmers Exchange, Walnut Grove; and Springfield Seed Co. This company filed no registration of any kind for the sale of fertilizer in Missouri in 1925.

A quantity of Nitrate of Soda was found on hand at the warehouse of D. J. Wiley, Doniphan. This was sold by Read Phosphate Co., and had not been registered by them previous to sale.

Red Steer 1-12-1 was found on hand at the Culps Elevator Co., Warrensburg, and at the Farmers Produce Exchange, Lowry City. This was sold by Swift & Co., who had not registered this mixture under this brand name.

Ground Bone 2-27 sold by Floyd Plant Food Co. to Farmers Exchange, Jasper, had not been registered previous to sale by the manufacturer.

(2) **Violations with Respect to Labeling.**—A stock of Raw Bone Meal from Armour Fertilizer Works was found at the warehouse of G. B. Beeny & Sons, Sheldon. There were no labels on these sacks.

Soluble Bone Phosphate purchased by E. E. Norfleet, Eugene, and G. V. Sheets, Bloomfield; and Special Crop Grower purchased by Theo Libbert, Meta all from the Blood and Bone Fertilizer Co., were without labels as required by law. Also labels on brands from the same company sold to Barney Spillman and Jacob Bischoff, Wentworth, bore incomplete labels as to the guaranteed analysis.

Pulverized Sheep Manure at the warehouse of the Springfield Seed Co., had no labels attached to the sacks although printed labels had been sent separately by the manufacturer, the Cochrane Packing Co.

A stock of Bone and Phosphate Half & Half sold by Darling & Co. to Farmers Elevator and Exchange, Hunnewell, bore labels so indistinct that they could not be read.

M. F. A. 16 per cent Acid Phosphate sold to Farmers Coop. Assn., Union, and Steam Bone Meal to Producers Exchange, Eldon, by the Floyd Plant Food Co., were without labels. Another lot of Steam Bone Meal from the same company to the Farmers Cooperative Association, St. Clair, was labelled incompletely. Stocks of M. F. A. 18 per cent Acid Phosphate and 1-13-1 sold to Lohman Producers Exchange, Lohman, and to Edward Strasser, Winston, bore labels so poor that it was impossible to read them completely.

Nitrate of Soda at the warehouse of the Thompson Haywood Chemical Co., Kansas City, and the Heinrichsmeyer Feed Co., St. Louis, was without labels.

Prosperity Shrub Food at the warehouse of the Carman Supply Co., N. Kansas City, bore labels for guaranteed analysis which did not agree with their registrations as filed by the Prosperity Laboratories.

A stock of Red Steer 2-12-6 fertilizer sold to Peer Bros., Lockwood, did not show on the labels the percentage of potash. This was from Swift & Co., manufacturer. Also Sulphate of Ammonia from the same company at the St. Francois County Farm Bureau was not labeled.

(3) **Violations with Respect to the Use of Registration Tags.**—Raw Bone Meal sold by Armour Fertilizer Works to Edward F. Buckner did not have the registration tags attached to the sacks although these had been sent separately to the dealer.

The stock of Soluble Bone Phosphate sold by the Blood & Bone Fertilizer to G. V. Sheets, Bloomfield, was without registration tags attached to the sacks. A quantity of 20 per cent Acid Phosphate sold by the same company to the Farm Club Exchange, Owensville, and Pure Ground Bone to the Farmers Elevator and Exchange, Ewing, and Pure Ground Bone at the St. Francois County Farm Bureau, Farmington, carried the wrong registration tags.

Steamed Bone sold by Floyd Plant Food Co., to Producers Exchange, Eldon, carried the wrong registration tags. Another lot at the Farmers Exchange, Jasper, did not have the registration tags attached although these were supplied separately.

Stocks of Interstate 2-12-2 and Bone Meal and Phosphate fertilizer sold by Interstate Fertilizer Co., to Homer Kirk, Duenweg and to John Heckmaster, Diamond were without registration tags.

The following dealers in Kansas City had on hand 5 lb. and 10 lb. packages of Pulverized Sheep Manure from the Pulverized Manure Co. These bore no registration tags:—Jones Company, Harnden Seed Co., Mid West Seed Co., Planters Seed & Supply Co.

A shipment of 11 sacks of High Grade Acid Phosphate made to I. A. Young, Arcola, by Swift & Co. did not have the registration tags attached.

Nitrate of Soda on hand at the Thompson Hayward Chemical Co., and the Heinrichsmeyer Feed Co. were without registration tags.

Victory Plant Food from the Victory Fertilizer Co. was sold to Bentzen Floral Co. without registration tags.

Raw Bone Meal from Wilson & Co. sold to Omer Webb, Jasper, carried the wrong registration tags.

### VIOLETIONS SUMMARIZED

The foregoing violations are summarized in Table 1 as follows: Each brand of fertilizer inspected represents three legal requirements. Therefore multiplying the number of brands inspected for each company by three gives the total number of legal points represented. Dividing this into the number of violations found for the goods of this company and expressing the results in per cent gives the violation percentage.

TABLE 1.—SUMMARY OF VIOLATIONS EXPRESSED IN PERCENTAGE

Fertilizer company	Brands inspected	Total number requirements represented	Number violations found	Violation percentage
American Agric. Chemical Co.....	107	321	2	0.6
Arkansas Fertilizer Co.....	2	6	0	0.0
Armour Fertilizer Works.....	96	288	8	2.8
Ash Grove Lime and Portland Cement Co.....	2	6	2	33.3
Blood & Bone Fertilizer Co.....	30	90	8	8.9
Calumet Fertilizer Co.....	4	12	0	0.0
Cochrane Packing Co.....	3	9	4	44.4
Cudahy Packing Co.....	23	69	0	0.0
Darling & Co.....	72	216	5	2.3
Empire Guano Co.....	5	15	0	0.0
Floyd Plant Food Co.....	67	201	7	3.5
Interstate Fertilizer Co.....	9	27	5	18.5
Nitrate Agencies Co.....	2	6	4	66.6
Pulverized Manure Co.....	6	18	4	22.2
Prosperity Laboratories.....	3	9	1	11.1
Read Phosphate Co.....	11	33	1	3.0
Swift & Co.....	89	267	5	1.9
Virginia Carolina Chemical Co.....	8	24	0	0.0
Wilson & Co.....	3	9	1	11.1
Total.....	542	1626	57	3.5

### IMPORTANT SUGGESTIONS TO FERTILIZER BUYERS

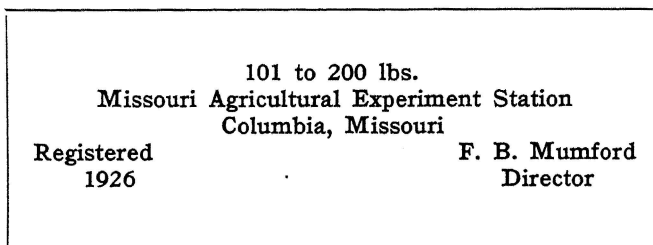
The information in this report assembled in tables and discussed in these paragraphs is presented in order that you may be able to judge the reliability of the goods you buy. Table 5 shows the composition of the brands of the different companies, as compared with their guarantees. Table 4 summarizes these results as far as deficient analyses are concerned and Table 2 summarizes the values found as compared with the guaranteed values.

Your careful attention to the legal requirements for selling fertilizer is important in guaranteeing to you the reliability of the goods. Note the following points:

(1) Buy only goods from companies who have filed their registrations and buy only the brands which are registered. See Table 7 for this authorized

list of companies and brands. If you do not find it, write to the Experiment Station for information before you buy.

(2) When the goods you have purchased arrives from the factory at your station see that each and every sack bears a red registration tag reading as follows:



If the fertilizer is contained in 100 lb. sacks the legend at the top will read 1-100 lbs. This tag should be attached to the outside of the sack where it is plainly visible. Tags wholly or partially hidden within the folds of the sacks are not meeting the intent of the law which requires that they be attached "in a conspicuous place on the outside."

**(NOTE.—No fertilizer can be sold in Missouri without these registration tags. Dealers are cautioned in handling these sacks out of the car to the warehouse to avoid tearing these tags from the sacks. When torn off they must be replaced. If the tags are not on the sacks they must be put on before the sacks are sold. Do not unload a carload of sacks unless these tags are on hand.)**

Farmers buying fertilizer direct from the dealer's warehouse may get fertilizer with white tags bearing a date of a previous year. If the fertilizer has not been damaged by water it is just as good to use as this years stock. Accept no fertilizer which does not have a registration tag on every sack you buy.

(3) Read the labels. The value of the materials you are buying will be indicated by the figures under guaranteed analysis. Any buyer of fertilizer can learn all he needs to know about the goods by giving the labels a careful reading. Do not accept any goods on which the labels are missing or which cannot be read.

(4) In case of any irregularity connected with your purchase notify the Experiment Station of the name of the fertilizer company of and the other information on the label of the sacks.

### PACKAGE FERTILIZER

A large part of the fertilizer used in Missouri is sold to dealers and farmers in sacks of 100 to 125 lbs. each. Fertilizer is also sold in packages for home use on flowers, potted plants, lawns and gardens, by retail seedsman, florists and others. These packages vary in size from 1 ounce to 50 lbs. each and retail at prices varying from 50 cents to \$2.00 per pound. Most of these package fertilizers are brought into the state by manufacturers outside of Missouri and it is highly important that the retailer understand our state law requirement before laying in his stock of these goods.



**MISSOURI SELLERS OF PACKAGE FERTILIZER, ATTENTION!**

The Missouri Fertilizer Law covers the sale of package fertilizer in the state under the regular three requirements, namely—registration, labelling and attaching the tags.

First the dealer should assure himself that the manufacturer of the package fertilizer he is offering to his customers has been registered. As this report goes to press the following companies have registered fertilizer to be sold in Missouri in packages during the present year:

- Earp-Thomas Cultures Corporation, Long Island City, N. Y.
- Excell Laboratories, Chicago, Ill.
- Flower City Plant Food Co., Rochester, N. Y.
- Nitragin Company, Milwaukee, Wis.
- Oyama Products Co., Newburg, N. Y.
- Pulverized Manure Co., Chicago, Ill.
- C. F. Schumaker Fertilizer Co., St. Louis, Mo.
- Smith Agricultural Chemical Co., Columbus, Ohio
- Swift & Co. (Fertilizer Works), St. Louis, Mo.
- Virginia-Carolina Chemical Co., Memphis, Tenn.

Package fertilizer bearing the name of any other company cannot be placed on the market in Missouri unless such company has filed registration for same since the printing of this report. Information concerning any company may be secured by addressing an inquiry to the chemist, Experiment Station, Columbia, Mo.

Having assured himself that the manufacturer has registered, the dealer should examine his packages for the registration label. This label reads as follows:

<b>Registered</b>
Missouri Agricultural Experiment Station
Columbia, Mo. <b>F. B. Mumford</b> Director

When fertilizer is sold in 25 and 50 pound packages a registration tag in the form of a shipping tag is generally used. The reading of this tag is the same as the label.

Package fertilizer which does not comply with the above requirements must not be offered for sale in Missouri. Every dealer can protect himself from having such goods foisted upon him by manufacturers and their salesmen by insisting that these requirements be met before any purchase is made.

Anyone desiring further information concerning package fertilizer is invited to write to the director or chemist of the Missouri Agricultural Experiment Station.

**COMPARATIVE VALUATIONS**

It is customary to select unit values each year for the plant food constituents in order that the value of the plant food in any fertilizer sample found on analysis may be compared with the value of the brand as guaranteed. The

unit value selected for each constituent may be defined as the average delivered cost in the state of one per cent of the constituent in question, contained on the average in one ton of the regular simple carriers of this constituent, when sold in car load lots.

A full discussion of the selection of these values appears in Bulletin 230 of this Station to which the reader is referred. Suffice it to say that the values selected for this report are based upon prices which prevailed during 1925 for fertilizer materials. In using them for calculation of values for the calendar year 1926, consideration must be given to any rise or fall of prices for any of these constituents since that time.

The values selected for use in this report are as follows:

Total Nitrogen.....	\$4.25 per unit.
Total Phosphoric Acid from bone.....	1.00 per unit.
Insoluble Phosphoric Acid from bone (when so guaranteed in registration.).....	0.80 per unit.
Available Phosphoric Acid (all sources).....	1.35 per unit.
Potash, water soluble.....	1.10 per unit.

### ESTIMATING FERTILIZER VALUES

A value of \$4.25 for one unit of Total Nitrogen means the value of the nitrogen in a ton of fertilizer which contains one per cent of nitrogen. If now we multiply \$4.25 by the percentage of nitrogen in the fertilizer we obtain the total value of the nitrogen in a ton of this fertilizer. For example a 2-12-6 fertilizer is guaranteed to contain 1.65 per cent Nitrogen (2 per cent ammonia) 12 per cent of Available Phosphoric Acid, and 6 per cent of Potash. Its guaranteed value is calculated as follows:

1.65 times \$4.25 equals	\$7.01
12 times 1.35 equals	16.20
6 times 1.10 equals	6.60

Total guaranteed value equals \$29.81

In Table 5 (page 16) we find sample 6-20 which is a 2-12-6 fertilizer. This was found on analysis to contain 1.67 per cent Nitrogen, 12.92 per cent Available Phosphoric Acid, and 5.98 per cent potash. Its found value can now be calculated by multiplying each of these percentages into the unit values as follows:

1.67 times \$4.25 equals	\$ 7.10
12.92 times 1.35 equals	17.44
5.98 times 1.10 equals	6.85

Total actual value found .....\$31.12

Therefore this fertilizer had a guaranteed value of 29.81 and a found value of \$31.12 or \$1.31 more value than it was guaranteed to contain.

The above illustrates the manner in which the guaranteed and found values of Table 5 are calculated.

Table 2 summarizes the guaranteed and found values of Table 5 for each manufacturer. 21.8 per cent of the samples appearing in this table are deficient

in values from a few cents to a few dollars each. The comparison with previous years is shown below:

Year	Below guarantee in value
1921	10.2 per cent.
1922	16.7 per cent.
1923	15.6 per cent.
1924	23.4 per cent.
1925	21.8 per cent.

TABLE 2.—VARIATIONS IN VALUE FROM MANUFACTURERS GUARANTEE

Manufacturer	Number of samples analyzed	Below Guarantee		Average loss* per ton (deficient samples)	Average gain† or loss per ton (all samples)
		Number	Per cent		
American Agricultural Chemical Co., A. A. C. Brands.....	33	7	21.2	0.79	1.36
American Agricultural Chemical Co., Boarshead Brands.....	6	0	0.0	0.00	0.96
American Agricultural Chemical Co., Empire Brands.....	33	2	6.0	0.27	0.95
American Agricultural Chemical Co., Horseshoe Brands.....	17	2	11.8	0.07	0.75
Arkansas Fertilizer Co.....	2	1	50.0	2.75	-0.43
Armour Fertilizer Works, Armour Brands..	7	1	14.3	0.26	0.51
Armour Fertilizer Works, Big Crop Brands	74	22	29.8	1.10	0.67
Armour Fertilizer Works, Tuscarora Brands.....	7	1	14.3	0.70	0.43
Ash Grove Lime and Portland Cement Co.	2	0	0.0	0.00	0.61
Blood & Bone Fertilizer Co., Steerhead Brands.....	30	6	20.0	1.17	1.11
Calumet Fertilizer Co.....	4	2	50.0	0.58	1.52
Cochrane Packing Co.....	3	3	100.0	1.66	-1.66
Cudahy Packing Co.....	21	7	33.3	1.30	1.44
Darling & Co.....	62	14	22.6	1.22	0.62
Empire Guano Co.....	5	0	0.0	0.00	3.59
Floyd Plant Food Co., F. P. F. Brands....	22	4	18.2	1.34	2.40
Floyd Plant Food Co., M. F. A. Brands....	41	17	41.5	1.10	0.19
Interstate Fertilizer Co.....	9	1	11.1	0.88	1.42
Nitragin Co.....	2	0	0.0	0.00	6.56
Nitrate Agencies Co.....	2	1	50.0	0.08	0.62
Prosperity Laboratories.....	3	1	33.3	2.79	2.11
Pulverized Manure Co.....	2	0	0.0	0.00	2.79
Read Phosphate Co.....	11	0	0.0	0.00	2.31
Swift & Co.....	81	12	14.8	0.48	0.95
Virginia-Carolina Chemical Co.....	8	2	25.0	1.17	0.74
Wilson & Co.....	3	1	33.3	0.85	5.88
Total & Average.....	490	107	21.8	1.03	1.02

\*This average is for those samples only, which have a found value less than the guaranteed value per ton.

†This is the average for all the samples of each company and indicates the value in excess of the guarantee which each manufacturer furnished on the average in each ton sold.

If all the samples from all the companies are considered together, we find that the value of plant food furnished per ton was on the average \$1.02 in excess of the value guaranteed.

### CHEMICAL ANALYSIS

The result of chemical analysis on the samples collected in the work of inspection during the calendar year of 1925 are shown in detail in Table 5. The samples of each fertilizer company are grouped together and the results for each constituent found on analysis are placed side by side with the guarantees for these materials. Results running under the guarantee are printed with bold face type. The use of the bold faced type is merely to call the attention to each discrepancy, large or small. It is not intended necessarily to black-list the sample in question. Some of the discrepancies are so slight that they are insignificant.

In Table 4 the deficiencies shown in Table 5 are summarized for each company. As compared with the previous year these results show an improvement as follows:

	Percentage of Deficiencies	
	1924	1925
Nitrogen.....	38.4	35.3
Total Phosphoric Acid (In bone).....	15.0	13.2
Available Phosphoric Acid.....	26.4	23.1
Potash.....	41.5	30.9
All Determinations.....	32.0	27.7

From time to time during the year samples of fertilizers are received from buyers with the request that these be analyzed. Such samples are usually obtained by taking a handful from one or more sacks in the lot and results found on analysis often show a wide departure from the guarantee. Such samples cannot be considered reliable in judging the value of the fertilizer in question, because the sample is not likely to be a true average of lot as purchased. Report of samples of this kind received during 1925 will be found at the end of Table 5 under the heading "Miscellaneous Samples."

### AVAILABILITY OF NITROGEN

All of the samples were tested for the availability of the nitrogen which they contain, by chemical methods. This consists in determining how much of the nitrogen present was soluble in water, and how much of the water insoluble nitrogen could be made soluble by digestion with neutral potassium permanganate solution. These two soluble parts of the total nitrogen present constitute the active (available) nitrogen.

The rules for judging the quality of the nitrogen, and which are used as a guide in this report, are published by the Association of Official Agricultural Chemists\*, and read as follows:

(a) The nitrogen shall be passed as satisfactory in mixed fertilizers if more than two-thirds of the total nitrogen guaranteed is water soluble.

(b) The water insoluble nitrogen in mixed fertilizers showing activity below eighty per cent by the neutral permanganate method shall be classed as inferior; water insoluble nitrogen activity eighty per cent or above by the neutral permanganate method shall be passed without adverse criticism.

\*J. Off. Agric. Chemists VII, 217 (a); VIII 250 (b).

In accordance with the above, all samples which showed that less than two-thirds (67 per cent) of the total nitrogen was soluble in water, were submitted to the neutral permanganate test to determine the activity of the water insoluble nitrogen.

In Table 5, in the nitrogen column, there will be found the amount of water soluble nitrogen contained in the sample expressed in per cent of the total nitrogen present. These results on water soluble are summarized in Table 3, and the summarized results showing the active portion of the water insoluble nitrogen are added to obtain the total nitrogen activity.

Table 5 thus shows that eleven out of the fifteen companies exhibit nitrogen in their mixed fertilizers, having a total activity of 80 per cent or higher. For bone fertilizers the nitrogen appears to show a total activity of 90 per cent or more in nearly every case.

The details of the tests on nitrogen activity are exhibited in Table 3A. A study of these figures shows that most of the brands of the mixed fertilizers have more than two-thirds of their nitrogen in the water soluble form. In a number of cases the water insoluble nitrogen of the mixed fertilizers is of inferior quality, testing as it does below 80 in activity.

When the water insoluble nitrogen in the mixed fertilizers is well above 80 it appears to resemble the results on the bone samples and is often an indication that the source of the insoluble nitrogen in these mixed fertilizers is from bone.

A study of these results would indicate that a large amount of bone fertilizers sold in Missouri actually carry some nitrogen added from other sources. Natural undissolved or steamed bone contains very little water soluble nitro-

TABLE 3.—SUMMARY OF DETERMINATIONS OF NITROGEN ACTIVITY (AVAILABILITY)

Manufacturer	Mixed Fertilizers			Bone Fertilizer		
	Nitrogen activity water soluble	Nitrogen activity perman soluble	Total nitrogen activity	Nitrogen activity water soluble	Nitrogen activity perman soluble	Total nitrogen activity
American Agricultural Chemical Co.....	82.10	13.11	95.21	19.47	72.08	91.55
Armour Fertilizer Works.....	79.22	17.54	96.76	29.88	60.76	90.64
Blood & Bone Fertilizer Co. ...	55.90	24.36	80.26	11.14	81.96	93.10
Calumet Fertilizer Co.....	47.52	49.07	96.59	15.64	75.97	91.61
Cudahy Packing Co.....	36.08	58.96	95.04	22.57	70.42	92.99
Darling & Co.....	83.72	8.42	92.14	19.74	72.64	92.38
Empire Guano Co.....	21.84	47.18	69.02	13.64	68.91	82.55
Floyd Plant Food Co., (F. P. F.).....	58.62	18.52	77.14	18.72	75.92	94.64
Floyd Plant Food Co., (M. F. A.).....	54.09	22.58	76.67	34.84	59.73	94.57
Interstate Fertilizer Co. ....	55.19	28.18	84.37	26.71	69.33	96.04
Phosphated Manure Co.....	6.96	49.50	56.46	-----	-----	-----
Prosperity Laboratories.....	70.34	25.95	96.29	-----	-----	-----
Read Phosphate Co.....	48.16	32.90	81.06	-----	-----	-----
Swift & Co.....	76.14	11.18	87.32	20.13	70.42	90.55
Virginia-Carolina Chemical Co.....	65.56	25.50	91.06	22.72	71.48	94.20
Wilson & Co.....	-----	-----	-----	24.02	64.29	88.31
Averages of all companies....	72.92	16.41	89.33	22.69	69.28	91.97

TABLE 3A—DETAILS OF DETERMINATIONS OF NITROGEN ACTIVITY

(Page 14)

Manufacturer	Mixed Fertilizer						Bone Fertilizer					
	Water soluble nitrogen			Water insol. nitrogen			Water soluble nitrogen			Water insol. nitrogen		
	Percent of total nitrogen	No. tested	No. below 67	Average activity	No. tested	No. below 80	Percent of total nitrogen	No. tested	No. below 67	Average activity	No. tested	No. below 80
American Agric. Chemical Co.---	82.10	41	3	73.25	3	3	19.47	11	11	89.56	11	0
Armour Fertilizer Works -----	79.22	39	5	84.42	5	2	29.88	20	20	86.65	20	3
Blood & Bone Fertilizer Co.-----	55.90	15	13	55.24	13	13	11.14	2	2	92.24	2	0
Calumet Fertilizer Co. -----	47.52	2	2	93.50	2	0	15.64	1	1	90.06	1	0
Cudahy Packing Co.-----	36.08	3	3	92.24	3	0	22.57	13	13	90.95	13	0
Darling & Co.-----	83.72	20	1	51.72	1	1	19.74	17	17	90.50	17	1
Empire Guano Co.-----	21.84	2	2	60.36	2	1	13.64	2	2	79.79	2	1
Floyd Plant Food Co., (F. P. F.)	58.62	6	5	44.76	5	5	18.72	12	12	93.41	11*	0
Floyd Plant Food Co. (M. F. A.)	54.09	8	7	49.16	7	7	34.84	5	5	91.66	5	0
Interstate Fertilizer Co.-----	55.19	4	4	62.89	4	4	26.71	3	3	94.60	3	0
Phosphated Manure Co.-----	5.45	1	1	50.96	1	1	-----	-----	-----	-----	-----	-----
Prosperity Laboratories -----	70.34	3	1	87.50	1	0	-----	0	-----	-----	0	-----
Read Phosphate Co. -----	48.16	4	3	63.46	3	2	-----	0	-----	-----	0	-----
Swift & Co.-----	76.14	36	11	46.87	11	11	20.13	14	14	88.17	14	1
Virginia-Carolina Chemical Co.---	65.56	3	2	74.05	2	2	22.72	2	2	92.50	2	0
Wilson & Co. -----	-----	0	-----	-----	0	-----	24.02	2	2	84.61	2	0
Totals and Averages -----	72.92	186	62	60.60	62	51	22.69	104	104	89.62	103	6

\*One omitted through oversight.

gen and the large amounts found in most cases indicate a mixture of the bone with acid materials as in Half and Half or the addition of water soluble nitrogen as sodium nitrate and ammonium sulphate. This is no detriment to the fertilizing value of the bone goods, but reveals the fact that the material is not pure bone. Some samples of bone however, appear from these data to be pure bone (See Table 5).

The water insoluble nitrogen in the bone fertilizers runs true as bone nitrogen, testing as it does well above 80 on the average in all cases.

Considering the samples as a whole it will be seen that the value of the nitrogen of the mixed fertilizers lies mostly in the large proportion which is water soluble; in bone fertilizers, however, it is due to the high availability of the water insoluble portion.

### LIMESTONE FOR AGRICULTURAL USE

Much interest is manifested throughout the state in the use of crushed limestone for agricultural purposes as a preliminary treatment necessary for the growing of legumes. The acid condition of the soil which is largely responsible for poor growth of clover is corrected when limestone of good quality is applied at the rate of one to three tons to the acre. It is important to avoid the use of stone containing such inert material and many samples are sent to the Experiment Station Laboratories to determine their quality for agricultural use. When samples are sent for this purpose they should be accompanied by information showing the location where the rock is found, by range, township, section and quarter, also distance and direction from the nearest town (giving name of the town).

Table 6 in this report gives the results on the 727 samples of limestone tested during the year 1925. A pure limestone would test 100 per cent "calcium carbonate equivalent," while a limestone containing five per cent of inert material would test 95 per cent "calcium carbonate equivalent." Much of the limestone in Missouri contains magnesium carbonate which has a higher acid neutralizing power, weight for weight, than true limestone (calcium carbonate). Therefore these stones often test over 100 per cent. Examples of this will be found in the results in Table 6.

TABLE 4.—SUMMARY OF TOTAL AND DEFICIENT FERTILIZER CONSTITUENTS FROM TABLE 5.

Manufacturer	Nitrogen			Total Phosphoric Acid			Available Phosphoric Acid			Potash			All Analyses		
	Total		Deficient	Total		Deficient	Total		Deficient	Total		Deficient	Total		Deficient
	No.	No.		Per cent	No.		No.	Per cent		No.	No.		Per cent	No.	
American Agricultural Chemical Co., A. A. C. Brands.....	25	14	56.0	11	1	9.1	21	3	14.3	13	4	30.8	70	22	31.4
American Agricultural Chemical Co., Boarshead Brands.....	2	0	0.0	0	0	---	6	0	0.0	3	0	0.0	11	0	0.0
American Agricultural Chemical Co., Empire Brands.....	15	5	33.3	0	0	---	33	0	0.0	17	4	23.6	65	9	13.8
American Agricultural Chemical Co., Horseshoe Brands.....	11	4	36.4	0	0	---	17	2	11.8	12	4	33.3	40	10	25.0
Arkansas Fertilizer Co.....	0	0	---	0	0	---	2	1	50.0	0	0	---	2	1	50.0
Armour Fertilizer Works, Armour Brands.....	7	4	57.1	0	0	---	7	2	28.6	7	1	14.3	21	7	33.3
Armour Fertilizer Works, Big Crop Brands.....	49	24	49.0	19	5	26.3	55	16	29.1	30	2	6.7	153	47	30.7
Armour Fertilizer Works, Tuscarora Brands.....	3	2	66.7	0	0	---	7	2	28.6	4	1	25.0	14	5	35.6
Ash Grove Lime & Portland Cement Co.....	0	0	---	0	0	---	0	0	---	2	0	0.0	2	0	0.0
Blood and Bone Fertilizer Co.....	17	4	23.3	1	1	100.0	29	6	20.7	15	9	60.0	62	20	32.2
Calumet Fertilizer Co.....	3	2	66.7	0	0	---	4	2	50.0	3	3	100.0	10	7	70.0
Cochrane Packing Co.....	3	1	33.3	0	0	---	3	3	100.0	3	0	0.0	9	4	44.4
Cudahy Packing Co.....	16	2	12.5	6	0	0.0	15	8	53.3	3	2	66.7	40	12	30.0
Darling & Co.....	37	18	48.7	10	0	0.0	52	8	15.4	22	11	50.0	121	37	30.6
Empire Guano Co.....	4	2	50.0	1	0	0.0	4	0	0.0	2	1	50.0	11	3	27.3
Floyd Plant Food Co., F. P. F. Brands.....	18	5	27.8	12	2	16.7	10	3	30.0	6	2	33.3	46	12	26.1
Floyd Plant Food Co., M. F. A. Brands.....	13	3	23.0	2	0	0.0	39	17	43.6	12	2	16.7	66	22	33.3
Interstate Fertilizer Co.....	7	0	0.0	0	0	---	9	4	44.4	5	2	40.0	21	6	28.6
The Nitragin Co.....	2	0	0.0	0	0	---	2	0	0.0	2	1	50.0	6	1	16.6
Nitrate Agencies Co.....	2	1	50.0	0	0	---	0	0	---	0	0	---	2	1	50.0
Prosperity Laboratories.....	3	2	66.7	0	0	---	3	1	33.3	3	1	33.3	9	4	44.4
Reed Phosphate Co.....	5	0	0.0	0	0	---	10	0	0.0	4	0	0.0	19	0	0.0
Swift & Co.....	51	12	23.5	12	1	8.3	69	13	18.8	39	15	38.5	171	41	24.0
Virginia Carolina Chemical Co.....	5	1	20.0	1	0	0.0	7	2	28.6	3	0	0.0	16	3	18.8
Wilson & Co.....	2	0	0.0	1	0	0.0	2	1	50.0	0	0	---	5	1	20.0
Total.....	300	106	35.3	76	10	13.2	406	94	23.1	210	65	30.9	992	275	27.7





TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925

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Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
	<b>American Agricultural Chemical Co. St. Louis, Mo. A. A. C. Brands</b>		Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
6-1	20% Phosphate	Farmer's Exchange, Exeter					22.48	0.50	1.52	20.00	20.96			27.00	28.30
10-1	20% Phosphate	Schubert Merc. Co., Russellville					24.46	0.50	1.41	20.00	20.05			27.00	27.07
10-2	20% Phosphate	Farmer's Elevator Co., Harrisonville													
							22.76	0.50	1.27	20.00	21.49			27.00	29.01
10-5	20% Phosphate	Grant Hannon, Maysville					23.07	0.50	1.64	20.00	21.43			27.00	28.93
10-6	20% Phosphate	The Farmer's Elevator Co., Pilot Grove													
							22.24	0.50	1.44	20.00	20.80			27.00	28.08
10-7	20% Phosphate	Wm. Biellier, Republic					21.46	0.50	1.25	20.00	20.21			27.00	27.28
10-9	20% Phosphate	Stolte & Graves, Withers Mill					23.02	0.50	1.32	20.00	21.70			27.00	29.30
10-501	20% Phosphate	Hunter Mercantile Co., Bismarck					22.21	0.50	1.68	20.00	20.53			27.00	27.72
6-2	Big Boll Fertilizer	Goodwin Co., Doniphan	1.65	1.71	80.70		14.17	0.50	1.77	12.00	12.40	2.00	1.95	24.41	26.16
6-3	Bone Meal	Banner Roller Mills, Salem	1.65	1.66	14.45	27.00	28.20							34.01	35.26
6-4	Bone Meal	J. B. Bayer & Son, Potosi	1.65	1.92	12.50	27.00	29.42							34.01	37.58
10-10	Bone Meal	Wilhite Seed Co., Columbia	1.65	1.54	31.81	27.00	31.21							34.01	37.76
10-11	Bone Meal	East Lynne Hdwe. Co., East Lynne	1.65	1.42	23.24	27.00	29.14							34.01	35.18
10-12	Bone Meal	Turney Elevator Co., Turney	1.65	1.90	14.04	27.00	26.61							34.01	34.69
10-14	Bone Meal	Farmer's Elevator Co., Braymer	1.65	1.97	21.42	27.00	30.47							34.01	38.84
10-15	Bone Meal	Missouri Marketing Assn., St. Joseph	1.65	1.58	25.31	27.00	30.57							34.01	37.29
10-16	Bone Meal	Farmer's Coop. Co., Windsor	1.65	1.79	27.37	27.00	31.46							34.01	39.07
10-17	Bone Meal	L. A. Smith, Clarence	1.65	1.64	21.34	27.00	30.70							34.01	37.67
10-19	Fruit and Grass Fertilizer	Missouri Marketing Assn., St. Joseph					7.76	0.50	0.71	7.00	7.15	3.00	3.44	44.20	43.43
6-5	Nitrate of Soda	Farmer's Exchange, Exeter	15.00	14.89	100.00									63.75	63.28

10-20	Pure Raw Bone	Charles H. Honold, Beaufort	3.29	4.16	15.86	20.00	21.07								33.98	38.75
10-21	Pure Raw Bone	Missouri Marketing Assn., St. Joseph	3.29	3.94	6.85	20.00	20.00								33.91	36.75
6-20	Tobacco Grower	B. F. Julian, Marshfield	1.65	1.67	55.69		14.32	0.50	1.40	12.00	12.92	6.00	5.98	29.88	31.12	
10-22	Truck Fertilizer	East Lynne Hdwe. Co., East Lynne	2.47	2.23	89.67		9.25	0.50	0.75	8.00	8.50	6.00	6.05	27.90	27.62	
6-6	Truck Fertilizer	Goodwin Co., Doniphan	2.47	2.21	86.88		9.61	0.50	1.07	8.00	8.54	6.00	5.96	27.90	27.48	
6-7	Wheat & Clover Grower	Banner Roller Mills, Salem	1.65	1.62	90.12		17.99	0.50	1.06	16.00	16.93	2.00	2.05	30.81	32.01	
6-8	Wheat & Clover Grower	R. Smith, Glen Allen	1.65	1.62	91.98		18.11	0.50	1.25	16.00	16.86	2.00	2.14	30.81	32.00	
10-23	Wheat & Clover Grower	W. F. Knehans, Owensville	1.65	1.55	85.80		16.56	0.50	0.85	16.00	15.71	2.00	2.15	30.81	30.17	
10-24	Wheat & Clover Grower	E. G. Karstedt, Rosebud	1.65	1.46	90.41		16.38	0.50	0.53	16.00	15.85	2.00	2.04	30.81	29.85	
10-25	Wheat & Clover Grower	Charles H. Honold, Beaufort	1.65	1.66	89.75		16.80	0.50	0.73	16.00	16.07	2.00	2.14	30.81	31.10	
10-26	Wheat & Clover Grower	Cameron Coop. Elevator Assn. Cameron	1.65	1.40	93.57		16.23	0.50	1.01	16.00	15.22	2.00	2.06	30.81	28.77	
10-27	Wheat & Clover Grower	Missouri Marketing Assn., St. Joseph	1.65	1.50	92.88		17.58	0.50	1.06	16.00	16.52	2.00	2.18	30.81	31.08	
10-502	Wheat & Clover Grower	Hunter Mercantile Co., Bismarck	1.65	1.65	88.48		17.04	0.50	0.91	16.00	16.13	2.00	1.98	30.81	30.97	
	<b>Boarshead Brands</b>															
6-9	16% Phosphate	L. E. Dyer, Mt. Vernon					18.80	0.50	1.50	16.00	17.30			21.60	23.36	
10-28	16% Phosphate	Wm. Biellier, Republic					16.79	0.50	0.45	16.00	16.34			21.60	22.06	
10-29	16% Phosphate	Stolte & Graves, Withers Mills					18.06	0.50	2.04	16.00	16.02			21.60	21.63	
10-30	Grain Grower	Wm. Biellier, Republic					14.83	0.50	1.99	12.00	12.84	4.00	4.05	20.60	21.79	
10-31	World of Good Corn & Wheat Grower	J. B. Noel, Curryville	1.65	1.78	85.96		14.05	0.50	1.57	12.00	12.48	2.00	2.34	25.41	26.99	
10-33	World of Good Corn & Wheat Grower	Milbank & Scampton, Moberly	1.65	1.66	83.13		14.44	0.50	2.00	12.00	12.44	2.00	2.10	25.41	26.16	
	<b>Empire Brands</b>															
6-10	16% Phosphate	Banner Roller Mills, Salem					19.23	0.50	2.24	16.00	16.99			21.60	22.94	
6-11	16% Phosphate	Goodwin Co., Doniphan					19.50	0.50	1.57	16.00	17.93			21.60	24.21	
10-35	16% Phosphate	E. G. Karstedt, Rosebud					18.02	0.50	1.67	16.00	16.35			21.60	22.07	
10-39	16% Phosphate	East Lynne Hardware Co., East Lynne					18.45	0.50	1.69	16.00	16.76			21.60	22.63	
10-40	16% Phosphate	Farmer's Elevator Co., Archie					18.06	0.50	1.68	16.00	16.38			21.60	22.11	

<sup>1</sup>Not actually determined.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

(Page 20)

Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton		
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd	
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent					Per Cent
10-42	16% Phosphate.....	Kidder Produce & Merc. Co., Kidder.....				18.98	0.50	2.90	16.00	16.08					21.60	21.71
10-43	16% Phosphate.....	Wilhite Seed Co., Columbia.....				18.96	0.50	2.56	16.00	16.40					21.60	22.14
10-44	16% Phosphate.....	Wm. Pollock Milling & Elev. Co., Mexico.....				18.97	0.50	2.36	16.00	16.61					21.60	22.42
10-45	16% Phosphate.....	Nick Schmit, Mexico.....				19.42	0.50	2.40	16.00	17.02					21.60	22.98
10-46	16% Phosphate.....	J. A. Rodgers, Bowling Green.....				18.05	0.50	1.36	16.00	16.69					21.60	22.53
10-47	16% Phosphate.....	Cameron Coop. Elevator Assn., Cameron.....				18.58	0.50	2.32	16.00	16.26					21.60	21.95
10-49	16% Phosphate.....	Edwards Bros. Produce Co., Win- ston.....				17.64	0.50	0.99	16.00	16.65					21.60	22.48
10-50	16% Phosphate.....	Pettis County Farm Bureau, Se- dalia.....				18.68	0.50	1.48	16.00	17.20					21.60	23.22
10-51	16% Phosphate.....	Farmer's Coop. Co., Windsor.....				19.29	0.50	2.81	16.00	16.48					21.60	22.25
10-52	16% Phosphate.....	W. A. Holstein, Bolivar.....				16.89	0.50	0.50	16.00	16.39					21.60	22.13
10-53	16% Phosphate.....	L. A. Smith, Clarence.....				17.36	0.50	1.30	16.00	16.06					21.60	21.68
6-12	Bone Black Fertilizer.....	Gurley Bros., Aurora.....	1.65	1.66	59.04	10.59	0.50	1.22	8.00	9.37	2.00	2.06	20.01	21.98		
10-55	Bone Black Fertilizer.....	W. H. Yancey, La Belle.....	1.65	1.77	85.31	10.05	0.50	1.52	8.00	8.53	2.00	2.02	20.01	21.26		
10-56	Crop Grower.....	W. F. Knehans, Owensville.....	0.82	0.82	76.82	10.07	0.50	1.69	8.00	8.38	3.00	2.64	17.59	17.70		
10-57	Crop Grower.....	E. G. Karstedt, Rosebud.....	0.82	0.86	74.42	10.13	0.50	1.95	8.00	8.18	3.00	2.58	17.59	17.54		
10-58	Crop Grower.....	Oscar Meyers, Gerald.....	0.82	1.08	80.55	10.31	0.50	1.96	8.00	8.35	3.00	3.24	17.59	19.42		
10-60	Farmer's Favorite.....	Farmer's Coop. Co., Windsor.....	0.82	0.81	77.78	14.17	0.50	1.84	12.00	12.33	1.00	1.21	20.79	21.42		
6-13	Middle West Grain Grower.....	Banner Roller Mills, Salem.....	1.65	1.67	75.45	15.31	0.50	1.51	12.00	13.80	2.00	2.09	25.41	28.03		
10-61	Middle West Grain Grower.....	E. G. Karstedt, Rosebud.....	1.65	1.61	86.33	13.83	0.50	1.78	12.00	12.05	2.00	2.25	25.41	25.59		
10-62	Middle West Grain Grower.....	Louis Ritterbusch, Bland.....	1.65	1.66	84.94	14.08	0.50	1.78	12.00	12.30	2.00	2.48	25.41	56.40		
10-63	Middle West Grain Grower.....	Farmer's Elevator Co., Archie.....	1.65	1.71	83.62	13.58	0.50	1.58	12.00	12.00	2.00	2.27	25.41	25.97		
10-65	Middle West Grain Grower.....	Kidder Produce & Merc. Co., Kidder.....	1.65	1.63	83.49	14.35	0.50	1.85	12.00	12.50	2.00	2.21	25.41	26.24		

10-66	Middle West Grain Grower.....	Farmer's Produce & Grain Co., Hamilton.....	1.65	1.66	84.94	14.36	0.50	1.77	12.00	12.59	2.00	2.77	25.41	27.11
10-69	Middle West Grain Grower.....	Wilhite Seed Co., Columbia.....	1.65	1.78	83.70	14.11	0.50	2.10	12.00	12.01	2.00	2.16	25.41	26.16
6-14	Phosphate and Potash.....	J. B. Bayer & Son, Potosi.....				15.27	0.50	1.27	12.00	14.00	4.00	4.01	20.60	23.31
10-71	Phosphate and Potash.....	L. A. Smith, Clarence.....				14.88	0.50	1.58	12.00	13.30	4.00	4.12	20.60	22.49
6-15	Potato Fertilizer.....	Heinricksmeier Feed Co., St. Louis.....	1.65	1.51	82.11	10.58	0.50	1.78	8.00	8.80	5.00	4.69	23.31	23.46
10-68	Potato Fertilizer.....	Missouri Marketing Assn., St. Joseph.....	1.65	1.46	86.30	9.37	0.50	0.84	8.00	8.53	5.00	4.62	23.31	22.81
	<b>Horseshoe Brands</b>													
10-75	Economy Phosphate.....	P. H. Johnson, New London.....				17.99	0.50	1.46	16.00	16.53			21.60	22.32
10-76	Economy Phosphate.....	R. L. Tompkins, New London.....				17.38	0.50	0.99	16.00	16.39			21.60	22.13
10-79	Economy Phosphate.....	Polo Elevator Co., Polo.....				18.19	0.50	1.86	16.00	16.33			21.60	22.05
10-80	Economy Phosphate.....	W. A. Magruder, Eolia.....				18.17	0.50	1.40	16.00	16.77			21.60	22.64
10-81	Economy Phosphate.....	Lesch & Hurt, Ewing.....				18.17	0.50	2.16	16.00	16.01			21.60	21.61
10-73	Acidulated Bone & Potash.....	Schubert Mercantile Co., Russell- ville.....	0.82	0.79	81.01	13.50	0.50	1.34	12.00	12.16	1.00	1.19	20.79	21.09
10-74	Acidulated Bone & Potash.....	Farmer's Elevator Co., Braymer.....	0.82	1.15	82.61	13.43	0.50	1.35	12.00	12.08	1.00	1.65	20.79	23.02
10-503	Grain Maker.....	Hunter Mercantile Co., Bismarck.....				14.39	0.50	2.05	12.00	12.34	4.00	5.22	20.60	22.40
10-82	National Bone Dust.....	Vandalia Mill & Elevator Co., Vandalia.....	1.65	1.82	80.76	9.37	0.50	1.55	8.00	7.82	2.00	2.02	20.01	20.52
10-83	National Bone Dust.....	Lesch & Hurt, Ewing.....	1.65	1.68	74.46	9.90	0.50	2.01	8.00	7.89	2.00	1.98	20.01	19.97
6-16	Pioneer Grain Grower.....	Farmer's Exchange, Exeter.....	1.65	1.70	82.35	14.85	0.50	1.82	12.00	13.03	2.00	2.00	25.41	27.02
6-17	Pioneer Grain Grower.....	B. F. Julian, Marshfield.....	1.65	1.73	77.46	15.16	0.50	1.72	12.00	13.44	2.00	1.86	25.41	27.54
10-84	Pioneer Grain Grower.....	W. A. Magruder, Eolia.....	1.65	1.70	64.11	13.94	0.50	1.86	12.00	12.08	2.00	2.04	25.41	25.78
10-85	Pioneer Grain Grower.....	Lesch & Hurt, Ewing.....	1.65	1.55	80.64	13.22	0.50	1.17	12.00	12.05	2.00	2.24	25.41	25.32
10-504	Pioneer Grain Grower.....	Hunter Mercantile Co., Bismarck.....	1.65	1.87	83.53	14.34	0.50	2.06	12.00	12.28	2.00	1.39	25.41	26.06
6-18	Special Fertilizer <sup>2</sup> .....	Farmer's Exchange, Exeter.....	2.47	2.16	82.82	14.20		1.18	12.00	13.02	4.00	4.06	31.10	31.23
6-19	Special Fertilizer <sup>2</sup> .....	Goodwin Company, Doniphan.....	2.47	2.28	85.09	14.21		1.06	12.00	13.15	4.00	3.67	31.10	31.48
	<b>Arkansas Fertilizer Co., Little Rock, Arkansas. White Diamond Brands</b>													
6-21	Acid Phosphate.....	J. H. H. Mote, Carthage.....				18.63		1.22	16.00	17.41			21.60	23.50
10-505	Acid Phosphate.....	P. E. Donnell, Medoc.....				15.04		1.08	16.00	13.96			21.60	18.85

<sup>2</sup>Not registered.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton			
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd		
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
	<b>Armour Fertilizer Works, Chicago, Illinois.</b>																
	<b>Armour Brands</b>																
6-22	Grain Grower.....	Joe England, Cassville.....	1.65	1.85	58.27		9.98	0.50	1.16	8.00	8.82	2.00	2.35	20.01	22.35		
10-86	Grain Grower.....	Wellsville Milling Co., Wellsville.....	1.65	1.42	80.98		8.87	0.50	0.53	8.00	8.34	2.00	2.23	20.01	19.75		
10-87	Grain Grower.....	B. W. Floyd, Liege.....	1.65	1.66	78.91		9.07	0.50	0.90	8.00	8.17	2.00	2.28	20.01	20.60		
10-88	Grain Grower.....	F. H. Kempke, Gerald.....	1.65	1.54	77.92		9.34	0.50	1.14	8.00	8.20	2.00	2.19	20.01	20.03		
10-89	Grain Grower.....	Producer's Exchange, Truesdale.....	1.65	1.63	80.37		9.42	0.50	1.49	8.00	7.93	2.00	2.30	20.01	20.17		
10-126	1-2-1 Fertilizer.....	Farmer's Elevator Co., Warrensburg.....	0.82	0.78	64.10		14.58	0.50	2.00	12.00	12.58	1.00	0.88	20.79	21.27		
10-127	1-12-1 Fertilizer.....	Keys Milling and Elevator Co., Clinton.....	0.82	0.97	74.23		14.39	0.50	2.90	12.00	11.49	1.00	1.28	20.79	21.04		
	<b>Big Crop Brands</b>																
10-146	0-14-4 Fertilizer.....	J. B. Robinson, Nevada.....					15.20	0.50	0.78	14.00	14.42	4.00	4.52	23.30	24.44		
6-32	2-12-2 Fertilizer.....	L. E. Fawver, Seligman.....	1.65	1.75	74.28		14.18	0.50	1.32	12.00	12.86	2.00	2.09	25.41	27.10		
6-33	2-12-2 Fertilizer.....	F. O. Wendler, Freistaat.....	1.65	1.66	72.89		14.21	0.50	1.01	12.00	13.20	2.00	1.86	25.41	26.93		
6-34	2-12-2 Fertilizer.....	Forsythe-Carpenter Grain Co., Fairview.....	1.65	1.75	73.72		13.79	0.50	1.33	12.00	12.46	2.00	2.16	25.41	26.64		
6-35	2-12-2 Fertilizer.....	Joe England, Cassville.....	1.65	1.77	64.40		14.22	0.50	1.53	12.00	12.69	2.00	2.27	25.41	27.15		
6-36	2-12-2 Fertilizer.....	Goodwin Co., Doniphan.....	1.65	1.84	73.91		14.28	0.50	1.35	12.00	12.89	2.00	2.06	25.41	27.49		
6-37	2-12-2 Fertilizer.....	Izenman & Co., Farmington.....	1.65	1.80	71.66		13.76	0.50	1.41	12.00	12.35	2.00	2.02	25.41	26.54		
10-129	2-12-2 Fertilizer.....	Farmer's Grain & Feed Co., Meta.....	1.65	1.38	73.91		12.67	0.50	1.32	12.00	11.35	2.00	2.03	25.41	23.42		
10-132	2-12-2 Fertilizer.....	P. O. Foristell, Foristell.....	1.65	1.64	80.49		13.56	0.50	1.22	12.00	12.34	2.00	2.04	25.41	25.87		
10-133	2-12-2 Fertilizer.....	Frankford Elev. Co., Frankford.....	1.65	1.58	84.17		13.34	0.50	1.87	12.00	11.47	2.00	2.47	25.41	24.92		
10-134	2-12-2 Fertilizer.....	Curryville Elev. Co., Curryville.....	1.65	1.67	70.67		12.76	0.50	0.63	12.00	12.13	2.00	2.28	25.41	25.99		
10-135	2-12-2 Fertilizer <sup>a</sup> .....	Green Ridge Elev. Co., Green Ridge.....	1.65	1.82	72.53		12.45	0.50	1.17	12.00	11.28	2.00	2.03	25.41	25.20		

10-136	2-12-2 Fertilizer	Thomas Clarkson, Elwood	1.65	1.32	83.10	14.49	0.50	2.20	12.00	12.29	2.00	2.11	25.41	24.52
10-137	2-12-2 Fertilizer	F. M. Shoffner, Bolivar	1.65	1.56	83.33	12.76	0.50	1.07	12.00	11.69	2.00	2.37	25.41	25.02
6-38	2-12-6 Fertilizer	Aurora Lumber Co., Aurora	1.65	1.77	74.57	13.60	0.50	1.16	12.00	12.44	6.00	6.23	29.81	31.16
6-39	2-12-6 Fertilizer	Isenman & Co., Farmington	1.65	1.78	75.86	13.91	0.50	1.04	12.00	12.87	6.00	6.19	29.81	31.74
10-139	2-12-6 Fertilizer	L. V. Hendrix, Brookline	1.65	1.50	86.67	12.30	0.50	1.28	12.00	11.02	6.00	7.01	29.81	28.97
6-40	2-16-2 Fertilizer	Forsythe-Carpenter Grain Co., Fairview	1.65	1.78	79.77	17.30	0.50	0.67	16.00	16.63	2.00	2.21	30.81	32.45
10-140	2-16-2 Fertilizer	Louis Ritterbusch, Bland	1.65	1.61	93.78	16.48	0.50	1.13	16.00	15.35	2.00	2.36	30.81	30.16
10-141	2-16-2 Fertilizer	Keys Milling & Elevator Co., Clinton	1.65	1.60	93.74	16.55	0.50	1.12	16.00	15.43	2.00	2.51	30.81	31.39
10-142	2-16-2 Fertilizer	J. E. Wilson, Elwood	1.65	1.72	91.86	15.77	0.50	1.46	16.00	14.31	2.00	2.45	30.81	29.33
10-510	2-16-2 Fertilizer	Carter Elevator Co., Jasper	1.65	1.37	92.70	16.43	0.50	1.19	16.00	15.24	2.00	2.14	30.81	28.74
6-41	3-8-6 Fertilizer	Forsythe-Carpenter Grain Co., Fairview	2.47	2.41	64.73	8.81	0.50	0.44	8.00	8.37	6.00	6.05	27.90	28.20
6-42	3-8-6 Fertilizer	Goodwin Co., Doniphan	2.47	2.28	72.37	10.92	0.50	1.52	8.00	9.40	6.00	4.21	27.90	27.01
6-43	3-8-6 Fertilizer	Isenman & Co., Farmington	2.47	2.33	72.96	10.16	0.50	1.63	8.00	8.53	6.00	6.10	27.90	28.13
6-44	4-16-4 Fertilizer	Goodwin & Co., Doniphan	3.30	2.98	64.42	17.06	0.50	1.04	16.00	16.02	4.00	4.03	40.03	38.73
10-143	4-16-4 Fertilizer	Wellsville Milling Co., Wellsville	3.30	3.27	96.91	16.79	0.50	0.78	16.00	16.01	4.00	4.35	40.03	40.30
10-144	4-16-4 Fertilizer	Farmer's Grain & Feed Co., Meta	3.30	3.30	96.67	16.48	0.50	0.83	16.00	15.65	4.00	4.19	40.03	39.77
10-145	4-16-4 Fertilizer	J. E. Wilson, Elwood	3.30	2.97	96.97	17.07	0.50	1.27	16.00	15.80	4.00	4.11	40.03	38.47
10-511	4-16-4 Fertilizer	Comer & Morgan, Diamond	3.30	3.30	95.75	17.45	0.50	1.37	16.00	16.08	4.00	4.53	40.03	40.72
10-116	Bone Meal	Keys Milling & Elevator Co., Clinton	2.47	2.45	49.39	24.00	28.22						34.50	38.63
10-117	Bone Meal	Henry Diekroeger, Wright City	2.47	2.14	28.50	24.00	28.42						34.50	37.52
10-120	Bone Meal	J. E. Wilson, Ellwood	2.47	2.80	44.32	24.00	28.25						34.50	40.15
10-121	Bone Meal	F. M. Shoffner, Bolivar	2.47	2.45	28.56	24.00	27.46						34.50	37.87
10-509	Bone Meal	Carter Elevator Co., Jasper	2.47	2.53	19.76	24.00	26.28						34.50	37.03
6-27	3-27 Bone Meal <sup>2</sup>	L. E. Fawver, Seligman	2.47	2.34	39.31	27.00	29.37						37.50	39.32
6-28	3-27 Bone Meal <sup>2</sup>	Aurora Lumber Co., Aurora	2.47	2.40	37.50	27.00	28.31						37.50	38.51
10-114	3-27 Bone Meal <sup>2</sup>	Wellsville Milling Co., Wellsville	2.47	2.25	43.53	27.00	28.35						37.50	37.91
10-115	3-27 Bone Meal <sup>2</sup>	J. E. Robinson & Son, Nevada	2.47	2.02	17.32	27.00	29.34						37.50	37.93
10-118	3-27 Bone Meal <sup>2</sup>	P. O. Foristell, Foristell	2.47	2.47	42.10	27.00	27.56						37.50	38.06
10-119	3-27 Bone Meal <sup>2</sup>	Archias Seed Store, Sedalia	2.47	2.46	46.34	27.00	28.10						37.50	38.56
10-122	3-27 Bone Meal <sup>2</sup>	Farmer's Elevator & Exchange, Palmyra	2.47	2.06	47.57	27.00	28.78						37.50	37.54

<sup>2</sup>Not registered.

<sup>3</sup>Sample from old stock.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
6-29	Half Bone Meal & Half Acid Phosphate.....	Goodwin Co., Doniphan.....	1.24	1.36	18.38	20.00	19.14	9.00	9.32	11.00	9.82			27.32	26.24
6-30	Raw Bone Meal.....	Forsythe-Carpenter Grain Co., Fairview.....	3.70	4.34	15.09	22.00	17.86							37.73	36.31
6-31	Raw Bone Meal.....	Isenman & Co., Farmington.....	3.70	4.17	10.55	22.00	17.73							37.73	35.45
10-123	Raw Bone Meal <sup>a</sup> .....	G. B. Beeny & Sons, Sheldon.....	3.70	4.23	21.98	22.00	20.03							37.73	38.01
10-124	Raw Bone Meal.....	Producer's Exchange, Truesdale.....	3.70	4.00	24.00	22.00	17.17							37.73	34.17
10-125	Raw Bone Meal.....	P. O. Forstell, Forstell.....	3.70	4.25	25.15	22.00	19.29							37.73	37.35
10-507	Raw Bone Meal <sup>b</sup> .....	Carter Elevator Co., Jasper.....	3.70	4.07	31.94	22.00	25.36							37.73	42.66
10-508	Raw Bone Meal <sup>b</sup> .....	Edward F. Buckner, Pierce City.....	3.70	3.95	6.33	22.00	25.87							37.73	42.66
6-23	16% Acid Phosphate.....	C. C. Robertson Lumber Co., Marshfield.....					17.91	0.50	0.57	16.00	17.34			21.60	23.41
6-24	16% Acid Phosphate.....	Goodwin Co., Doniphan.....					17.68	0.50	1.43	16.00	16.25			21.60	21.94
6-25	16% Acid Phosphate.....	Isenman & Co., Farmington.....					17.78	0.50	0.67	16.00	17.11			21.60	23.10
10-91	16% Acid Phosphate.....	B. W. Floyd, Liege.....					17.37	0.50	0.80	16.00	16.57			21.60	22.37
10-92	16% Acid Phosphate.....	Ed. A. Althage, Beaufort.....					18.85	0.50	2.85	16.00	16.00			21.60	21.60
10-93	16% Acid Phosphate.....	Farmer's Grain & Feed Co., Meta.....					18.55	0.50	2.46	16.00	16.09			21.60	21.72
10-94	16% Acid Phosphate.....	Boone County Milling & Elev. Co., Columbia.....					18.75	0.50	2.27	16.00	16.48			21.60	22.25
10-95	16% Acid Phosphate.....	Farmer's Elevator, Warrensburg.....					18.75	0.50	2.16	16.00	16.59			21.60	22.40
10-96	16% Acid Phosphate.....	W. H. Smith Feed Store, Peculiar.....					17.77	0.50	0.85	16.00	16.92			21.60	22.84
10-97	16% Acid Phosphate.....	J. B. Robinson, Nevada.....					18.02	0.50	1.10	16.00	16.92			21.60	22.84
10-99	16% Acid Phosphate.....	Producer's Exchange, Truesdale.....					18.04	0.50	0.97	16.00	17.07			21.60	23.04
10-100	16% Acid Phosphate.....	Henry Diekroeger, Wright City.....					18.42	0.50	2.55	16.00	15.87			21.60	21.42
10-101	16% Acid Phosphate.....	J. B. Noel, Curryville.....					18.02	0.50	0.95	16.00	17.07			21.60	23.04
10-103	16% Acid Phosphate <sup>c</sup> .....	Green Ridge Elevator Co., Green Ridge.....					18.32	0.50	0.77	16.00	17.53			21.60	23.67
10-104	16% Acid Phosphate.....	Archias Seed Store, Sedalia.....					17.20	0.50	0.59	16.00	16.61			21.60	22.42



10-105	16% Acid Phosphate	Thomas Clarkson, Elwood					18.31	0.50	2.70	16.00	15.61			21.60	21.07
10-106	16% Acid Phosphate	F. M. Shoffner, Bolivar					18.65	0.50	2.38	16.00	16.27			21.60	21.96
6-26	20% Superphosphate	Goodwin & Co., Doniphan					22.16	0.50	0.39	20.00	21.77			27.00	29.39
10-107	20% Superphosphate	Farmer's Grain & Feed Co., Meta					21.08	0.50	1.15	20.00	19.93			27.00	26.91
10-108	20% Superphosphate	Keyes Milling & Elev. Co., Clinton					20.24	0.50	1.49	20.00	18.75			27.00	25.31
10-109	20% Superphosphate	Producer's Exchange, Truesdale					21.09	0.50	0.71	20.00	20.38			27.00	27.51
10-110	20% Superphosphate	Green & Tooley, Hamilton					22.48	0.50	1.73	20.00	20.75			27.00	28.01
10-111	20% Superphosphate	J. E. Wilson, Elwood					21.57	0.50	1.24	20.00	20.33			27.00	27.45
10-113	20% Superphosphate	Ernest Peiter, Wither's Mill					23.32	0.50	1.47	20.00	21.85			27.00	29.50
<b>Tuscarora Brands</b>															
10-147	16% Acid Phosphate	Joe Vodicka, Karlin					17.70	0.50	1.47	16.00	16.23			21.60	21.91
10-148	16% Acid Phosphate	Ira Underhill, Ely					17.28	0.50	1.06	16.00	16.22			21.60	21.90
10-149	20% Superphosphate	Ira Underhill, Ely					21.16	0.50	0.57	20.00	20.59			27.00	27.80
10-151	0-14-4 Fertilizer	Joe Vodicka, Karlin					14.36	0.50	0.73	14.00	13.63	4.00	4.80	23.30	23.68
10-150	Grain Grower	Joe Vodicka, Karlin	1.65	1.46	89.04		8.24	0.50	0.89	8.00	7.35	2.00	2.89	20.01	19.31
6-45	2-12-2 Fertilizer	J. H. Robertson Produce Co., Marshfield	1.65	1.74	71.32		13.90	0.50	1.37	12.00	12.53	2.00	1.96	25.41	26.48
10-512	2-12-2 Fertilizer	James Dacy, Wentworth	1.65	1.58	84.75		14.33	0.50	1.62	12.00	12.71	2.00	2.15	25.41	26.25
<b>Ash Grove Lime &amp; Portland Cement Co., Kansas City, Mo.</b>															
6-46	Limash <sup>7</sup>	A. L. Walker, Exeter										0.91	1.33	1.00	1.46
6-47	Limash <sup>7</sup>	F. A. Miller, Aurora										0.91	1.61	1.00	1.77
<b>Blood &amp; Bone Fertilizer Co., St. Louis, Mo.</b>															
<b>Steerhead Brands</b>															
10-152	Ammoniated Bone Phosphate (Med. grade)	Theo. Libbert, Meta	1.03	1.37	53.28		14.24	1.00	2.37	10.00	11.87			17.88	21.84
10-153	Ammoniated Bone Phosphate (Med. grade)	E. E. Norfleet, Eugene	1.03	1.29	65.11		13.83	1.00	1.13	10.00	12.70			17.88	22.63
10-154	Ammoniated Bone Phosphate (High grade)	Theo. Libbert, Meta	1.64	1.76	53.41		14.01	1.00	1.89	12.00	12.12			23.17	23.84

<sup>3</sup>Sample from old stock. <sup>4</sup>No labels on sacks.

<sup>5</sup>Labels stamped on registration tag.

<sup>6</sup>Registration tags not attached.

<sup>7</sup>Wrong registration tags.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

(Page 26)

Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
10-513	Ammoniated Bone Phosphate (High grade) <sup>2</sup> -----	Barney Spillman, Wentworth-----	1.64	1.76	61.93	14.72	1.00	1.87	12.00	12.85	-----	-----	23.17	24.83	
10-514	Half and Half <sup>2</sup> -----	Jacob Bischoff, Wentworth-----	1.23	1.03	0.00	19.26	7.00	7.40	13.00	11.86	-----	-----	28.38	25.99	
10-515	Missouri Special Fertilizer-----	Jacob Bischoff, Wentworth-----	1.65	0.82	50.00	13.47	-----	0.86	12.00	12.61	2.00	2.38	25.41	23.13	
10-516	Missouri Special Fertilizer-----	D. R. Blackwell, Millspring-----	1.65	1.72	75.58	13.40	-----	1.26	12.00	12.14	2.00	3.36	25.41	27.40	
10-517	Missouri Special Fertilizer-----	George Stark, Arcadia-----	1.65	1.67	91.02	12.43	-----	0.75	12.00	11.68	2.00	3.61	25.41	26.84	
10-518	Missouri Special Fertilizer-----	R. M. Denton, Bismarck-----	1.65	1.94	51.54	13.68	-----	1.96	12.00	11.72	2.00	1.96	25.41	26.23	
10-519	Missouri Special Fertilizer-----	E. W. Hughes, Bismarck-----	1.65	1.72	48.83	14.23	-----	1.87	12.00	12.36	2.00	1.51	25.41	25.66	
10-520	Missouri Special Fertilizer-----	W. F. Yeager, Farmington-----	1.65	1.78	61.37	12.86	-----	0.85	12.00	12.01	2.00	2.16	25.41	26.16	
10-155	Missouri Special Fertilizer-----	Theo. Libbert, Meta-----	1.65	1.72	49.41	14.06	-----	1.80	12.00	12.26	2.00	1.60	25.41	25.62	
10-156	Soluble Bone Phosphate-----	Theo. Libbert, Meta-----	-----	-----	-----	18.68	-----	1.40	16.00	17.28	-----	-----	21.60	23.33	
10-521	Soluble Bone Phosphate-----	J. H. Shearer, Patterson-----	-----	-----	-----	18.17	-----	0.78	16.00	17.39	-----	-----	21.60	23.48	
10-522	Soluble Bone Phosphate-----	Perry Hoffman, Caledonia-----	-----	-----	-----	18.30	-----	1.11	16.00	17.19	-----	-----	21.60	23.21	
10-523	Soluble Bone Phosphate-----	John Long, Carl Junction-----	-----	-----	-----	19.67	-----	2.08	16.00	17.59	-----	-----	21.60	23.75	
10-524	Soluble Bone Phosphate-----	Barney Spillman, Wentworth-----	-----	-----	-----	19.62	-----	1.88	16.00	17.74	-----	-----	21.60	23.95	
10-157	Soluble Bone Phosphate-----	Theo Libbert, Meta-----	-----	-----	-----	19.24	-----	1.08	18.00	18.16	-----	-----	24.30	24.52	
10-525	Soluble Bone Phosphate-----	W. I. Bays, Caledonia-----	-----	-----	-----	19.34	-----	0.93	18.00	18.41	-----	-----	24.30	24.85	
10-158	Soluble Bone Phosphate <sup>4</sup> -----	E. E. Norfleet, Eugene-----	-----	-----	-----	20.54	-----	0.62	20.00	19.92	-----	-----	27.00	26.89	
10-526	Soluble Bone Phosphate <sup>4</sup> -----	G. V. Sheets, Bloomfield-----	-----	-----	-----	21.13	-----	0.80	20.00	20.33	-----	-----	27.00	27.45	
10-527	Special Bone Meal <sup>2</sup> -----	Jacob Bischoff, Wentworth-----	2.47	4.22	22.27	24.00	21.43	-----	-----	-----	-----	-----	34.50	39.37	
10-159	Special Crop Grower (High) <sup>4</sup> -----	Theo. Libbert, Meta-----	1.64	1.03	49.51	13.36	1.00	3.26	8.00	10.10	2.00	1.64	19.97	19.82	
10-528	Twelve-Four Fertilizer-----	George Newman, Hermann-----	-----	-----	-----	12.66	-----	0.96	12.00	11.70	4.00	4.93	20.60	21.22	
10-529	Twelve-Four Fertilizer-----	George Stark, Arcadia-----	-----	-----	-----	12.66	-----	1.07	12.00	11.59	4.00	3.18	20.60	19.15	
10-530	Twelve-Four Fertilizer-----	Perry Hoffman, Caledonia-----	-----	-----	-----	15.56	-----	2.23	12.00	13.33	4.00	4.83	20.60	23.31	
10-531	Twelve-Four Fertilizer-----	W. I. Bays, Caledonia-----	-----	-----	-----	14.99	-----	2.64	12.00	12.35	4.00	3.65	20.60	20.69	
10-160	Wheat Grower (High Grade)-----	Theo. Libbert, Meta-----	1.03	1.01	43.53	13.62	1.00	2.79	10.00	10.83	3.00	1.47	21.18	20.53	
10-532	Wheat Grower (High Grade)-----	W. I. Bays, Caledonia-----	1.03	1.09	53.21	13.43	1.00	2.56	10.00	10.87	3.00	2.83	21.18	22.41	
10-533	Wheat Grower (High Grade) <sup>1</sup> -----	Perry Hoffman, Caledonia-----	1.03	1.07	30.84	14.95	1.00	2.23	10.00	12.72	3.00	2.21	21.18	24.15	

<b>Brighton Chemical Co., St. Louis, Mo.</b>																
6-48	Plant Joy .....	St. Louis Seed Co., St. Louis.....	4.60	6.54	92.51	-----	9.80	-----	0.27	7.50	9.53	3.60	3.06	33.64	44.04	
<b>Calumet Fertilizer Co., New Albany, Ind. Calumet Brands</b>																
10-161	Acid Phosphate 16% .....	H. T. Deeters, Bowling Green .....					17.00	17.35	1.00	1.46	16.00	15.89	-----	-----	21.60	21.45
10-163	Two-Eight-Two .....	H. T. Deeters, Bowling Green .....	1.65	1.84	45.65	-----	9.00	14.01	1.00	2.00	8.00	12.01	2.00	1.99	20.01	26.22
10-164	Two-Twelve-Two .....	A. H. Deeters, Bowling Green .....	1.65	1.64	49.39	-----	13.00	13.45	1.00	1.96	12.00	11.49	2.00	1.75	25.41	24.41
10-162	Half & Half .....	H. T. Deeters, Bowling Green .....	2.06	2.02	15.64	-----	12.00	13.60	6.00	6.72	6.00	6.88	1.00	0.99	17.96	18.97
<b>Centerville Gypsum Co., Centerville, Iowa. Green Seal Brand</b>																
10-165	Agricultural Gypsum <sup>2</sup> .....	I. N. Fehr Milling Co., Trenton .....	Calcium sulphate, dry guaranteed 79.93 found 76.23													
<b>Central City Fertilizer Co., Central City, Iowa</b>																
6-49	Fern Food <sup>2</sup> .....	Peck's Dry Goods Co., Kansas City .....	8.56	8.09	50.31	-----	9.12	2.00	3.61	8.00	5.51	2.00	2.67	49.38	44.76	
<b>Cochrane Packing Co., Kansas City, Kansas Cochrane Brands</b>																
10-166	Pulverized Sheep Manure <sup>2</sup> .....	Isherwood Floral Co., Pleasant Hill .....	2.00	2.08	13.02	-----	3.00	1.57	1.00	0.71	2.00	0.86	1.00	1.15	12.30	11.27
10-167	Pulverized Sheep Manure <sup>2</sup> <sup>9</sup> .....	Farmer's Exchange, Walnut Grove .....	2.00	2.04	7.84	-----	3.00	1.04	1.00	0.74	2.00	0.30	1.00	1.24	12.30	10.44
10-534	Pulverized Sheep Manure <sup>2</sup> <sup>9</sup> .....	Springfield Seed Co., Springfield .....	2.00	1.95	14.36	-----	3.00	1.10	1.00	0.73	2.00	0.37	1.00	1.29	12.30	10.21

<sup>2</sup>Not registered.

<sup>4</sup>No labels on sacks.

<sup>5</sup>Incomplete labels.

<sup>9</sup>Without registration tags.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

(Page 28)

Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						G'td	F'nd	G'td	F'nd	G'td	F'nd				
	<b>Cudahy Packing Co., Chicago, Illinois</b>		Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
	<b>Big Win Brands</b>														
10-168	High Grade 16% Acid Phosphate	Universal Store, Rich Hill					19.80		3.76	16.00	16.04			21.60	21.65
10-169	High Grade 16% Acid Phosphate	Farmer's Exchange, Sheldon					18.23		1.65	16.00	16.58			21.60	22.38
10-170	High Grade 16% Acid Phosphate	Kearney Grain & Supply Co., Kearney					18.73		2.58	16.00	16.15			21.60	21.80
10-171	High Grade 16% Acid Phosphate	Ross de Ford, Altamont					17.99		1.86	16.00	16.13			21.60	21.78
10-172	High Grade 20% Acid Phosphate	Kearney Grain & Supply Co., Kearney					19.98		0.27	20.00	19.71			27.00	26.61
10-187	High Grade Fertilizer 2-12-2	Farmer's Exchange, Sheldon	1.65	1.47	35.37		20.85		4.54	12.00	16.31	2.00	1.44	25.41	29.85
10-188	High Grade Fertilizer 2-12-2	Hamilton Feed & Coal Co., Hamil- ton	1.65	2.32	30.60		22.96		4.41	12.00	18.55	2.00	1.49	25.41	36.54
10-189	High Grade Fertilizer 2-12-2	Farmer's Elevator Co., Pilot Grove	1.65	1.68	42.26		19.34		4.85	12.00	14.49	2.00	3.74	25.41	30.81
10-173	Half & Half 1½-13	Roy McFarland, Monroe City	1.23	1.55	21.29	20.00	20.48	7.00	9.16	13.00	11.32			28.38	27.47
10-174	Half & Half 1½-13	The Farmer's Elev. Co., Clarks- burg	1.23	1.18	18.64	20.00	21.74	7.00	10.82	13.00	10.92			28.38	25.36
10-175	Half & Half 1½-13	James Cunningham, Montgomery City	1.23	2.18	32.11	20.00	21.18	7.00	10.46	13.00	10.72			28.38	29.34
10-177	Half & Half 1½-13	Farmer's Merc. Co., Gallatin	1.23	1.89	24.32	20.00	21.59	7.00	11.41	13.00	10.18			28.38	27.37
10-178	Half & Half 1½-13	Ross de Ford, Altamont	1.23	2.06	20.87	20.00	24.10	7.00	13.77	13.00	10.33			28.38	28.31
10-179	Half & Half 1½-13	Farmer's Coop Exch., Milan	1.23	2.14	23.83	20.00	21.43	7.00	12.00	13.00	9.43			28.38	27.43
10-535	Half & Half 1½-13	Farmer's Exchange, Lockwood	1.23	1.44	20.13	20.00	20.90	7.00	10.61	13.00	10.29			28.38	25.61
10-180	Steamed Bone Meal	Farmer's Elevator Co., Clarksburg	2.47	2.47	23.08	24.00	25.41							34.50	35.91
10-181	Steamed Bone Meal	Farmer's Exchange, Sheldon	2.47	3.47	29.05	24.00	24.61							34.50	38.51
10-183	Steamed Bone Meal	Hamilton Feed & Coal Co., Hamil- ton	2.47	2.84	10.91	24.00	24.18							34.50	36.25
10-184	Steamed Bone Meal	Farmer's Elevator Co., Pilot Grove	2.47	2.77	18.40	24.00	26.15							34.50	37.92

10-185	Steamed Bone Meal.....	People's Mill, Palmyra.....	2.47	2.49	24.49	24.00	26.69											34.50	37.27
10-186	Steamed Bone Meal <sup>4</sup> .....	Isherwood Floral Co., Pleasant Hill.....	2.47	2.73	26.37	24.00	25.74											34.50	37.34
<p><b>Darling &amp; Co.,</b>  <b>Chicago, Illinois</b>  <b>Darling's Brands</b></p>																			
6-50	16% Acid Phosphate.....	Thomas Canning Co., Jenkins.....					17.38	0.50	0.72	16.00	16.66							21.60	22.49
10-190	16% Acid Phosphate.....	Farmer's Coop. Assn. #11, New Truxton.....					17.65	0.50	1.15	16.00	16.50							21.60	22.28
10-191	16% Acid Phosphate.....	J. L. Clark, Perry.....					17.17	0.50	1.09	16.00	16.08							21.60	21.71
10-192	16% Acid Phosphate.....	W. A. Patrick, Paris.....					17.50	0.50	1.03	16.00	16.47							21.60	22.23
10-193	16% Acid Phosphate.....	Farm Club Exchange, Owensville.....					17.34	0.50	0.89	16.00	16.45							21.60	22.21
10-194	16% Acid Phosphate.....	W. G. Schmidt, Gerald.....					17.11	0.50	0.92	16.00	16.19							21.60	21.86
10-195	16% Acid Phosphate.....	Union Farm Products Co., Union.....					17.28	0.50	0.93	16.00	16.35							21.60	22.07
10-197	16% Acid Phosphate.....	Farmer's Exchange, Troy.....					18.42	0.50	1.17	16.00	17.25							21.60	23.29
10-199	16% Acid Phosphate.....	A. P. Robertson, Frankford.....					18.92	0.50	1.18	16.00	17.74							21.60	23.95
10-200	16% Acid Phosphate.....	J. B. Noel, Curryville.....					18.20	0.50	1.45	16.00	16.75							21.60	22.61
10-201	16% Acid Phosphate.....	Farmer's Elev., Vandalia.....					17.80	0.50	1.26	16.00	16.54							21.60	22.33
10-202	16% Acid Phosphate.....	Farmer's Elevator & Exchange Co., Hunnewell.....					17.49	0.50	1.07	16.00	16.42							21.60	22.17
10-204	16% Acid Phosphate.....	Mitchell & Axel, Durham.....					18.50	0.50	1.37	16.00	17.13							21.60	23.17
10-198	20% Acid Phosphate.....	A. P. Robertson, Frankford.....					20.84	0.50	0.27	20.00	20.57							27.00	27.73
6-51	20% Acid Phosphate.....	Ostner & Michael, Diehlstadt.....					21.13	0.50	0.28	20.00	20.85							27.00	28.15
10-206	20% Acid Phosphate.....	J. L. Clark, Perry.....					20.90	0.50	1.54	20.00	19.36							27.00	26.14
10-207	20% Acid Phosphate.....	H. A. Craft, Vandalia.....					21.74	0.50	1.00	20.00	20.74							27.00	28.00
10-208	20% Acid Phosphate <sup>9</sup> .....	Farm Club Exchange, Owensville.....					21.54	0.50	1.46	20.00	20.08							27.00	27.11
10-210	20% Acid Phosphate.....	Alvin Bond, Eugene.....					22.40	0.50	1.99	20.00	20.41							27.00	27.55
10-211	20% Acid Phosphate.....	Union Farm Products Co., Union.....					21.84	0.50	1.68	20.00	20.16							27.00	27.22
10-212	20% Acid Phosphate.....	Farmer's Exchange, Troy.....					20.51	0.50	0.27	20.00	20.24							27.00	27.32
10-213	20% Acid Phosphate.....	J. B. Noel, Curryville.....					20.24	0.50	0.28	20.00	19.96							27.00	26.95
10-214	20% Acid Phosphate.....	Maywood Feed Co., Maywood.....					21.29	0.50	1.26	20.00	20.03							27.00	27.04
6-54	Big Harvest.....	Webster Co. Canner's Assn., Marshfield.....	1.65	1.59	75.36		13.77	2.00	0.79	12.00	12.98	2.00	1.86					25.41	26.33
6-55	Big Harvest.....	Thomas Canning Co., Jenkins.....	1.65	1.68	79.77		12.98	2.00	0.57	12.00	12.41	2.00	2.15					25.41	26.26

<sup>4</sup>No labels on sacks,

<sup>9</sup>Without registration tags.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

(Page 30)

Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						G'td	F'nd	G'td	F'nd	G'td	F'nd				
6-56	Big Harvest.....	Ostner & Michael, Diehlstadt....	1.65	1.61	75.16	13.01	2.00	0.73	12.00	12.28	2.00	2.00	25.41	25.62	
10-215	Big Harvest.....	Cooperative Assn. #11, New Truxton.....	1.65	1.53	88.89	12.84	2.00	0.78	12.00	12.06	2.00	1.75	25.41	24.71	
10-216	Big Harvest.....	Farmer's Elevator Co., Vandalia....	1.65	1.50	86.00	14.16	2.00	0.98	12.00	13.18	2.00	1.50	25.41	25.82	
10-218	Big Harvest.....	Chas. H. Honold, Beaufort.....	1.65	1.60	89.37	12.98	2.00	0.89	12.00	12.09	2.00	1.68	25.41	24.97	
10-219	Big Harvest.....	W. A. Magruder, Eolia.....	1.65	1.60	90.63	12.91	2.00	1.00	12.00	11.91	2.00	2.06	25.41	25.15	
10-220	Big Harvest.....	Farmer's Elev., Vandalia.....	1.65	1.67	86.22	13.75	2.00	1.21	12.00	12.54	2.00	1.78	25.41	25.99	
10-221	Big Harvest.....	Farmer's Exchange, Bois D'Arc.....	1.65	1.33	88.72	12.25	2.00	0.96	12.00	11.29	2.00	1.92	25.41	23.00	
10-223	Big Harvest.....	Dennis & Stow, Anabel.....	1.65	1.55	83.22	14.11	2.00	2.12	12.00	11.99	2.00	2.06	25.41	25.05	
10-233	Bone & Acid Phosphate Half & Half.....	Cooperative Assn. #11, New Truxton.....	0.82	0.82	29.26	23.98	12.00	11.48	11.00	12.50			27.94	29.55	
10-234	Bone & Acid Phosphate Half & Half.....	W. A. Patrick, Paris.....	0.82	0.94	34.04	23.79	12.00	13.04	11.00	10.75			27.94	28.11	
10-235	Bone & Acid Phosphate Half & Half.....	W. G. Schmidt, Gerald.....	0.82	0.84	34.52	23.58	12.00	11.74	11.00	11.84			27.94	28.94	
10-236	Bone & Acid Phosphate, Half & Half.....	Chas. H. Honold, Beaufort.....	0.82	0.98	50.00	23.70	12.00	10.62	11.00	13.08			27.94	30.33	
10-237	Bone & Acid Phosphate, Half & Half.....	Union Farmer's Products Co., Union.....	0.82	0.72	19.44	22.43	12.00	10.36	11.00	12.07			27.94	27.64	
10-238	Bone & Acid Phosphate, Half & Half.....	G. B. Beeny & Sons, Sheldon.....	0.82	0.87	29.87	23.49	12.00	11.67	11.00	11.82			27.94	29.00	
10-241	Bone & Acid Phosphate, Half & Half.....	Farmer's Elevator & Exchange, Hunnewell.....	0.82	1.38	22.46	25.37	12.00	15.18	11.00	10.19			27.94	29.23	

10-224	Chicago Brand	Cooperative Assn. #11, New Truxton	1.65	1.23	80.64	9.57	2.00	0.93	8.00	8.64	2.00	2.05	20.01	19.15
10-225	Chicago Brand	E. A. McCue, Clarksville	1.65	1.50	88.67	12.12	2.00	1.05	8.00	11.07	2.00	2.01	20.01	23.53
10-226	Chicago Brand	Farmer's Exchange, Troy	1.65	1.50	88.13	14.14	2.00	1.54	8.00	12.60	2.00	1.72	20.01	25.28
10-227	Crop King	Farmer's Elevator & Exchange, Ewing	1.65	0.72	59.72	14.38	2.00	1.61	12.00	12.77	6.00	2.06	29.81	22.57
6-57	Fourteen Four	Ostner & Michael, Diehlstadt				14.85	0.50	0.48	14.00	14.37	4.00	3.49	23.30	23.24
10-228	Fourteen Four <sup>7</sup>	Farmer's Elevator & Exchange, Ewing				14.95	0.50	0.82	14.00	14.13	4.00	4.58	23.30	24.12
10-229	General Crop	Alvin Bond, Eugene	1.65	1.66	92.17	17.21	2.00	0.64	16.00	16.57	2.00	2.23	30.81	31.88
10-230	General Crop	W. A. Magruder, Eolia	1.65	1.70	92.35	17.02	2.00	0.72	16.00	16.30	2.00	2.06	30.81	31.51
10-537	General Crop	Isenman & Co., Farmington	1.65	1.54	90.25	17.01	2.00	1.47	16.00	15.54	2.00	1.20	30.81	28.85
10-231	Grain Grower	J. L. Clark, Perry	0.82	0.54	77.78	14.80	2.00	1.12	12.00	13.68	1.00	1.05	20.79	21.93
6-52	Pure Ground Bone	Webster Co. Canner's Assn., Marshfield	1.85	2.32	6.04	28.00	28.54						35.86	38.40
6-53	Pure Ground Bone <sup>7</sup>	St. Francois Co. Farm Bureau, Farmington	1.85	1.78	2.81	28.00	28.54						35.86	36.11
10-243	Pure Ground Bone	W. A. Patrick, Paris	1.85	1.85	16.21	28.00	30.42						35.86	38.28
10-244	Pure Ground Bone	Wellsville Milling Co., Wellsville	1.85	2.04	18.13	28.00	28.95						35.86	37.62
10-245	Pure Ground Bone	Chas. H. Honold, Beaufort	1.85	1.95	12.72	28.00	28.80						35.86	37.09
10-247	Pure Ground Bone	Farmer's Exchange, Bois D'Arc	1.85	2.18	4.58	28.00	29.04						35.86	38.31
10-248	Pure Ground Bone	Farmer's Elevator & Exchange, Hunnewell	1.85	1.85	16.75	28.00	29.16						35.86	37.02
10-249	Pure Ground Bone	Mitchell & Axel, Durham	1.85	1.97	10.15	28.00	29.98						35.86	38.35
10-250	Pure Ground Bone <sup>8</sup>	Farmer's Elevator & Exchange, Ewing	1.85	1.97	12.69	28.00	28.13						35.86	36.50
10-538	Pure Ground Bone	Isenman & Co., Farmington	1.85	2.21	15.83	28.00	28.70						35.86	38.09
6-58	Vegetable Grower	Webster Co. Canner's Assn., Marshfield	2.47	2.24	77.68	13.04	2.00	0.75	12.00	12.29	4.00	3.69	31.10	30.17
6-59	Vegetable Grower	Ostner & Michael, Diehlstadt	2.47	2.28	83.73	12.98	2.00	0.71	12.00	12.27	4.00	3.84	31.10	30.47
6-60	Stimulant Tablets	Harnden Seed Co., Kansas City	11.00	10.78	96.19	13.05	0.36	0.31	11.71	12.74	15.00	15.37	79.06	79.92

<sup>7</sup>Wrong registration tags.

<sup>8</sup>Incomplete labels.

<sup>9</sup>Without registration tags.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

(Page 32)

Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
6-61	<b>Eggert Chemical Co., Canton, Ohio</b> Standard Flower & Garden Fertilizer <sup>2</sup> -----	Midwest Seed Co., Kansas City--	15.00	15.49	96.59	-----	11.52	-----	0.17	10.00	11.35	8.00	5.08	86.05	86.74
	<b>Empire Guano Co. Nashville, Tenn.</b>														
10-251	Red Banner 20% Acid Phosphate-----	W. A. Holstein, Bolivar-----				22.00	22.00	2.00	1.78	20.00	20.22			27.00	27.30
10-252	Bone Meal & Phosphate-----	W. A. Holstein, Bolivar-----	1.85	1.70	2.94	20.00	21.84	8.00	4.66	12.00	17.18			24.06	30.42
10-253	Premium Grain Grower-----	W. A. Holstein, Bolivar-----	1.65	1.12	27.68	15.00	21.30	3.00	4.85	12.00	16.45	2.00	1.80	25.41	28.95
10-539	Missouri Premium Guano-----	J. H. Wyatt, Bismarck-----	0.41	0.50	16.00	12.00	17.10	4.00	9.05	8.00	8.05	4.00	4.18	16.94	17.60
10-254	Raw Bone Meal-----	W. A. Holstein, Bolivar-----	3.70	4.76	24.35	20.00	22.61	-----	-----	-----	-----	-----	-----	35.73	42.84
	<b>Flower City Plant Food Co., Inc. Rochester, New York</b>														
6-62	Walker's Excelsior Plant Food-----	St. Louis Seed Co., St. Louis-----	5.00	6.20	93.71	-----	9.63	-----	0.28	7.00	9.35	3.00	4.83	34.00	44.28
	<b>Floyd Plant Food Co. St. Louis, Mo. F. P. F. Brands</b>														
10-255	16% Acid Phosphate-----	Gastler Bros., Wellsville-----				16.30	17.28	0.30	0.83	16.00	16.45			21.60	22.21
10-256	16% Acid Phosphate-----	Hamilton Feed & Coal Co., Hamilton-----				16.30	17.99	0.30	0.73	16.00	17.26			21.60	23.30
10-257	18% Acid Phosphate-----	Farm Bureau, Palmyra-----				18.40	19.12	0.40	0.89	18.00	18.23			24.30	24.61
10-258	18% Acid Phosphate-----	Farm Bureau, Maywood-----				18.40	19.34	0.40	0.77	18.00	18.57			24.30	25.07
10-269	2-8-2-----	Gastler Bros., Wellsville-----	1.67	1.64	54.87	8.15	9.39	0.15	0.56	8.00	8.83	2.00	2.07	20.10	21.17
10-270	2-8-2-----	G. E. Rohrer, Montgomery City-----	1.67	1.49	64.43	8.15	10.31	0.15	2.83	8.00	7.48	2.00	2.20	20.10	18.85
10-271	2-12-2-----	Gastler Bros., Wellsville-----	1.67	1.58	68.35	12.25	13.47	0.25	0.95	12.00	12.52	2.00	1.65	25.50	25.44



10-272	2-12-2	Farmer's Coop. Assn. # 24, Liege	1.67	1.79	65.92	12.25	11.76	0.25	1.50	12.00	10.26	2.00	0.93	25.50	22.48
10-273	2-12-2	Maywood Farmer's Exchange, Maywood	1.67	1.85	63.24	12.25	12.02	0.25	1.51	12.00	10.51	2.00	2.22	25.50	24.49
6-63	Garden Fertilizer (4-4-1)	St. Louis Seed Co., St. Louis	3.30	2.92	34.94	4.10	5.49	0.10	0.64	4.00	4.85	1.00	1.66	20.53	20.79
6-64S	Steam Bone Meal (3-24) <sup>8</sup>	Farmer's Coop. Assn. # 17, St. Clair	2.51	2.76	0.09	24.00	25.86							34.67	37.59
10-259	Steam Bone Meal (3-24)	Gastler Bros., Wellsville	2.51	3.15	12.06	24.00	26.11							34.67	39.50
10-260	Steam Bone Meal (3-24)	Farmer's Coop. Assn., # 24, Liege	2.51	3.29	17.32	24.00	25.70							34.67	39.68
10-261	Steam Bone Meal (3-24) <sup>7</sup>	Producer's Exchange, Eldon	2.51	3.64	25.55	24.00	24.34							34.67	39.81
10-262	Steam Bone Meal (3-24)	Farmer's Grain & Produce Ex- change, Rosebud	2.51	3.52	20.71	24.00	24.57							34.67	39.53
10-263	Steam Bone Meal (3-24)	Farmer's Coop. Assn., Leslie	2.51	3.67	23.43	24.00	24.91							34.67	40.51
10-264	Steam Bone Meal (3-24)	Farmer's Coop. Assn., Union	2.51	1.98	26.26	24.00	27.64							34.67	36.06
10-265	Steam Bone Meal (3-24)	G. E. Rohrer, Montgomery City	2.51	3.01	19.93	24.00	25.87							34.67	38.66
10-266	Steam Bone Meal (3-24)	Farmer's Exchange, Ash Grove	2.51	3.13	17.57	24.00	25.51							34.67	38.81
10-267	Steam Bone Meal (3-24)	Farmer's Exchange, Bolivar	2.51	3.68	21.48	24.00	23.17							34.67	38.81
10-268	Steam Bone Meal (3-24)	Maywood Farmer's Exchange, Maywood	2.51	3.88	18.81	24.00	23.76							34.67	40.25
10-542	Ground Steamed Bone (2-27) <sup>6</sup>	Farmer's Exchange, Jasper	1.67	2.93	21.50	27.00	27.30							34.10	39.75
		<b>M. F. A. Brands</b>													
6-65	16% Acid Phosphate	Farmer's Coop. Assn., No. 17, St. Clair				16.25	17.99	0.25	1.56	16.00	16.43			21.60	22.18
10-274	16% Acid Phosphate	Producer's Exchange, California				16.25	18.78	0.25	2.47	16.00	16.31			21.60	22.02
10-275	16% Acid Phosphate	Farmer's Grain & Produce Ex- change, Rosebud				16.25	18.42	0.25	0.83	16.00	17.59			21.60	23.75
10-276	16% Acid Phosphate	Farmer's Elevator Co., Gerald				16.25	18.45	0.25	1.14	16.00	17.31			21.60	23.37
10-277	16% Acid Phosphate	Producer's Exchange, Freeburg				16.25	16.79	0.25	0.54	16.00	16.25			21.60	21.94
10-278	16% Acid Phosphate <sup>4</sup>	Farmer's Coop. Assn., Union				16.25	17.81	0.25	1.16	16.00	16.65			21.60	22.48
10-279	16% Acid Phosphate	Holden Producers' Exc., Holden				16.25	17.71	0.25	1.16	16.00	16.55			21.60	22.34
10-280	16% Acid Phosphate	Farmer's Co-op. Elevator, Adrian				16.25	17.89	0.25	0.73	16.00	17.16			21.60	23.17
10-282	16% Acid Phosphate	Farmer's Elevator, Wright City				16.25	17.28	0.25	0.82	16.00	16.46			21.60	22.22
10-283	16% Acid Phosphate	Farmer's Prod. Exc., Trenton				16.25	17.96	0.25	1.14	16.00	16.82			21.60	22.71
10-284	16% Acid Phosphate	Farmer's Elevator & Sup. Co., Clinton				16.25	18.52	0.25	1.91	16.00	16.61			21.60	22.43

<sup>2</sup>Not registered.

<sup>4</sup>No labels on sacks.

<sup>6</sup>Registration tags not attached.

<sup>7</sup>Wrong registration tags. <sup>8</sup>Incomplete labels.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

(Page 34)

Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
10-285	16% Acid Phosphate	Farmer's Exchange, Bolivar				16.25	17.69	0.25	1.63	16.00	16.06			21.60	21.68
10-287	18% Acid Phosphate <sup>10</sup>	Lohman Producer's Exc., Lohman				18.25	19.29	0.25	0.57	18.00	18.72			24.30	25.27
10-288	18% Acid Phosphate	Russellville Exchange, Russellville				18.25	18.22	0.25	0.38	18.00	17.84			24.30	24.08
10-289	18% Acid Phosphate	Farmer's Grain & Produce Exchange, Rosebud				18.25	18.91	0.25	0.54	18.00	18.37			24.30	24.80
10-291	18% Acid Phosphate	Mark White, Anabel				18.25	19.34	0.25	1.24	18.00	18.10			24.30	24.44
10-292	20% Acid Phosphate	Lohman Producer's Exchange, Lohman				20.10	20.19	0.10	0.47	20.00	19.72			27.00	26.62
10-294	20% Acid Phosphate	Farmer's Grain & Prod. Exc., Rosebud				20.10	21.87	0.10	2.06	20.00	19.81			27.00	26.74
10-295	20% Acid Phosphate	Producer's Exchange, Freeburg				20.10	20.56	0.10	0.76	20.00	19.80			27.00	26.73
10-296	20% Acid Phosphate	Holden Producer's Exchange, Holden				20.10	19.96	0.10	0.73	20.00	19.23			27.00	25.96
10-297	20% Acid Phosphate	Farmer's Co-op. Elev., Adrian				20.10	21.08	0.10	0.94	20.00	20.14			27.00	27.19
10-298	20% Acid Phosphate	Barton County Farm Assn., Lamar				20.10	20.86	0.10	0.55	20.00	20.31			27.00	27.42
10-299	20% Acid Phosphate	Maysville Coop. Assn., Maysville				20.10	21.09	0.10	0.94	20.00	20.15			27.00	27.20
10-300	20% Acid Phosphate	Farmer Elevator & Supply Co., Clinton				20.10	21.01	0.10	0.73	20.00	20.28			27.00	27.38
10-306	0-12-4	Farmer's Grain & Produce Exc., Rosebud				12.25	11.46	0.25	0.52	12.00	10.94	4.00	4.42	20.60	19.63
10-309	0-12-4	Mark White, Anabel				12.25	12.12	0.25	0.49	12.00	11.63	4.00	4.43	20.60	20.57
10-541	0-12-4	Farmer's Exchange, Jasper				12.25	13.51	0.25	0.58	12.00	12.93	4.00	4.26	20.60	22.15
10-310	0-12-6	Farmer's Coop. Assn., Leslie				12.25	11.99	0.25	0.57	12.00	11.42	6.00	6.38	22.80	22.44
10-301	1-12-1 <sup>10</sup>	Ernest Strasser, Winston	0.83	0.93	39.77	12.25	12.12	0.25	1.01	12.00	11.11	1.00	1.63	20.83	20.74
10-302	2-8-2	Farm Club Exchange, Owensville	1.67	1.70	49.47	8.15	8.98	0.15	1.03	8.00	7.95	2.00	2.41	20.10	20.61

10-303	2-8-2	Farmer's Grain & Prod. Exc., Rosebud	1.67	1.81	52.43	8.15	8.44	0.15	1.23	8.00	7.21	2.00	2.62	20.10	20.30
6-66	2-12-2	Farmer's Exchange, Aurora	1.67	1.87	49.73	12.25	11.41	0.25	0.84	12.00	10.57	2.00	2.66	25.41	25.15
10-304	2-12-2	Farmer's Grain & Produce Exch., Rosebud	1.67	1.73	71.09	12.25	11.79	0.25	1.23	12.00	10.56	2.00	2.86	25.50	24.76
10-305	2-12-2	Farmer's Elevator, Wright City	1.67	1.40	60.00	12.25	12.50	0.25	0.98	12.00	11.52	2.00	2.34	25.50	24.07
10-307	3-10-4	Farmer's Grain & Produce Exch., Rosebud	2.51	1.87	64.17	10.25	11.18	0.25	1.15	10.00	10.03	4.00	3.53	28.57	25.37
10-308	3-10-4	Producer's Exchange #280, Free- burg	2.51	1.04	46.14	10.25	11.79	0.25	0.67	10.00	11.12	4.00	2.56	28.57	22.25
10-312	Bone and Phosphate Mixture <sup>12</sup>	Producer's Exchange #140, Cali- fornia	1.25	1.37	37.95	-----	19.67	6.00	8.51	12.00	11.16	-----	-----	26.31	25.69
10-313	Bone and Phosphate Mixture <sup>12</sup>	Farmer's Grain & Prod. Exc., Rosebud	1.25	1.50	34.00	-----	21.08	6.00	11.33	12.00	9.75	-----	-----	26.31	24.34
10-314	Bone and Phosphate Mixture <sup>12</sup>	Ernest Strasser, Winston	1.25	1.59	31.43	-----	20.13	6.00	9.69	12.00	10.44	-----	-----	26.31	25.65
10-311	Steamed Bone Meal	Farmer's Elevator, Wright City	2.51	3.67	32.70	24.00	24.22	-----	-----	-----	-----	-----	-----	34.67	39.82
10-540	Steamed Bone Meal	Conrad Wirth, Lockwood	2.51	3.69	29.54	24.00	24.58	-----	-----	-----	-----	-----	-----	34.67	40.26
<b>Interstate Fertilizer Co., Webb City, Mo. Interstate Brands</b>															
10-315	Acid Phosphate	Farmers Exchange, Nevada	-----	-----	-----	-----	17.15	-----	0.99	16.00	16.16	-----	-----	21.60	21.82
10-543	Acid Phosphate	Haubein & Son, Lockwood	-----	-----	-----	-----	15.87	-----	0.52	16.00	15.35	-----	-----	21.60	20.72
10-547	1/2-15-2 <sup>9</sup>	Wm. C. Heckmaster, Diamond	0.41	0.76	28.94	-----	15.69	1.50	0.55	15.00	15.14	2.00	2.33	14.19	26.23
10-548	2-8-5	James Cummings, Wentworth	1.65	2.61	63.60	-----	10.14	1.25	1.49	8.00	8.65	5.00	4.54	23.31	27.76
10-549	2-12-2 <sup>9</sup>	Homer Kirk, Duenweg	1.65	2.24	66.50	-----	13.06	1.50	2.02	12.00	11.04	2.00	2.14	25.41	26.77
10-550	2-12-2 <sup>9</sup>	John Heckmaster, Duenweg	1.65	2.24	58.40	-----	12.14	1.50	1.85	12.00	10.29	2.00	2.11	25.41	25.73
10-551	2-12-2	White & Hayzlett, Jasper	1.65	1.77	32.26	-----	14.32	1.50	2.32	12.00	12.00	2.00	1.90	25.41	25.81
10-545	Half Bone Meal & Half Acid Phosphate <sup>11</sup>	White & Hayzlett, Jasper	1.23	1.57	26.75	-----	20.85	8.00	8.78	12.00	12.07	-----	-----	27.83	29.36
10-546	Half Bone Meal & Half Acid Phosphate <sup>11</sup>	C. E. McCulley, Georgia City	1.23	2.21	24.44	-----	20.92	8.00	9.49	12.00	11.43	-----	-----	27.83	31.22
<b>The National Plant Food Co., Eau Claire, Wis.</b>															
6-67	Red Snapper Plant Food	Mid West Seed Co., Kansas City	5.00	5.08	89.76	12.00	12.71	8.00	5.05	4.00	7.66	1.25	1.30	28.03	33.36

<sup>9</sup>Without registration tags.

<sup>10</sup>Indistinct labels.

<sup>11</sup>Not registered under this brand name.

<sup>12</sup>Tables do not agree with registration.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
	<b>The Nitragin Co., Milwaukee, Wis.</b>		Per Cnet	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
6— 68	Plant Pep <sup>9</sup> -----	Factory sample, Milwaukee, Wis.	14.00	14.72	99.52	-----	13.55	-----	0.09	10.00	13.46	12.00	11.97	86.20	93.90
10—316	Plant Pep <sup>9</sup> -----	Chesmore Seed Co., St. Joseph	14.00	14.24	99.43	-----	12.78	-----	1.08	10.00	11.70	12.00	14.83	86.20	92.63
	<b>Nitrate Agencies Co., New Orleans, La.</b>														
6— 69	Nitrate of Soda <sup>49</sup> -----	Thompson Haywood Chemical Co., Kansas City	15.00	14.98	100.00	1	-----	-----	-----	-----	-----	-----	-----	63.75	63.67
6— 70	Nitrate of Soda <sup>49</sup> -----	Heinrichsmeyer Feed Co., St. Louis	15.00	15.31	100.00	1	-----	-----	-----	-----	-----	-----	-----	63.75	65.07
	<b>The Phosphated Manure Co., Kansas City, Mo. Wizard Brands</b>														
6— 71	Phosphated Manure -----	B. F. Julian, Marshfield	0.82	1.10	5.45	-----	10.98	-----	0.45	9.00	10.53	1.00	1.52	16.74	20.57
	<b>Prosperity Laboratories, North Kansas City Prosperity Brands</b>														
6— 73	Lawn Food -----	Carman Supply Co., N. Kansas City	7.40	6.67	79.46	-----	8.22	0.50	1.33	7.00	6.89	3.00	3.42	44.20	41.41
6— 74	Potted Plant Food -----	Carman Supply Co., N. Kansas City	2.40	1.62	55.56	-----	12.81	0.50	2.12	6.00	10.69	2.00	1.26	20.50	22.71
6— 75	Shrub Food <sup>12</sup> -----	Carman Supply Co., N. Kansas City	6.00	6.67	76.01	-----	8.86	0.50	1.48	6.00	7.38	2.00	3.00	34.70	41.61



TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

(Page 38)

Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton				
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd			
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent					Per Cent	Per Cent	
10—324	High Grade Acid Phosphate	Frank Dickneite, Freeburg																
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
10—325	High Grade Acid Phosphate	Culps Elevator Co., Warrensburg					16.71		0.47	16.00	16.24						21.60	21.92
10—326	High Grade Acid Phosphate	Producers Grain Co., Kenoma					16.76		0.47	16.00	16.29						21.60	21.99
10—328	High Grade Acid Phosphate	Landwehr Bros., Truesdale					16.84		0.61	16.00	16.23						21.60	21.91
10—330	High Grade Acid Phosphate	S. C. Hulton, Cameron					17.21		0.65	16.00	16.47						21.60	22.23
10—331	High Grade Acid Phosphate	Farmer's Produce Exchange, Lowery City					16.66		0.44	16.00	16.22						21.60	21.90
10—332	High Grade Acid Phosphate	Farmer Bros., Willard					16.75		0.56	16.00	16.19						21.60	21.86
10—333	High Grade Acid Phosphate	Redfern & Hoyal, Bois D'Arc					16.56		0.40	16.00	16.16						21.60	21.82
10—334	High Grade Acid Phosphate	Roy W. Gould, Morrisville					16.53		0.51	16.00	16.02						21.60	21.63
10—335	High Grade Acid Phosphate	Farmer's Exchange, Bolivar					16.79		0.66	16.00	16.16						21.60	21.78
10—366	High Grade Acid Phosphate	Maywood Feed Co., Maywood					16.85		0.65	16.00	16.20						21.60	21.87
6—81	Red Steer 20% Acid Phosphate Fertilizer	St. Francois County Farm Bureau, Farmington					16.72		0.31	16.00	16.41						21.60	22.15
6—82	Red Steer 20% Acid Phosphate Fertilize	St. Francois County Farm Bureau, Bismarck					20.95		0.46	20.00	20.49						27.00	27.66
10—347	Red Steer 20% Acid Phosphate Fertilizer	J. J. Cremer, Russellville					20.93		0.39	20.00	20.54						27.00	27.73
10—348	Red Steer 20% Acid Phosphate Fertilize	Farmer's Elevator Co., Gerald					21.74		0.85	20.00	20.89						27.00	28.20
10—349	Red Steer 20% Acid Phosphate Fertilizer	S. C. Hulton, Cameron					21.38		0.86	20.00	20.52						27.00	27.70
10—350	Red Steer 20% Acid Phosphate Fertilizer	Redfern & Hoyal, Bois D'Arc					21.64		0.40	20.00	21.24						27.00	28.67
10—351	Red Steer 20% Acid Phosphate Fertilizer	Roy W. Gould, Morrisville					21.82		0.57	20.00	21.25						27.00	28.69
							21.36		0.57	20.00	20.79						27.00	28.07



TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						G'td	F'nd	G'td	F'nd	G'td	F'nd				
10—369	Red Steer 2-12-2	Farmer Bros., Willard	1.65	1.66	66.33	13.00	12.80	1.00	0.68	12.00	12.12	2.00	1.58	25.41	25.16
10—370	Red Steer 2-12-2	Redfern & Hoyal, Bois D'Arc	1.65	1.64	67.07	13.00	12.65	1.00	0.63	12.00	12.02	2.00	1.46	25.41	24.81
10—371	Red Steer 2-12-2	Roy W. Gould, Morrisville	1.65	1.59	89.93	13.00	12.76	1.00	0.63	12.00	12.13	2.00	2.56	25.41	25.96
10—372	Red Steer 2—12—2	Byrd & Horn, Hunnewell	1.65	1.68	65.47	13.00	13.35	1.00	1.27	12.00	12.08	2.00	1.82	25.41	25.45
10—373	Red Steer 2—12—2	Maywood Feed Co., Maywood	1.65	1.69	65.08	13.00	13.27	1.00	1.67	12.00	11.60	2.00	2.01	25.41	25.05
10—374	Red Steer 2—12—6	J. J. Cremer, Russellville	1.65	1.65	63.63	13.00	13.27	1.00	0.64	12.00	12.63	6.00	6.04	29.81	30.70
10—566	Red Steer 2—12—6 <sup>a</sup>	Peer Bros., Lockwood	1.65	1.79	70.39	13.00	13.42	1.00	0.80	12.00	12.62	6.00	6.37	29.81	31.66
10—375	Red Steer 2—16—2	Ben Strop, Meta	1.65	1.65	95.15	17.00	17.38	1.00	0.87	16.00	16.51	2.00	1.96	30.81	31.46
10—376	Red Steer 2—16—2	Roy W. Gould, Morrisville	1.65	1.68	94.04	17.00	16.87	1.00	0.82	16.00	16.05	2.00	2.01	30.81	31.02
10—377	Red Steer 2—16—2	Farmer's Elevator & Exchange, Monroe	1.65	1.92	89.58	17.00	16.58	1.00	0.64	16.00	15.94	2.00	2.02	30.81	31.90
10—378	Red Steer 2—16—2	Farmer's Elevator & Exchange, Ewing	1.65	1.73	95.37	17.00	16.84	1.00	1.04	16.00	15.80	2.00	2.07	30.81	30.95
10—379	Red Steer 2—16—2	Edina Roller Mills, Edina	1.65	1.69	94.05	17.00	17.38	1.00	1.08	16.00	16.30	2.00	2.05	30.81	31.45
6—89	Red Steer 3—8—6	St. Francois County Farm Bureau, Bismarck	2.47	2.42	80.58	9.00	8.52	1.00	0.58	8.00	7.94	6.00	6.57	27.90	28.24
6—91	Red Steer 3—8—6	Banner Roller Mills, Salem	2.47	2.43	68.31	9.00	8.17	1.00	0.52	8.00	7.65	6.00	4.99	27.90	26.15
10—380	Red Steer 3—8—6	J. A. Brim & Son, Walnut Grove	2.47	2.48	86.29	9.00	7.86	1.00	0.25	8.00	7.61	6.00	7.06	27.90	28.57
6—92	Red Steer 3—12—4	Farmer's Produce Exchange 166, Cassville	2.47	2.47	76.92	13.00	13.21	1.00	1.07	12.00	12.14	4.00	4.53	31.10	31.87
6—93	Red Steer 4—12—0	St. Francois County Farm Bureau, Bismarck	3.29	3.02	86.75	13.00	13.42	1.00	1.04	12.00	12.38	-----	-----	30.18	29.55
10—340	1 1/4—29 Bone Meal Fertilizer	Soel & Co., Lohman	1.03	1.47	14.96	29.00	31.07	-----	-----	-----	-----	-----	-----	33.38	37.32
10—341	1 1/4—29 Bone Meal Fertilizer	G. B. Beeny & Sons, Sheldon	1.03	1.27	18.89	29.00	30.92	-----	-----	-----	-----	-----	-----	33.38	36.32
10—343	1 1/4—29 Bone Meal Fertilizer	Farmer's Elevator, Bowling Green	1.03	1.37	19.17	29.00	32.58	-----	-----	-----	-----	-----	-----	33.38	38.40
10—344	1 1/4—29 Bone Meal Fertilizer	Roy W. Gould, Morrisville	1.03	1.01	26.73	29.00	30.42	-----	-----	-----	-----	-----	-----	33.38	34.71
10—345	1 1/4—29 Bone Meal Fertilizer	Byrd & Horn, Hunnewell	1.03	1.36	20.61	29.00	31.59	-----	-----	-----	-----	-----	-----	33.38	37.37





TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1925 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Total Nitrogen			Phosphoric acid, P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
			Amt. G'td	Amt. F'nd	Act'y F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						G'td	F'nd	G'td	F'nd	G'td	F'nd				
10—389	Good Luck Wheat Special.....	A. F. Shipley, Republic.....	1.65	1.74	60.92	13.35	1.20	12.00	12.15	2.00	2.80	25.41	26.88		
10—390	V-C Half and Half Bone & Phosphate.....	A. F. Renshaw, Pearl.....	1.23	1.32	45.45	20.00	22.20	9.00	12.10	11.00	10.10	27.28	26.45		
10—391	V-C Raw Bone Meal.....	N. Johannes & Sons Imp. Co., Lamar.....	3.70	4.08	0.00	20.00	21.94					35.73	39.28		
6—95	<b>Victory Fertilizer Co., Boston, Mass.</b> Victory Plant Food <sup>9</sup> .....	Bentzen Floral Co., St. Louis.....	2.47	4.37	87.40	15.06	4.31	8.00	10.75	4.00	4.31	25.70	37.82		
10—395	<b>Wilson &amp; Co., New Albany, Ind.</b> Red "W" Brands Bone Meal & Acid Phosphate.....	G. B. Beeny & Sons, Sheldon.....	0.82	3.68	42.66	23.00	24.47	10.23	12.50	14.24		20.37	34.86		
10—567	Acid Phosphate 16%.....	Farmer's Grain & Livestock Exc., Lockwood.....				17.00	17.34	1.00	1.97	16.00	15.37	21.60	20.75		
10—568	Raw Bone Meal <sup>7</sup> .....	Omer Webb, Jasper.....	3.70	4.27	5.38	23.00	24.55					38.73	42.70		
2—5	<b>Miscellaneous Samples</b> Raw Bone Meal, Cudahy Packing Co.....	T. Chester White, Norborne.....	3.70	5.15		22.00	17.30					37.73	39.19		
5—53	Trona Potash, Floyd Plant Food Co.....	Factory Sample.....										57.00	57.08		
5—54	Trona Potash, American Trona Corporation.....	Selling Sample.....										58.50	61.04		
8—37	Limash, Ash Grove Lime & Portland Cement Co.....	P. J. Shenk, Oronogo.....										0.92	2.12		
												1.01	2.33		

8-72	Middle West Grain Grower, American Agric. Chem. Co.....	Clifford Custard, Galt -----	1.65	1.63	-----	-----	14.59	0.50	1.89	12.00	12.70	2.00	2.15	25.41	26.44
10-467	Acid Phosphate, Arkansas Fertil- izer Co.....	J. H. H. Mote, Carthage-----	-----	-----	-----	-----	19.47	-----	1.38	16.00	18.09	-----	-----	21.60	24.46
10-489	M. F. A. 2-16-2, Floyd Plant Food Co.....	H. W. Langeman, Elmont-----	1.67	1.41	-----	16.25	16.88	0.25	0.80	16.00	16.08	2.00	3.70	30.81	31.77
10-491	M. F. A. Ground Steam Bone, Floyd Plant Food Co. <sup>12</sup> -----	A. B. Ward, Miller-----	1.67	2.11	-----	27.00	27.97	-----	-----	-----	-----	-----	-----	34.10	36.94
10-492	M. F. A. 2-16-2 Floyd Plant Food Co. <sup>12</sup> -----	A. B. Ward, Miller-----	1.67	1.76	-----	16.25	15.00	0.25	0.59	16.00	14.41	2.00	2.45	30.90	29.63
10-493	M. F. A. 2-12-2 Floyd Plant Food Co. <sup>12</sup> -----	A. B. Ward, Miller-----	1.67	1.73	-----	12.25	11.05	0.25	0.38	12.00	10.67	2.00	2.33	25.50	24.31

<sup>12</sup>Wrong registration tags.

<sup>13</sup>Without registration tags.

<sup>14</sup>Labels interchanged on samples.

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
1- 2	Soils Dept. ....	Flotation tailings .....	82.21
1- 3	L. F. Wainscott, Kingston .....	Limestone No. 1 .....	96.29
1- 4	L. F. Wainscott, Kingston .....	Limestone No. 2 .....	88.77
1- 5	L. F. Wainscott, Kingston .....	Limestone No. 3 .....	91.45
1- 6	L. F. Wainscott, Kingston .....	Limestone No. 4 .....	90.27
1- 7	L. F. Wainscott, Kingston .....	Limestone No. 5 .....	93.87
1- 8	L. F. Wainscott, Kingston .....	Limestone No. 6 .....	92.12
1- 9	L. F. Wainscott, Kingston .....	Limestone No. 7 .....	91.30
1- 10	L. F. Wainscott, Kingston .....	Limestone No. 8 .....	90.63
1- 11	L. F. Wainscott, Kingston .....	Limestone No. 9 .....	85.01
1- 12	L. F. Wainscott, Kingston .....	Limestone No. 10 .....	85.27
1- 13	L. F. Wainscott, Kingston .....	Limestone No. 11 .....	85.84
1- 14	L. F. Wainscott, Kingston .....	Limestone No. 12 .....	92.84
1- 15	Raymond Franks, Macon .....	Limestone No. I .....	93.05
1- 16	Raymond Franks, Macon .....	Limestone No. II .....	92.27
1- 17	Raymond Franks, Macon .....	Limestone No. III .....	88.66
1- 18	B. B. Branstetter, Liberty .....	Limestone, screenings .....	88.62
1- 20	Brand Orchard Co., Mayview .....	Limestone .....	74.05
1- 21	Brand Orchard Co., Mayview .....	Limestone .....	79.62
1- 22	John M. Phelan, Jamestown .....	Limestone No. 1 .....	97.81
1- 23	John M. Phelan, Jamestown .....	Limestone No. 2 .....	98.80
1- 24	John M. Phelan, Jamestown .....	Limestone No. 3 .....	99.58
1- 25	John M. Phelan, Jamestown .....	Limestone No. 4 .....	98.95
2- 1	Stewart Halley, Powersville .....	Limestone, crushed .....	83.58
2- 3	J. R. Hansen, Clayton .....	Limestone, crushed .....	87.96
2- 4	W. L. Barrett, Boonville .....	Limestone .....	97.39
2- 7	David Meeker, Butler .....	Limestone, crushed .....	81.66
2- 8	T. F. Lueker, Jefferson City .....	Limestone .....	98.24
2- 9	Frank Stonner, Fulton .....	Limestone .....	98.28
2- 10	C. W. Vetter, Perryville .....	Limestone No. 67 .....	93.85
2- 11	C. W. Vetter, Perryville .....	Limestone No. 68 .....	98.85
2- 12	Huckstep Bros., Cyrene .....	Limestone, crushed .....	95.78
2- 13	R. L. Furry, Versailles .....	Limestone 1 .....	95.77
2- 14	R. L. Furry, Versailles .....	Limestone 2 .....	90.56
2- 15	R. L. Furry, Versailles .....	Limestone 3 .....	100.20
2- 16	E. T. Steele, Troy .....	Limestone 1 .....	99.16
2- 17	E. T. Steele, Troy .....	Limestone 2 .....	99.11
2- 26	C. W. Vetter, Perryville .....	Limestone No. 69 .....	97.70
2- 27	C. W. Vetter, Perryville .....	Limestone No. 70 .....	97.75
2- 28	E. L. Garrett, Higginsville .....	Lime, air slacked .....	74.62
2- 29	O. E. Allen, Farmington .....	Limestone .....	102.75
2- 33	Geo. Prettyman, Fairfax .....	Lime, waste material .....	84.66
3- 44	J. P. Cunningham, Wentzville .....	Limestone No. 1 .....	98.29
3- 45	J. P. Cunningham, Wentzville .....	Limestone No. 2 .....	98.39
3- 46	J. P. Cunningham, Wentzville .....	Limestone No. 3 .....	99.17
3- 47	E. L. Eslinger, Grant City .....	Limestone No. 1 .....	93.80
3- 48	E. L. Eslinger, Grant City .....	Limestone No. 2 .....	89.89
3- 49	J. P. Knierim, Overton .....	Limestone .....	99.11
3- 50	W. E. Warren, Piedmont .....	Crystalline Calcite .....	99.78
3- 51	T. M. Keyser, Jackson .....	Limestone, crushed .....	103.44
3- 54	A. C. Winter, Montgomery City .....	Limestone .....	93.18
3- 55	R. A. Langanbacker, St. Charles .....	Limestone, crushed .....	92.56
3- 56	J. R. Hansen, Clayton .....	Limestone, No. 1 .....	95.66
3- 57	J. R. Hansen, Clayton .....	Limestone, No. 2 .....	99.47
3- 58	Stewart Leaming, Richmond .....	Limestone .....	93.84
3- 59	Earl T. Steele, Troy .....	Limestone .....	95.87

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
3- 60	Frank Obermeyer, Lynn.....	Limestone No. 1.....	94.76
3- 61	Frank Obermeyer, Lynn.....	Limestone No. 2.....	94.86
3- 62	W. E. Hendrick, Anderson.....	Limestone.....	78.40
3- 63	W. E. Hendrick, Anderson.....	Limestone, coarse screenings.....	95.57
3- 64	Kapell Bros., Chamois.....	Limestone, No. 1.....	87.89
3- 65	Kapell Bros., Chamois.....	Limestone No. 2.....	87.08
3- 66	James A. Muster, Nevada.....	Limestone No. 1.....	90.37
3- 67	James A. Muster, Nevada.....	Limestone No. 2.....	90.62
3- 68	Ira Drymon, Independence.....	Limestone, crushed.....	92.49
3-133	R. A. Langanbacker, St. Charles.....	Limestone, crushed.....	76.68
3-134	J. Robert Hall, Linneus.....	Limestone, crushed.....	88.68
3-135	David Meeker, Butler.....	Limestone, No. 1.....	84.91
3-136	David Meeker, Butler.....	Limestone, No. 2.....	74.36
4- 8	Longview Farm, Lees Summit.....	Limestone, crushed.....	78.85
4- 9	Longview Farm, Lees Summit.....	Limestone, crushed.....	78.55
4- 10	C. W. Vetter, Perryville.....	Limestone No. 71.....	93.24
4- 41	R. A. Langanbacker, St. Charles.....	Limestone No. 1.....	91.07
4- 42	R. A. Langanbacker, St. Charles.....	Limestone No. 2.....	81.43
4- 43	D. R. Forrester, Chillicothe.....	Limestone, crushed.....	87.13
4- 47	Longview Farm, Lees Summit.....	Limestone, crushed No. 1.....	82.24
4- 48	Longview Farm, Lees Summit.....	Limestone, crushed No. 2.....	87.19
4- 49	G. W. Sneed, St. Louis.....	Limestone, crushed.....	87.95
4- 50	Independent Gravel Co., Joplin.....	Limestone, crushed.....	96.17
4- 51	A. K. George, Clinton.....	Limestone, crushed No. 1.....	101.44
4- 52	A. K. George, Clinton.....	Limestone, crushed No. 2.....	99.65
4- 53	Consolidated Crushed Stone Co., Gallatin.....	Limestone, screenings.....	83.49
4- 54	R. A. Langanbacker, St. Charles.....	Limestone, crushed.....	82.35
4- 55	Ira Drymon, Independence.....	Rock surface 1.....	90.35
4- 5	Ira Drymon, Independence.....	Rock, surface 2.....	90.13
4- 57	Otto P. Shanks, Monticello.....	Rock No. 1.....	82.84
4- 58	Otto P. Shanks, Monticello.....	Rock No. 2.....	98.07
4- 59	Otto P. Shanks, Monticello.....	Rock No. 3.....	83.11
4- 60	Otto P. Shanks, Monticello.....	Rock No. 4.....	99.81
4- 61	C. W. Vetter, Perryville.....	Limestone No. 72.....	99.76
4- 62	C. W. Vetter, Perryville.....	Limestone No. 73.....	98.94
5- 2	Virgil Bachtel, Brunswick.....	Limestone, black.....	85.13
5- 3	Isom J. Martin, Kahoka.....	Limestone, crushed.....	96.87
5- 4	T. J. Johnson, Monticello.....	Limestone, crushed.....	99.59
5- 5	Geo. Edwards, Hamilton.....	Limestone, yellow.....	96.77
5- 6	Geo. Edwards, Hamilton.....	Limestone, gray.....	98.50
5- 7	A. F. Stephens, Warrensburg.....	Limestone, crushed.....	93.50
5- 39	E. L. Garrett, Higginsville.....	Limestone.....	82.62
5- 40	E. J. Ford, Hickman Mills.....	Limestone.....	82.84
5- 55	James E. Crosby, Doniphan.....	Limestone No. 1.....	88.98
5- 56	James E. Crosby, Doniphan.....	Limestone No. 2.....	73.16
5- 57	James E. Crosby, Doniphan.....	Limestone No. 3.....	89.58
5- 58	James E. Crosby, Doniphan.....	Limestone No. 4.....	101.61
5- 59	August Oetting, Mansfield.....	Rock.....	80.72
5- 60	William Williams, Elkton.....	Rock.....	97.04
5- 61	Glenn S. Hensley, Harrisonville.....	Limestone.....	97.96
5- 62	J. L. Perrin, Milan.....	Limestone, crushed.....	85.07
5- 64	G. R. Skinner, Columbia.....	Rock.....	96.44
5- 65	G. R. Skinner, Columbia.....	Rock.....	99.00
5- 66	Edward Laumann, Wentzville.....	Limestone I.....	97.09
5- 67	Edward Laumann, Wentzville.....	Limestone II.....	97.36

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
5- 68	Edward Laumann, Wentzville.....	Limestone III.....	96.44
5- 69	George A. Tumbleson, Princeton.....	Limestone 1.....	95.90
5- 70	George A. Tumbleson, Princeton.....	Limestone 2.....	94.86
5- 71	George A. Tumbleson, Princeton.....	Limestone 3.....	97.36
5- 72	George A. Tumbleson, Princeton.....	Limestone 4.....	80.80
5- 73	George A. Tumbleson, Princeton.....	Limestone 5.....	96.55
5- 74	George A. Tumbleson, Princeton.....	Limestone 6.....	96.71
5- 75	G. E. Adams, Darlington.....	Limestone.....	84.63
5- 77	G. R. Skinner, Columbia.....	Limestone.....	95.38
5- 78	G. R. Skinner, Columbia.....	Limestone.....	84.03
5- 79	B. B. Branstetter, Liberty.....	Limestone, crushed.....	91.87
5- 80	B. B. Branstetter, Liberty.....	Limestone, chalk-like.....	78.41
5- 81	James G. Todd, Versailles.....	Limestone, crushed.....	89.28
5- 82	Ira Drymon, Independence.....	Limestone, crushed.....	85.43
5- 83	A. K. George, Clinton.....	Limestone, crushed.....	83.70
6- 96	A. K. George, Clinton.....	Limestone.....	101.59
6- 97	Frank Stonner, Fulton.....	Stone I.....	100.35
6- 98	Frank Stonner, Fulton.....	Stone II.....	94.19
6-139	Quarry of Missimo Mineral Products Auxvasse.....	Limestone 1.....	99.97
6-140	Quarry of Missimo Mineral Products, Auxvasse.....	Limestone 2.....	100.02
6-141	Quarry of Missimo Mineral Products, Auxvasse.....	Limestone 3.....	95.27
6-142	T. F. Lueker, Jefferson City.....	Limestone, crushed.....	93.05
6-143	A. B. Daniels, Lockwood.....	Limestone.....	98.17
6-144	R. R. Conrad, California.....	Limestone 1.....	97.91
6-145	R. R. Conrad, California.....	Limestone 2.....	92.79
6-146	F. H. Darnall, Poplar Bluff.....	Limestone.....	104.72
6-147	O. T. Coleman, Palmyra.....	Limestone.....	99.59
6-150	Isom J. Martin, Kahoka.....	Limestone 1.....	93.74
6-151	Isom J. Martin, Kahoka.....	Limestone 2.....	86.08
6-152	Isom J. Martin, Kahoka.....	Limestone 3.....	99.70
6-153	Isom J. Martin, Kahoka.....	Limestone 4.....	99.02
6-154	Isom J. Martin, Kahoka.....	Limestone 5.....	97.38
6-155	Frank Stonner, Fulton.....	Limestone 1 blue.....	70.03
6-156	Frank Stonner, Fulton.....	Limestone 2 yellow.....	73.09
6-157	David Meeker, Butler.....	Limestone 1 dark gray.....	95.85
6-158	David Meeker, Butler.....	Limestone 2 dark gray.....	94.21
6-176	Jacob Koester, Stover.....	Limestone 1.....	92.91
6-177	Jacob Koester, Stover.....	Limestone 2.....	101.62
6-178	Jacob Koester, Stover.....	Limestone 3.....	96.95
6-179	Jacob Koester, Stover.....	Limestone 4.....	96.85
6-180	Jacob Koester, Stover.....	Limestone 5.....	101.57
6-183	Earl T. Steele, Troy.....	Limestone 0.....	92.50
6-184	Earl T. Steele, Troy.....	Limestone 1.....	97.68
6-185	Earl T. Steele, Troy.....	Limestone, crushed.....	95.19
6-186	L. F. Wainscott, Kingston.....	Limestone, screenings 1.....	80.00
6-187	L. F. Wainscott, Kingston.....	Limestone 2.....	88.03
6-188	L. F. Wainscott, Kingston.....	Limestone 3.....	89.80
6-189	L. F. Wainscott, Kingston.....	Limestone 4.....	86.02
6-190	L. F. Wainscott, Kingston.....	Limestone 5.....	87.52
6-191	L. F. Wainscott, Kingston.....	Limestone 6.....	95.45
6-192	L. F. Wainscott, Kingston.....	Limestone 7.....	95.45
6-193	L. F. Wainscott, Kingston.....	Limestone 8.....	95.08

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
6-194	R. A. Langanbacker, St. Charles	Limestone 1 white	96.85
6-195	R. A. Langanbacker, St. Charles	Limestone 2 red	96.74
6-196	R. A. Langanbacker, St. Charles	Limestone 3 yellow	97.37
6-197	R. A. Langanbacker, St. Charles	Limestone 4 blue	90.21
1-198	R. L. Furry, Versailles	Limestone 1	99.91
6-199	R. L. Furry, Versailles	Limestone 2	84.15
6-200	R. L. Furry, Versailles	Limestone 3	84.41
7- 1	J. H. Ellison, Mt. Grove	Limestone	89.47
7- 2	R. L. Furry, Versailles	Limestone 1	102.23
7- 3	R. L. Furry, Versailles	Limestone 2	100.19
7- 4	R. L. Furry, Versailles	Limestone 3	101.51
7- 5	R. L. Furry, Versailles	Limestone 4	95.24
7- 6	R. L. Furry, Versailles	Limestone 5	99.27
7- 7	R. L. Furry, Versailles	Limestone 6	90.60
7- 8	R. L. Furry, Versailles	Limestone 7	98.25
7- 9	E. S. Matteson, Paris	Limestone, crushed	96.82
7- 10	O. H. Dewolf, Pattonsburg	Limestone 1	89.33
7- 11	O. H. Dewolf, Pattonsburg	Limestone 2	90.80
7- 12	David Meeker, Butler	Limestone, chalk-like 1	59.18
7- 13	David Meeker, Butler	Limestone, chalk-like 2	84.38
7- 14	Frank Stonner, Fulton	Burnt Lime	153.70
7- 15	R. L. Furry, Versailles	Limestone	92.02
7- 16	Paul Keller, Mountain Grove	Limestone	84.97
7- 17	J. L. Perrin, Milan	Limestone 1	95.98
7- 18	J. L. Perrin, Milan	Limestone 2	1.02
7- 19	J. L. Perrin, Milan	Limestone 3	0.77
7- 20	O. T. Coleman, Palmyra	Limestone, crushed	96.19
7- 21	H. E. Hatch, Barnett	Rock	92.57
7- 86	A. F. Stephens, Warrensburg	Limestone, crushed	80.26
7- 87	A. F. Stephens, Warrensburg	Limestone, crushed	93.67
7- 88	V. P. Gibson, Brownington	Limestone 1 gray	98.29
7- 89	V. P. Gibson, Brownington	Limestone 2 gray	24.14
7- 90	V. P. Gibson, Brownington	Limestone 3 red	1.55
7- 91	V. P. Gibson, Brownington	Limestone 4 white	98.59
7- 92	C. W. Campbell, Bowling Green	Limestone 1	98.70
7- 93	C. W. Campbell, Bowling Green	Limestone 2	97.26
7- 94	C. W. Campbell, Bowling Green	Limestone 1	98.19
7- 95	C. W. Campbell, Bowling Green	Limestone 2	97.77
7- 96	W. G. Waitman, Bogard	Limestone, crushed 1	76.26
7- 97	W. G. Waitman, Bogard	Limestone, crushed 2	74.77
7- 98	G. R. Skinner, Columbia	Limestone 1	98.44
7- 99	G. R. Skinner, Columbia	Limestone 2	99.01
7-100	T. F. Lueker, Jefferson City	Limestone 1	103.22
7-101	T. F. Lueker, Jefferson City	Limestone 2	103.32
7-102	T. F. Lueker, Jefferson City	Limestone 3	103.11
7-103	T. F. Lueker, Jefferson City	Limestone 4	98.78
7-104	Frank Stonner, Fulton	Limestone I	78.48
7-105	Frank Stonner, Fulton	Limestone II	18.96
7-106	Borgmann Bros., Wentzville	Limestone 1	95.72
7-107	Borgmann Bros., Wentzville	Limestone 2	96.69
7-108	Borgmann Bros., Wentzville	Limestone 3	95.77
7-109	A. J. Clayton, Keytesville	Limestone I	68.94
7-110	A. J. Clayton, Keytesville	Limestone II	63.64
7-111	A. J. Clayton, Keytesville	Limestone III	88.84
7-112	J. Robert Hall, Linneus	Lime tailings	97.76

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
7-115	DeVoy Lime & Stone Co., Mercer, Ark.	Limestone, ground	91.27
7-116	T. F. Lueker, Jefferson City	Limestone I	100.49
7-117	T. F. Lueker, Jefferson City	Limestone II	94.47
7-118	T. F. Lueker, Jefferson City	Limestone III	99.41
7-119	Charles C. Hupp, Doe Run	Chats	81.64
7-120	E. L. Garrett, Higginsville	Limestone	95.13
7-121	T. M. Keyser, Jackson	Limestone A1	98.07
7-122	T. M. Keyser, Jackson	Limestone A2	97.50
7-123	T. M. Keyser, Jackson	Limestone A3	98.74
7-124	T. M. Keyser, Jackson	Limestone 1	94.05
7-125	T. M. Keyser, Jackson	Limestone 2	103.63
7-126	T. M. Keyser, Jackson	Limestone 3	101.78
7-127	T. M. Keyser, Jackson	Limestone 4	102.29
7-128	David Meeker, Butler	Rock I	96.06
7-129	David Meeker, Butler	Rock II	98.22
7-130	David Meeker, Butler	Rock III	92.40
7-131	David Meeker, Butler	Rock IV	97.35
7-132	Polo Elevator Co., Polo	Limestone	93.33
7-133	Aug. Schwer, Summerfield	Rock	99.67
7-134	R. A. Langenbacher, St. Charles	Limestone, crushed	97.24
7-136	T. M. Keyser, Jackson	Limestone 1	107.55
7-137	T. M. Keyser, Jackson	Limestone 2	84.99
7-138	T. M. Keyser, Jackson	Limestone 3	106.67
8- 1	T. M. Keyser, Jackson	Limestone 2	101.26
8- 2	T. M. Keyser, Jackson	Limestone 3	102.65
8- 3	T. M. Keyser, Jackson	Limestone 4	102.08
8- 4	T. M. Keyser, Jackson	Limestone 5	102.03
8- 5	O. T. Coleman, Palmyra	Limestone, crushed	100.23
8- 6	C. W. Campbell, Bowling Green	Limestone	98.48
8- 7	James E. Crosby, Doniphan	Limestone	105.12
8- 8	E. A. Borgelt, Wentzville	Limestone 1	100.18
8- 9	E. A. Borgelt, Wentzville	Limestone 2	100.54
8- 10	V. P. Gibson, Brownington	Limestone 1	98.59
8- 11	V. P. Gibson, Brownington	Limestone 2	99.38
8- 12	V. P. Gibson, Brownington	Limestone 1	99.33
8- 13	V. P. Gibson, Brownington	Limestone 2	99.63
8- 14	V. P. Gibson, Brownington	Limestone 3	99.27
8- 15	J. P. Ellis, High Hill	Lime Hydrate Tailings	95.83
8- 16	Farmers Elevator Co., Montrose	Limestone, crushed	96.20
8- 17	Edgar Hartung, Macon	Limestone	77.57
8- 18	Arnold Heinlein, Hermann	Limestone 1	99.27
8- 19	Arnold Heinlein, Hermann	Limestone 2	99.12
8- 20	Arnold Heinlein, Hermann	Limestone 3	102.87
8- 21	E. S. Matteson, Paris	Limestone 1	82.28
8- 22	E. S. Matteson, Paris	Limestone 2	92.66
8- 23	E. S. Matteson, Paris	Limestone 3	85.93
8- 24	E. S. Matteson, Paris	Limestone 4	86.09
8- 25	E. S. Matteson, Paris	Limestone 5	76.34
8- 26	Frank Stonner, Fulton	Limestone	98.96
8- 27	C. W. Vetter, Perryville	Limestone No. 74	97.58
8- 28	C. W. Vetter, Perryville	Limestone No. 75	95.57
8- 29	W. B. Walker, Richland	Limestone No. 1	97.97
8- 30	W. B. Walker, Richland	Limestone No. 2	101.56
8- 31	W. B. Walker, Richland	Limestone No. 3	100.68
8- 32	W. B. Walker, Richland	Limestone No. 4	98.91



TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
 (Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
8- 33	W. B. Walker, Richland	Limestone No. 5	102.89
8- 34	O. V. Singleton, Dadeville	Limestone	100.37
8- 35	Joseph Chiles, Pendleton	Limestone	92.40
8- 36	Henry Pieper, Warrenton	Limestone	99.01
8- 37	P. J. Shenk, Oronogo	Limestone	101.50
8- 38	Farmers Elevator Co., Montrose	Limestone, crushed	99.51
8- 39	Frank Stonner, Fulton	Limestone	99.14
8- 40	E. S. Matteson, Paris	Limestone 1	85.38
8- 41	E. S. Matteson, Paris	Limestone 2	87.73
8- 42	E. S. Matteson, Paris	Limestone 3	99.19
8- 43	E. S. Matteson, Paris	Limestone 4	99.77
8- 44	Henry Hetlage, Wright City	Lime Hydrate Tailings	95.81
8- 45	Tim Elder, Louisiana	Burnt Lime	110.87
8- 46	R. A. Langanbacker, St. Charles	White Rock	100.65
8- 47	R. A. Langanbacker, St. Charles	Yellow Rock	91.53
8- 48	R. A. Langanbacker, St. Charles	Screenings	88.10
8- 49	T. F. Lueker, Jefferson City	Limestone, crushed	96.12
8- 50	J. Robert Hall, Linneus	Limestone, crushed	95.08
8- 51	Frank Stonner, Fulton	Limestone 1 blue	100.55
8- 52	Frank Stonner, Fulton	Limestone 2 gray	99.24
8- 53	Frank Stonner, Fulton	Limestone	97.27
8- 54	Frank Stonner, Fulton	Limestone	72.93
8- 55	Frank Stonner, Fulton	Limestone	99.87
8- 56	Frank Stonner, Fulton	Limestone	94.14
8- 57	Benjamin Brandt, Foristell	Limestone 1	98.98
8- 58	Benjamin Brandt, Foristell	Limestone 2	100.18
8- 59	Benjamin Brandt, Foristell	Limestone 3	98.62
8- 60	Charles E. Brown, Carrollton	Limestone I	95.18
8- 61	Charles E. Brown, Carrollton	Limestone II	93.41
8- 62	Charles E. Brown, Carrollton	Limestone III	94.61
8- 63	Charles E. Brbwn, Carrollton	Limestone IV	90.39
8- 64	D. R. Forrester, Chillicothe	Limestone	93.93
8- 65	J. R. Hansen, Clayton	Limestone 1	99.40
8- 66	J. R. Hansen, Clayton	Limestone 2	98.20
8- 67	J. R. Hansen, Clayton	Limestone 3	94.61
8- 68	W. P. Long, Jerico Springs	Limestone	87.00
8- 69	Blaine Powell, Hatfield	Limestone, crushed	90.13
8- 70	J. L. Perrin, Milan	Limestone	98.05
8- 74	Clay County Crushed Rock Co., Kansas City	Limestone, crushed	85.49
8- 75	W. P. Long, Jerico Springs	Limestone	98.47
8- 76	George A. Klingenberg, Concordia	Limestone, crushed	89.45
8- 81	E. T. Itschner, Hillsboro	Calcium Oxide 1	124.71
8- 82	E. T. Itschner, Hillsboro	Hydrated Lime 2	118.31
8- 83	E. T. Itschner, Hillsboro	Refuse Lime 3	92.94
8- 84	E. T. Itschner, Hillsboro	Refuse Lime 4	96.56
8- 85	Johnie Acklie, Kahoka	Limestone 1	97.75
8- 86	Johnie Acklie, Kahoka	Limestone 2	101.98
8- 87	C. W. Vetter, Perryville	Limestone 76	98.16
8- 88	C. W. Vetter, Perryville	Limestone 77	99.04
8- 89	C. W. Vetter, Perryville	Limestone 78	100.17
8- 90	C. W. Vetter, Perryville	Limestone 79	101.57
8- 91	T. M. Keyser, Jackson	Limestone 1	100.48
8- 92	T. M. Keyser, Jackson	Limestone 2	96.67
8- 93	T. M. Keyser, Jackson	Limestone 3	88.81

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
8- 94	T. M. Keyser, Jackson	Limestone 4	102.55
8- 95	T. M. Keyser, Jackson	Limestone 5	95.32
8- 96	T. M. Keyser, Jackson	Limestone 6	94.70
8- 97	J. H. Miller, Jamestown	Limestone 1	102.14
8- 98	J. H. Miller, Jamestown	Limestone 2	101.42
8- 99	J. H. Miller, Jamestown	Limestone 3	101.31
8-100	J. H. Miller, Jamestown	Limestone 4	101.11
8-101	J. H. Miller, Jamestown	Limestone 5	101.21
8-102	R. A. Langanbacker, St. Charles	Limestone 1	39.87
8-103	R. A. Langanbacker, St. Charles	Limestone 2	78.80
8-104	R. A. Langanbacker, St. Charles	Limestone 3	6.64
8-105	R. A. Langanbacker, St. Charles	Limestone 4	33.91
8-106	R. A. Langanbacker, St. Charles	Limestone 1	101.88
8-107	R. A. Langanbacker, St. Charles	Limestone 2	101.41
8-108	R. A. Langanbacker, St. Charles	Limestone 3	90.00
8-109	R. A. Langanbacker, St. Charles	Limestone 4	105.08
8-110	R. A. Langanbacker, St. Charles	Limestone 1	101.72
8-111	R. A. Langanbacker, St. Charles	Limestone 2	105.03
8-112	R. A. Langanbacker, St. Charles	Limestone 3	99.30
8-113	R. A. Langanbacker, St. Charles	Limestone, crushed	91.29
8-114	William Baker, Polo	Limestone	82.25
8-115	Charles A. Fuerth, Cape Girardeau	Limestone 1 blue and gray	56.17
8-116	Charles A. Fuerth, Cape Girardeau	Limestone 2 blue and gray	34.38
8-117	Charles A. Fuerth, Cape Girardeau	Limestone, reddish	58.14
8-118	T. M. Keyser, Jackson	Limestone, crushed	105.96
8-119	G. S. Robins & Co., St. Louis	Limestone, fine granular	61.83
8-120	John L. Stacy, Leeton	Limestone	100.17
8-121	Arthur Buck, Altenburg	Limestone 1	96.46
8-122	Arthur Buck, Altenburg	Limestone 2	99.25
8-123	Arthur Buck, Altenburg	Limestone 3	96.77
8-124	Arthur Buck, Altenburg	Limestone 4	105.08
8-125	Alfred Theilman, New Melle	Limestone 1	102.24
8-126	Alfred Theilman, New Melle	Limestone 2	101.73
8-127	Alfred Theilman, New Melle	Limestone 3	101.62
8-128	Alfred Theilman, New Melle	Limestone 4	101.67
8-129	Alfred Theilman, New Melle	Limestone 5	101.00
8-130	Alfred Theilman, New Melle	Limestone 6	101.57
8-131	Alfred Theilman, New Melle	Limestone 7	102.04
8-132	G. S. Robins & Co., St. Louis	Limestone	69.39
8-133	G. R. Skinner, Columbia	Limestone 1 brown	103.84
8-134	G. R. Skinner, Columbia	Limestone 2 crystalline	100.54
8-135	H. B. Potterbaum, McKittrick	Limestone	81.12
8-136	Louis Haake, Pendleton	Limestone 2	98.63
8-137	Louis Haake, Pendleton	Limestone 3	96.15
8-138	A. F. Reid, Windsor	Limestone 1	101.31
8-139	A. F. Reid, Windsor	Limestone 2	101.72
8-140	C. W. Vetter, Perryville	Limestone No. 80	97.70
8-141	Ira Drymon, Independence	Limestone, crushed	92.54
8-142	Ira Drymon, Independence	Limestone, crushed	85.08
8-143	Soils Department, Columbia	Limestone, crushed	88.88
8-144	Glenn S. Hensley, Harrisonville	Limestone	100.00
8-145	Glenn S. Hensley, Harrisonville	Limestone	98.70
8-148	C. W. Campbell, Bowling Green	Limestone	94.98
8-149	C. W. Campbell, Bowling Green	Burned lime	105.34
8-150	C. W. Campbell, Bowling Green	Limestone	97.31

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
8-151	O. R. Swindler, Fairview	Limestone, crushed	93.06
8-152	St. Louis, Co. Farm Bureau, Clayton	Limestone 1	33.59
8-153	St. Louis, Farm Co. Bureau, Clayton	Limestone 2	91.92
8-154	St. Louis, Co. Farm Bureau, Clayton	Limestone 3	9.81
8-155	St. Louis, Co. Farm Bureau, Clayton	Limestone 4	97.31
8-156	St. Louis, Co. Farm Bureau, Clayton	Limestone 5	98.08
8-157	O. A. Keithly, O'Fallon	Limestone 1	102.17
8-158	O. A. Keithly, O'Fallon	Limestone 2	99.59
8-159	R. A. Langanbacker, St. Charles	Limestone, crushed	80.31
8-160	Frank Stonner, Fulton	Limestone 1	101.71
8-161	Frank Stonner, Fulton	Limestone 2	101.96
8-162	G. R. Skinner, Columbia	Limestone	101.78
8-163	E. L. Garrett, Higginsville	Limestone	99.74
8-164	O. T. Anderson, Arcadia	Limestone	92.33
8-165	J. H. Menscher, Wentzville	Limestone 1 yellow	101.72
8-166	J. H. Menscher, Wentzville	Limestone 2 dark gray	99.95
8-167	J. H. Menscher, Wentzville	Limestone 3 white	101.86
8-168	Ira Drymon, Independence	Limestone, crushed	76.79
8-169	T. M. Keyser, Jackson	Limestone 1	94.09
8-170	T. M. Keyser, Jackson	Limestone 2	98.91
8-171	T. M. Keyser, Jackson	Limestone 3	100.36
8-172	B. B. Branstetter, Liberty	Limestone, screenings	83.32
8-173	E. T. Itchner, Hillsboro	Limestone, granular	76.78
9- 5	John Baker, Hartville	Limestone 1	98.96
9- 6	John Baker, Hartville	Limestone 2	100.21
9- 7	Roy Curtis, Hartville	Limestone 1	97.20
9- 8	Roy Curtis, Hartville	Limestone 2	96.58
9- 9	E. M. Cogdill, Hartville	Limestone	101.40
9-10	C. W. Vetter, Perryville	Limestone 81 dark	100.78
9-11	C. W. Vetter, Perryville	Limestone 82 light	97.20
9-12	Frank Peine, Flinthill	Limestone 1	101.14
9-13	Frank Peine, Flinthill	Limestone 2	101.29
9-14	D. L. Pippin, Marshall	Limestone, ground	94.83
9-15	G. S. Robins & Co., St. Louis	Limestone, granular	87.96
9-16	T. F. Lueker, Jefferson City	Limestone	99.17
9-17	R. A. Langanbacker, St. Charles	Limestone	76.92
9-18	R. A. Langanbacker, St. Charles	Limestone	76.35
9-19	A. L. Shurgeon, Wayland	Limestone	94.41
9-20	Wm. T. Hutchings, Bonne Terre	Limestone	104.29
9-21	Wm. T. Hutchings, Bonne Terre	Limestone	90.63
9-22	E. L. Wilmer, Wentzville	Limestone, crushed	76.04
9-23	E. S. Matteson, Paris	Limestone	77.59
9-24	Charles E. Brown, Carrollton	Rock	89.29
9-25	Earl T. Steele, Troy	Limestone	98.03
9-26	R. A. Langanbacker, St. Charles	Limestone, large	97.83
9-27	R. A. Langanbacker, St. Charles	Limestone, medium	98.34
9-28	R. A. Langanbacker, St. Charles	Limestone, small	97.72
9-29	John Sourds, Oak Hill	Limestone 1	91.67
9-30	John Sourds, Oak Hill	Limestone 2	100.98
9-31	Leroy Leezy, Oak Hill	Limestone	101.45
9-32	Ula Wilson, Lockwood	Limestone 1	98.50
9-33	Ula Wilson, Lockwood	Limestone 2	97.72
9-34	Ula Wilson, Lockwood	Limestone 3	97.82
9-35	Ula Wilson, Lockwood	Limestone 4	97.82
9-36	Ula Wilson, Lockwood	Limestone 5	97.83

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate			
Lab. No.	Sender	Material	Calcium carbonate equivalent
9- 37	Ula Wilson, Lockwood	Limestone 6	98.76
9- 38	Ula Wilson, Lockwood	Limestone 7	97.21
9- 39	O. L. Riley, Revere	Limestone 2	94.83
9- 40	O. L. Riley, Revere	Limestone 4	96.69
9- 41	O. L. Riley, Revere	Limestone 5	95.59
9- 42	O. L. Riley, Revere	Limestone	96.22
9- 43	Edith Cooper, Leeton	Limestone	98.30
9- 44	Fred E. Miller, Bonne Terre	Chats	89.65
9- 45	Fred E. Miller, Bonne Terre	Slime	88.33
9- 46	D. R. Forrester, Chillicothe	Limestone	92.70
9- 47	A. F. Stephens, Warrensburg	Limestone	96.89
9- 48	A. F. Stephens, Warrensburg	Limestone	83.60
9- 49	A. F. Stephens, Warrensburg	Limestone	96.22
9- 50	A. F. Stephens, Warrensburg	Limestone	95.34
9- 51	Ira Drymon, Independence	Limestone	76.51
9- 52	Frank Stonner, Fulton	Limestone I	98.71
9- 53	Frank Stonner, Fulton	Limestone II	98.55
9- 54	C. E. Shelton, New Florence	Limestone 1 light	97.36
9- 55	C. E. Shelton, New Florence	Limestone 2 yellow	85.09
9- 56	F. P. Troxell, Cameron	Rock 1	84.84
9- 57	F. P. Troxell, Cameron	Rock 2	90.48
9- 58	E. H. Bolliger, Wright City	Limestone 1	97.51
9- 59	E. H. Bolliger, Wright City	Limestone 2	69.73
9- 60	E. H. Bolliger, Wright City	Limestone 3	92.86
9- 61	D. W. Bash, Hannibal	Rock, white 1	47.01
9- 62	D. W. Bash, Hannibal	Rock, yellow 2	94.98
9- 63	D. W. Bash, Hannibal	Limestone, crushed 3	66.52
9- 64	E. H. Tope, Coal	Limestone	97.26
9- 65	Bank of Leeton, Leeton	Limestone I	74.07
9- 66	Bank of Leeton, Leeton	Limestone II	96.69
9- 67	Bank of Leeton, Leeton	Limestone III	88.72
9- 68	Bank of Leeton, Leeton	Limestone IV	96.84
9- 69	C. W. Campbell, Bowling Green	Limestone	88.31
9- 70	J. L. Perrin, Milan	Limestone	86.75
9-102	R. L. Maltbie, Marshfield	Limestone	92.44
9-104	Frank Stonner, Fulton	Limestone	83.39
9-106	C. W. Vetter, Perryville	Limestone No. 83	99.02
9-107	C. W. Vetter, Perryville	Limestone No. 84	99.97
9-108	Fred J. Poppitz, Wittenberg	Limestone No. 1	92.91
9-109	Fred J. Poppitz, Wittenberg	Limestone No. 2	98.71
9-110	K. G. Harmon, Columbia	Limestone, crushed	91.62
9-111	Koester Bros., Stover	Limestone 1	103.16
9-112	Koester Bros., Stover	Limestone 2	85.15
9-113	Koester Bros., Stover	Limestone 3	98.34
9-114	Koester Bros., Stover	Limestone 4	95.55
9-115	Koester Bros., Stover	Limestone 5	98.03
9-116	Koester Bros., Stover	Limestone 6	101.86
9-117	St. Louis Smelting & Refining Co., St. Francois	Chats A	88.64
9-118	St. Louis Smelting & Refining Co., St. Francois	Chats B	86.44
9-119	St. Louis Smelting & Refining Co., St. Francois	Chats C	88.25
9-120	St. Louis Smelting & Refining Co., St. Francois	Chats D	88.41

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
9-121	St. Louis Co. Farm Bureau, Clayton	Limestone crushed	95.70
9-123	Ira Drymon, Independence	Limestone	90.34
9-124	R. A. Langanbacker, St. Charles	Limestone 1	99.52
9-125	R. A. Langanbacker, St. Charles	Limestone 2	101.92
9-126	R. A. Langanbacker, St. Charles	Limestone 1	97.27
9-127	R. A. Langanbacker, St. Charles	Limestone 2	15.65
9-128	E. S. Matteson, Paris	Limestone 1	100.42
9-129	E. S. Matteson, Paris	Limestone II	100.21
9-130	E. S. Matteson, Paris	Limestone III	98.08
9-131	E. S. Matteson, Paris	Limestone IV	2.15
9-132	E. S. Matteson, Paris	Limestone V	1.62
9-133	E. S. Matteson, Paris	Limestone VI	69.11
9-134	E. S. Matteson, Paris	Limestone VII	58.06
9-135	Lloyd M. Haid, Berger	Rock	83.03
9-136	Paul J. Henderson, Benjamin	Limestone 1	100.00
9-137	Paul J. Henderson, Benjamin	Limestone 2	99.41
9-138	Paul J. Henderson, Benjamin	Limestone 3	99.89
9-139	Paul J. Henderson, Benjamin	Limestone 4	96.58
9-140	Paul J. Henderson, Benjamin	Limestone 5	98.40
9-141	R. A. Langanbacker, St. Charles	Limestone, crushed	77.96
9-142	R. A. Langanbacker, St. Charles	Limestone, crushed	81.43
9-143	R. A. Langanbacker, St. Charles	Limestone, crushed	85.85
9-144	L. E. Weber, Odessa	Limestone, crushed 1	94.45
9-145	L. E. Weber, Odessa	Limestone, crushed 2	87.35
9-146	L. E. Weber, Odessa	Limestone, rock 1	88.20
9-147	L. E. Weber, Odessa	Limestone, rock 2	90.50
9-148	L. E. Weber, Odessa	Limestone, rock 3	87.14
9-151	J. F. Wolfe, Leeton	Limestone 1	100.15
9-152	J. E. Wolfe, Leeton	Limestone 2	97.76
9-153	J. E. Wolfe, Leeton	Limestone	76.10
9-154	C. W. Campbell, Bowling Green	Limestone, crushed	95.14
9-155	L. B. Russell, Gilliam	Limestone, 1	101.44
9-156	L. B. Russell, Gilliam	Limestone 2	101.54
9-157	T. M. Keyser, Jackson	Limestone 1	98.45
9-158	T. M. Keyser, Jackson	Limestone 2	99.30
9-159	T. M. Keyser, Jackson	Limestone, crushed 1	98.98
9-160	T. M. Keyser, Jackson	Limestone, crushed 2	98.19
9-166	Farm Development, Amsterdam	Limestone 1	95.73
9-167	Farm Development, Amsterdam	Limestone 2	96.26
9-168	Farm Development, Amsterdam	Limestone 3	95.35
9-169	Farm Development, Amsterdam	Limestone 4	97.97
9-170	Farm Development, Amsterdam	Limestone 5	99.30
9-171	T. F. Lueker, Jefferson City	Limestone I	100.64
9-172	T. F. Lueker, Jefferson City	Limestone II	101.92
9-173	T. F. Lueker, Jefferson City	Limestone III	108.00
9-174	T. F. Lueker, Jefferson City	Limestone IV	107.49
9-175	L. F. Wainscott, Kingston	Limestone	97.01
10-401	C. W. Vetter, Perryville	Limestone No. 85	95.48
10-402	C. W. Vetter, Perryville	Limestone No. 86	96.31
10-403	C. W. Vetter, Perryville	Limestone No. 87	94.22
10-404	C. W. Vetter, Perryville	Limestone No. 88	99.64
10-405	C. W. Vetter, Perryville	Limestone No. 89	103.17
10-406	C. W. Vetter, Perryville	Limestone No. 90	93.60
10-407	C. W. Vetter, Perryville	Limestone No. 91	82.16
10-408	R. P. McWilliams, Gallatin	Limestone	84.08

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate			
Lab. No.	Sender	Material	Calcium carbonate equivalent
10-409	N. C. Allen, Kahoka	Limestone 1	99.79
10-410	N. C. Allen, Kahoka	Limestone 2	96.52
10-411	George E. Hayes, LaGrange	Limestone, crushed	87.30
10-412	Producers Grain Co., Foristell	Limestone, crushed	85.80
10-413	Herman Westhoff, O'Fallon	Limestone, crushed	89.39
10-414	R. W. Scanlan, Columbia	Limestone, crushed	100.03
10-415	S. N. Norris, Hale	Limestone, crushed	89.65
10-416	Orr Van Stavein, Agnes	Limestone 1	99.19
10-417	Orr Van Stavein, Agnes	Limestone 2	99.82
10-418	J. D. Shafer, Lancaster	Limestone, crushed	95.60
10-419	E. E. Milburn, Tipton	Limestone	102.93
10-420	R. A. Langanbacker, St. Charles	Limestone, crushed	81.64
10-421	C. W. Campbell, Bowling Green	Limestone No. 1	11.76
10-422	C. W. Campbell, Bowling Green	Limestone No. 2	94.71
10-423	Letcher E. Smith, Brownington	Limestone No. 1	99.72
10-424	Letcher E. Smith, Brownington	Limestone No. 2	100.14
10-425	Letcher E. Smith, Brownington	Limestone No. 3	100.14
10-426	Letcher E. Smith, Brownington	Limestone No. 4	99.72
10-427	Letcher E. Smith, Brownington	Limestone No. 5	100.35
10-428	Letcher E. Smith, Brownington	Limestone No. 6	100.04
10-429	Letcher E. Smith, Brownington	Limestone No. 7	98.82
10-430	Letcher E. Smith, Brownington	Limestone No. 8	99.19
10-431	W. M. Spencer, Harrisonville	Limestone, crushed	82.85
10-432	F. W. Brandt, Stover	Limestone 1	101.24
10-433	F. W. Brandt, Stover	Limestone 2	104.51
10-434	James E. Crosby Jr., Doniphan	Limestone, crushed 1	99.24
10-435	James E. Crosby Jr., Doniphan	Limestone, crushed 2	86.86
10-436	Frank Stonner, Fulton	Limestone	95.71
10-437	Frank Stonner, Fulton	Limestone 1	56.56
10-438	Ben Smith, Bunceton	Limestone	94.23
10-439	Julius Grovemeier, Armstrong	Limestone	97.03
10-440	Wm. H. Brakensick, Foristell	Limestone 1	45.39
10-441	Wm. H. Brakensick, Foristell	Limestone 2	98.98
10-442	Wm. H. Brakensick, Foristell	Limestone 3	88.34
10-443	Wm. H. Brakensick, Foristell	Limestone 4	92.76
10-444	Wm. H. Brakensick, Foristell	Limestone 5	92.66
10-445	Wm. H. Brakensick, Foristell	Limestone 6	99.93
10-446	Wm. H. Brakensick, Foristell	Limestone 7	99.61
10-447	Wm. H. Brakensick, Foristell	Limestone 8	99.77
10-448	Wm. H. Brakensick, Foristell	Limestone 9	91.92
10-449	Wm. H. Brakensick, Foristell	Limestone 10	94.02
10-450	Ford Sachs, Flint Hill	Limestone	94.87
10-451	J. Robt. Hall, Linneus	Limestone, crushed	86.65
10-452	A. W. Klemme, Mount Vernon	Sandy Crystalline Material	71.83
10-453	J. Robt. Hall, Linneus	Limestone, crushed	85.01
10-454	Roy McKinney, Cairo	Limestone, crushed	84.22
10-455	J. C. Adams, Beaufort	Limestone 1	93.66
10-456	J. C. Adams, Beaufort	Limestone 2	96.66
10-457	J. C. Adams, Beaufort	Limestone 3	99.40
10-458	L. F. Wainscott, Kingston	Limestone crushed 1	87.70
10-459	L. F. Wainscott, Kingston	Limestone, crushed 2	94.50
10-460	L. F. Wainscott, Kingston	Limestone, crushed 3	97.66
10-461	L. F. Wainscott, Kingston	Limestone, crushed 4	87.65
10-462	Meyer Bros., Augusta	Limestone 1	98.49
10-463	Meyer Bros., Augusta	Limestone 2	93.82

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY<sup>3</sup>  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
10-464	Meyer Bros., Augusta	Limestone 3	75.53
10-465	Meyer Bros., Augusta	Limestone 4	88.18
10-468	Frank Erisman, Benton City	Limestone	100.61
10-469	J. C. Wolfe, Leeton	Limestone 1	95.19
10-470	J. C. Wolfe, Leeton	Limestone 2	95.29
10-471	J. C. Wolfe, Leeton	Limestone 3	96.50
10-472	E. S. Matteson, Paris	Limestone 1	94.34
10-473	E. S. Matteson, Paris	Limestone 2	78.69
10-474	E. S. Matteson, Paris	Limestone 3	98.19
10-475	K. G. Harmon, Columbia	Limestone, crushed	85.98
10-476	Harry E. Callison, Centralia	Limestone, crushed	98.19
10-477	C. W. Campbell, Bowling Green	Limestone	98.03
10-478	J. B. Elling, Kansas City	Limestone	98.45
10-479	R. A. Langanbacker, St. Charles	Limestone	99.03
10-480	E. W. Bryum, Lentner	Limestone, crushed 1	96.03
10-481	E. W. Bryum, Lentner	Limestone, crushed 2	84.96
10-482	J. Robt. Hall, Linneus	Limestone, crushed	85.89
10-483	E. S. Matteson, Paris	Limestone, No. 20	92.39
10-484	E. S. Matteson, Paris	Limestone, No. 21	91.07
10-485	Earl T. Steele, Troy	Limestone	92.18
10-486	J. L. Perrin, Milan	Limestone	9.65
10-487	E. S. Matteson, Paris	Limestone, crushed	95.24
10-488	E. S. Matteson, Paris	Limestone, crushed	85.28
10-490	E. Schnakenberg, Zora	Limestone	101.77
10-494	Otto Weimann, New Haven	Limestone, red	92.55
10-495	Otto Weimann, New Haven	Limestone, black	96.98
10-496	Otto Weimann, New Haven	Limestone, no mark	103.72
10-497	E. S. Matteson, Paris	Limestone, crushed	96.66
10-498	E. S. Matteson, Paris	Limestone 1	96.86
10-499	E. S. Matteson, Paris	Limestone 2	96.61
10-500	Frank Stonner, Fulton	Limestone	97.99
11- 2	F. A. Schutte, Benton City	Limestone	94.81
11- 3	Elmer Elliott, Plato	Limestone	93.02
11- 4	D. E. McDowell, Joplin	Limestone, tailings	66.73
11- 5	Charles H. Kelly, Seymour	Limestone	92.66
11- 6	Frank Stonner, Fulton	Limestone	98.19
11- 7	Frank Stonner, Fulton	Limestone	95.35
11- 8	R. J. Silkett, Columbia	Limestone, crushed	94.10
11- 9	David Meeker, Butler	Limestone 1	96.30
11- 10	David Meeker, Butler	Limestone 2	95.32
11- 11	David Meeker, Butler	Limestone, crushed	91.23
11- 12	J. Robert Hall, Linneus	Limestone, crushed	85.49
11- 13	W. G. Biggs, Neosho	Limestone 1	98.25
11- 14	W. G. Biggs, Neosho	Limestone 2	98.37
11- 15	T. V. Herrold, Schell City	Limestone, crushed	96.43
11- 16	James A. Muster, Nevada	Limestone	96.67
11- 17	A. W. Klemme, Mt. Vernon	Limestone, crushed 1	97.76
11- 18	A. W. Klemme, Mt. Vernon	Limestone, crushed 2	95.82
11- 19	Earl T. Steele, Troy	Limestone 1	83.09
11- 20	Earl T. Steele, Troy	Limestone 2	97.16
11- 21	Spencer-Whitlow Quarry, Columbia	Limestone, Burlington	94.68
11- 22	Spencer-Whitlow Quarry, Columbia	Limestone, Burlington	94.08
11- 23	Spencer-Whitlow Quarry, Columbia	Limestone, Burlington	94.00
11- 28	Eric R. Heimsoth, Cole Camp	Limestone 1	103.87
11- 29	Eric R. Heimsoth, Cole Camp	Limestone 2	105.32

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
11- 30	Eric R. Heimsoth, Cole Camp	Limestone 3	105.06
11- 31	Eric R. Heimsoth, Cole Camp	Limestone 4	96.61
11- 33	J. L. Perrin, Milan	Limestone	97.16
11- 36	Wendel Holman, Dixon	Limestone, crushed	93.70
11- 37	J. W. Viebrock, Stover	Limestone 1	100.16
11- 38	J. W. Viebrock, Stover	Limestone 2	95.35
11- 39	J. W. Viebrock, Stover	Limestone 3	97.32
11- 40	J. W. Viebrock, Stover	Limestone 4	100.31
11- 41	J. W. Viebrock, Stover	Limestone 5	99.28
11- 48	Emil Pietzschke, Truesdale	Limestone 1A	98.82
11- 49	Emil Pietzschke, Truesdale	Limestone 1B	99.65
11- 50	Emil Pietzschke, Truesdale	Limestone 1C	99.72
11- 51	Emil Pietzschke, Truesdale	Limestone 1D	101.21
11- 52	Emil Pietzschke, Truesdale	Limestone 2D	104.11
11- 53	Emil Pietzschke, Truesdale	Limestone 1E	99.86
11- 54	Emil Pietzschke, Truesdale	Limestone 2E	99.81
11- 55	Emil Pietzschke, Truesdale	Limestone 3E	99.81
11- 56	Emil Pietzschke, Truesdale	Limestone 1F	96.33
11- 57	James E. Crosby, Doniphan	Limestone	100.69
11- 59	E. S. Matteson, Paris	Limestone 1	92.08
11- 60	E. S. Matteson, Paris	Limestone 2	93.95
11- 61	Drewel Bros., Labaddie	Limestone 1	96.25
11- 62	Drewel Bros., Labaddie	Limestone 2	89.64
11- 63	C. T. McMurtry, Kidder	Limestone 1	87.98
11- 64	C. T. McMurtry, Kidder	Limestone 2	84.56
12- 1	Frank Dothage, Warrenton	Limestone 1	99.08
12- 2	Frank Dothage, Warrenton	Limestone 2	98.92
12- 3	Frank Dothage, Warrenton	Limestone 3	99.34
12- 4	S. R. Nance, Montevallo	Limestone (crushed)	95.84
12- 8	August Fischer, Augusta	Limestone 1	99.67
12- 9	August Fischer, Augusta	Limestone 2	99.06
12- 10	C. W. Vetter, Perryville	Limestone No. 92	94.02
12- 11	C. W. Vetter, Perryville	Limestone No. 93	98.15
12- 12	C. W. Vetter, Perryville	Limestone No. 94	100.01
12- 14	Drewel Bros., Labaddie	Limestone No. 1	88.91
12- 15	Drewel Bros., Labaddie	Limestone No. 2	91.71
12- 16	H. J. Bollinger, Millersville	Limestone No. 1	96.43
12- 17	H. J. Bollinger, Millersville	Limestone No. 2	90.36
12- 18	H. J. Bollinger, Millersville	Limestone No. 3	101.08
12- 19	W. H. Braselton, Columbia	Limestone 1	104.35
12- 20	W. H. Braselton, Columbia	Limestone 2	104.37
12- 21	Emil Pietzschke, Truesdale	Limestone 1W	103.61
12- 22	Emil Pietzschke, Truesdale	Limestone 1R	104.26
12- 23	Emil Pietzschke, Truesdale	Limestone 1Y	95.62
12- 24	Emil Pietzschke, Truesdale	Limestone 1A	102.68
12- 25	Emil Pietzschke, Truesdale	Limestone 2B	104.20
12- 26	Emil Pietzschke, Truesdale	Limestone 3C	99.60
12- 27	Emil Pietzschke, Truesdale	Limestone 4D	103.36
12- 28	Emil Pietzschke, Truesdale	Limestone 5E	99.91
12- 29	Emil Pietzschke, Truesdale	Limestone 1W	100.44
12- 30	Emil Pietzschke, Truesdale	Limestone 2W	96.67
12- 31	David G. Blackburn, Jonesburg	Limestone	104.21
12- 32	A. J. Miller, Neosho	Limestone 1	106.04
12- 33	A. J. Miller, Neosho	Limestone 2	106.30
12- 34	A. J. Miller, Neosho	Rock 3	7.41



TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY  
(Continued)

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
12- 35	Elmer H. Borgmann, Marthasville.....	Limestone.....	100.49
12- 36	Edwin Kriege, Union.....	Limestone 1.....	103.37
12- 37	Edwin Kriege, Union.....	Limestone 2.....	94.99
12- 38	Edwin Kirege, Union.....	Limestone 3.....	97.19
12- 39	Edwin Kriege, Union.....	Limestone 4.....	94.83
12- 40	Emerson Calvert, Revere.....	Limestone 1.....	103.99
12- 41	Emerson Calvert, Revere.....	Limestone 2.....	102.69
12- 42	Jesse H. Schaper, Washington.....	Limestone 2.....	104.68
12- 43	Jesse H. Schaper, Washington.....	Limestone 3.....	87.35
12- 44	McLemon Bros., Greenfield.....	Limestone 1.....	105.98
12- 45	McLemon Bros., Greenfield.....	Limestone 2.....	106.19
12- 46	McLemon Bros., Greenfield.....	Limestone 3.....	105.35
12- 47	McLemon Bros., Greenfield.....	Limestone 4.....	105.56
12- 48	McLemon Bros., Greenfield.....	Limestone 5.....	106.35
12- 49	McLemon Bros., Greenfield.....	Limestone 6.....	106.09
12- 50	R. A. Langanbacker, St. Charles.....	Limestone, crushed.....	86.46
12- 51	R. A. Langanbacker, St. Charles.....	Limestone, 1.....	100.22
12- 52	R. A. Langanbacker, St. Charles.....	Limestone 2.....	100.28
12- 53	R. A. Langanbacker, St. Charles.....	Limestone 3.....	103.26

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Avail- able	Insolu- ble	
<b>The Abner Hood Chemical Co., Kansas City, Missouri.</b>					
Nitrate of Soda ----- imported from Chili, S. A.	14.87	----	----	----	----
<b>A. D. Adair and McCarty Bros., Inc., Atlanta, Georgia</b>					
A & M Old Reliable Phosphate -----	----	----	16.00	----	----
A & M Old Reliable Special Acid Phosphate -----	----	----	18.00	----	----
A & M Old Reliable 2-12-2 -----	1.65	----	12.00	----	2.00
A & M Old Reliable 2-8-2 -----	1.65	----	8.00	----	2.00
A & M Old Reliable 1-10-1 -----	0.82	----	10.00	----	1.00
A & M Old Reliable 0-12-4 -----	----	----	12.00	----	4.00
<b>The American Agricultural Chemical Co., St. Louis, Missouri</b>					
<b>A. A. Brands</b>					
16 per cent Acid Phosphate -----	----	----	16.00	0.50	----
20 per cent Acid Phosphate -----	----	----	20.00	0.50	----
Farmers Favorite Fertilizer -----	0.82	----	12.00	0.50	1.00
Red Dog Fertilizer -----	1.65	----	8.00	0.50	5.00
Red Dragon Fertilizer -----	1.65	----	12.00	0.50	2.00
Tobacco Fertilizer -----	1.65	----	12.00	0.50	6.00
Gilt Edge Fertilizer -----	1.65	----	16.00	0.50	2.00
Paramount Fertilizer -----	2.47	----	8.00	0.50	6.00
Top Notch Fertilizer -----	7.40	----	7.00	0.50	3.00
Steam Bone Meal -----	1.02	29.00	----	----	----
Pure Raw Bone -----	3.29	20.00	----	----	----
Half & Half Bone and Phosphate -----	0.82	----	12.00	8.00*	----
Two-in-One Fertilizer -----	3.29	----	16.00	0.50	4.00
<b>"Agrico" Brand</b>					
Fertilizer for Grain -----	1.65	----	12.00	0.50	4.00
<b>Empire Brands</b>					
16 per cent Acid Phosphate -----	----	----	16.00	0.50	----
20 per cent Acid Phosphate -----	----	----	20.00	0.50	----
Farmers Favorite Fertilizer -----	0.82	----	12.00	0.50	1.00
Red Dog Fertilizer -----	1.65	----	8.00	0.50	5.00
Top Notch Fertilizer -----	7.40	----	7.00	0.50	3.00
Big Boll Fertilizer -----	1.65	----	12.00	0.50	2.00
Tobacco Fertilizer -----	1.65	----	12.00	0.50	6.00
Gilt Edge Fertilizer -----	1.65	----	16.00	0.50	2.00
Paramount Fertilizer -----	2.47	----	8.00	0.50	6.00
Phosphate & Potash -----	----	----	14.00	0.50	4.00
Steam Bone Meal -----	1.02	29.00	----	----	----
Pure Raw Bone -----	3.29	20.00	----	----	----
Half & Half Bone and Phosphate -----	0.82	----	12.00	8.00*	----
Two-in-One Fertilizer -----	3.29	----	16.00	0.50	4.00

\*From Bone

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925; (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Available	Insoluble	
<b>Arkansas Fertilizer Co., Little Rock, Arkansas. White Diamond Brands</b>					
Crop Getter.....	4.00	---	12.00	---	4.00
Gro-Fast.....	4.00	---	12.00	---	---
Southern King.....	2.00	---	12.00	---	2.00
Kali Superphosphate.....	---	---	12.00	---	4.00
Prize Winner.....	6.00	---	10.00	---	4.00
Economy.....	5.00	---	10.00	---	3.00
Farmer's Choice.....	4.00	---	10.00	---	4.00
Moore's Special.....	4.00	---	10.00	---	2.00
Early Boll.....	3.00	---	10.00	---	3.00
Southern Special.....	3.00	---	9.00	---	3.00
Jack Rabbit.....	4.00	---	8.00	---	6.00
Old Reliable.....	4.00	---	8.00	---	4.00
Blood & Bone.....	2.00	---	10.00	---	2.00
Southern Queen.....	1.65	---	10.00	---	2.00
Arkansas Standard.....	1.65	---	10.00	---	1.00
20th Century.....	1.65	---	9.00	---	2.00
Eclipse Acid Phosphate.....	---	---	20.00	---	---
Bove-All Acid Phosphate.....	---	---	18.00	---	---
Acid Phosphate.....	---	---	16.00	---	---
Sulphate of Ammonia.....	20.50	---	---	---	---
Nitrate of Soda.....	15.00	---	---	---	---
Muriate of Potash.....	---	---	---	---	50.00
Kainit.....	---	---	---	---	14.00
Pure Raw Bone Meal.....	3.70	23.00	---	---	---
<b>Armour Fertilizer Works, Chicago, Ill. Big Crop Brands</b>					
4-16-4 Fertilizer.....	3.30	---	16.00	0.50	4.00
3-8-6 Fertilizer.....	2.47	---	8.00	0.50	6.00
2-16-8 Fertilizer.....	1.65	---	16.00	0.50	8.00
3-12-4 Fertilizer.....	2.47	---	12.00	0.50	4.00
2-16-2 Fertilizer.....	1.65	---	16.00	0.50	2.00
2-12-6 Fertilizer.....	1.65	---	12.00	0.50	6.00
2-12-2 Fertilizer.....	1.65	---	12.00	0.50	2.00
4-12-0 Fertilizer.....	3.30	---	12.00	0.50	---
0-14-4 Fertilizer.....	---	---	14.00	0.50	4.00
16 Per Cent Acid Phosphate Superphosphate.....	---	---	16.00	0.50	---
Bone Meal.....	2.47	24.00	---	---	---
Raw Bone Meal.....	3.70	22.00	---	---	---
<b>Armour Brands</b>					
1-12-1 Fertilizer.....	0.82	---	12.00	0.50	1.00
Grain Grower.....	1.65	---	8.00	0.50	2.00
Special Lawn and Garden Fertilizer.....	2.47	---	12.00	0.50	4.00
<b>Tuscarora Brands</b>					
4-16-4 Fertilizer.....	3.30	---	16.00	0.50	4.00
3-8-6 Fertilizer.....	2.47	---	8.00	0.50	6.00
2-16-8 Fertilizer.....	1.65	---	16.00	0.50	8.00
3-12-4 Fertilizer.....	2.47	---	12.00	0.50	4.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Available	Insoluble	
2-16-2 Fertilizer.....	1.65	----	16.00	0.50	2.00
2-12-6 Fertilizer.....	1.65	----	12.00	0.50	6.00
2-12-2 Fertilizer.....	1.65	----	12.00	0.50	2.00
4-12-0 Fertilizer.....	3.30	----	12.00	0.50	----
0-14-4 Fertilizer.....	----	----	14.00	0.50	4.00
16 Per Cent Acid Phosphate.....	----	----	16.00	0.50	----
Superphosphate.....	----	----	20.00	0.50	----
Bone Meal.....	2.47	24.00	----	----	----
Raw Bone Meal.....	3.70	22.00	----	----	----
1-12-1 Fertilizer.....	0.82	----	12.00	0.50	1.00
Grain Grower.....	1.65	----	8.00	0.50	2.00
<b>Ash Grove Lime and Portland Cement Co., Kansas City, Missouri</b>					
<b>Limash</b>					
Ignition.....	22.09				
Insoluble.....	15.82				
Iron & Aluminum Oxides.....	10.08				
Lime (CaO).....	47.90				
Magnesium Oxide.....	2.62				
Sodium Oxide.....	0.54				
Potassium Oxide.....	0.91				
Phosphorus.....	0.04				
	100.00				
<b>The Barrett Co., Sales Agents. 40 Rector Street, New York, N. Y.</b>					
Sulphate of Ammonia.....	20.50	----	----	----	----
Arcadian Sulphate of Ammonia.....	20.75	----	----	----	----
<b>Blood and Bone Fertilizer Co., St. Louis, Missouri</b>					
<b>Steer Head Brands</b>					
Special Truck Grower (High Grade).....	3.29	----	8.00	1.00	5.00
Special Truck Grower (Medium).....	1.64	----	8.00	1.00	2.00
Wheat Grower (High Grade).....	1.03	----	10.00	1.00	3.00
Wheat Grower (Medium).....	1.03	----	8.00	1.00	1.00
Crop Grower (High Grade).....	1.64	----	8.00	1.00	2.00
Ammoniated Bone Phos. (High Grade).....	1.64	----	12.00	1.00	0.00
Ammoniated Bone Phos. (Medium).....	1.03	----	10.00	1.00	0.00
Special Corn Grower (High Grade).....	2.06	----	8.00	1.00	3.00
Special Corn Grower (Medium).....	1.65	----	8.00	1.00	2.00
Oat Grower (High Grade).....	1.65	----	8.00	1.00	2.00
Oat Grower (Medium).....	1.03	----	7.00	1.00	1.00
Missouri Special Fertilizer.....	1.65	----	12.00	----	2.00
Twelve-Four Fertilizer.....	----	----	12.00	----	4.00
16 per cent Soluble Bone Phosphate.....	----	----	16.00	----	----
18 per cent Soluble Bone Phosphate.....	----	----	18.00	----	----
20 per cent Soluble Bone Phosphate.....	----	----	20.00	----	----

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Available	Insoluble	
<b>Calumet Fertilizer Co.</b>					
New Albany, Indiana					
<b>Calumet Brands</b>					
High Grade Tobacco & Truck Grower.....	2.47	----	10.00	1.00*	4.00
Tobacco Grower.....	2.47	----	8.00	1.00*	6.00
Two Twelve Six.....	1.65	----	12.00	1.00*	6.00
Two Twelve Two.....	1.65	----	12.00	1.00*	2.00
Otto Voyles Two in One.....	1.65	----	16.00	1.00*	2.00
Two Eight Sixteen.....	1.65	----	8.00	1.00*	16.00
Two Eight Ten.....	1.65	----	8.00	1.00*	10.00
Potato and Tobacco Special.....	1.65	----	8.00	1.00*	5.00
Two Eight Two.....	1.65	----	8.00	1.00*	2.00
Northern Special.....	0.82	----	8.00	1.00*	8.00
Onion & Tobacco Grower.....	0.82	----	8.00	1.00*	3.00
Crop Grower.....	0.82	----	8.00	1.00*	1.00
Fifteen Seven & One Half.....	----	----	15.00	1.00*	7.50
Fourteen Four.....	----	----	14.00	1.00*	4.00
Twelve Twelve.....	----	----	12.00	1.00*	12.00
Ten Ten Hummer.....	----	----	10.00	1.00*	10.00
Ten Five.....	----	----	10.00	1.00*	5.00
Eight Twenty-Four.....	----	----	8.00	1.00*	24.00
Half & Half.....	2.06	----	6.00	6.00*	1.00
Acid Phosphate 16 per cent.....	----	----	16.00	1.00*	----
Acid Phosphate 20 per cent.....	----	----	20.00	1.00*	----
Raw Bone Meal.....	3.70	20.00	----	----	----
Special Pure Bone Meal.....	0.82	30.00	----	----	----
<b>Centerville Gypsum Co.,</b>					
Centerville, Iowa					
Green Seal Agricultural Gypsum					
Sulphur Trioxide (SO <sub>3</sub> ).....	46.56				
Lime (CaO).....	33.37				
Loss on Ignition.....	20.03				
Total Pure Gypsum.....	99.96	per cent			
<b>Crocker Bros.</b>					
Joplin, Missouri					
<b>Interstate Brands</b>					
Special 2-12-2.....	1.65	----	12.00	----	2.00
2-10-2.....	1.65	----	10.00	----	2.00
2-16-2.....	1.65	----	16.00	----	2.00
1-16-1.....	0.82	----	16.00	----	1.00
1-12-1.....	0.82	----	12.00	----	1.00
Steam Bone, Phos. & Potash.....	1.65	----	9.00	5.00*	2.00
1-12-4.....	0.82	----	12.00	----	4.00
Potato Grower.....	1.65	----	8.00	----	10.00
Acid Phosphate 16.....	----	----	16.00	----	----
Acid Phosphate 16 per cent & Sheep Manure Filler.....	0.21	----	16.00	----	0.50

\*From Bone

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Avail- able	Insolu- ble	
Garden Lawn.....	3.30	----	8.00	----	4.00
2-12-6.....	1.65	----	12.00	----	6.00
Sheep Manure, Phos. & Potash.....	0.41	----	15.00	----	2.00
Steam Bone & Phos.....	1.23	----	12.00	8.00*	----
Steam Bone Meal 3-24.....	2.46	24.00	----	----	----
Raw Bone Meal.....	3.30	22.00	----	----	----
<b>The Cudahy Packing Co., Chicago, Illinois</b>					
<b>Bigwin Brands</b>					
Steamed Bone Meal.....	2.47	24.00	----	----	----
Half and Half 1½ and 13.....	1.23	----	13.00	7.00*	----
High Grade 16 per cent Acid Phosphate.....	----	----	16.00	----	----
High Grade 18 per cent Acid Phosphate.....	----	----	18.00	----	----
High Grade Fertilizer 2-12-2.....	1.65	----	12.00	----	2.00
High Grade Fertilizer 2-14-2.....	1.65	----	14.00	----	2.00
High Grade Fertilizer 2-16-2.....	1.65	----	16.00	----	2.00
High Grade Fertilizer 2-12-6.....	1.65	----	12.00	----	6.00
High Grade Fertilizer 4-12-0.....	3.30	----	12.00	----	----
High Grade Fertilizer 0-14-4.....	----	----	14.00	----	4.00
High Grade Fertilizer 3-12-4.....	2.50	----	12.00	----	4.00
High Grade Fertilizer 3-8-6.....	2.50	----	8.00	----	6.00
High Grade 20 per cent Acid Phosphate.....	----	----	20.00	----	----
High Grade Fertilizer 2-12-0.....	1.65	----	12.00	----	----
Raw Bone Meal.....	3.70	22.00	----	----	----
Nitrate of Soda.....	15.00	----	----	----	----
Muriate of Potash.....	----	----	----	----	58.00
Sulphate of Ammonia.....	21.00	----	----	----	----
High Grade Fertilizer 5-8-7.....	4.11	----	8.00	----	7.00
<b>Darling and Co., Union Stock Yards, Chicago, Ill.</b>					
<b>Darling's Brands</b>					
Vegetable Grower.....	2.47	----	12.00	2.00	4.00
General Crop.....	1.65	----	16.00	2.00	2.00
Big Harvest.....	1.65	----	12.00	2.00	2.00
Chicago Brand.....	1.65	----	8.00	2.00	2.00
Crop King.....	1.65	----	12.00	2.00	6.00
Tomato Grower.....	1.65	----	12.00	2.00	6.00
Sure Winner.....	0.82	----	10.00	2.00	4.00
Fourteen Four.....	----	----	14.00	0.50	4.00
16 per cent Acid Phosphate.....	----	----	16.00	----	----
18 per cent Acid Phosphate.....	----	----	18.00	----	----
20 per cent Acid Phosphate.....	----	----	20.00	----	----
Pure Ground Bone.....	1.85	28.00	----	----	----
Bone & Acid Phosphate Half & Half.....	0.82	----	11.00	12.00*	----
Pulverized Sheep Manure.....	1.85	----	----	1.00	1.00
Special Lawn Grower.....	4.11	----	8.00	2.00	7.00
Blood & Bone.....	4.94	12.00	----	----	----
Nitrate of Soda.....	15.50	----	----	----	----

\*From bone

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Available	Insoluble	
Muriate of Potash.....	---	---	---	---	50.00
Farmer's Favorite.....	2.47	---	8.00	2.00	6.00
Ten Ten.....	---	---	10.00	0.50	10.00
<b>Earp-Thomas Cultures Corporation, Long Island City, New York</b>					
Stimulant Tablets.....	11.00	---	11.71	0.36	15.00
<b>The Empire Guano Co., Nashville, Tennessee</b>					
Premium 2-16-2.....	1.65	---	16.00	2.00	2.00
Premium Grain Grower.....	1.65	---	12.00	3.00	2.00
Climax Cotton Grower.....	1.65	---	12.00	3.00	2.00
Red Banner Special.....	1.65	---	10.00	2.00	2.00
Wheat, Oats & Corn Grower.....	0.82	---	10.00	2.00	1.00
Favorite Manure.....	0.82	---	10.00	2.00	3.00
Red Banner Truck Grower No. 4.....	2.47	---	8.00	5.00	6.00
High Grade Potash Mixture.....	---	---	10.00	2.00	4.00
Climax Acid Phosphate.....	---	---	16.00	2.00	---
Red Banner 20 per cent Acid Phosphate.....	---	---	20.00	---	---
Missouri Grain Grower.....	0.82	---	12.00	3.00	1.00
Bone Meal & Phosphate.....	0.82	---	16.00	4.00†	---
Pure Raw Bone Meal.....	3.70	22.00	---	---	---
Missouri Special.....	0.41	---	8.00	4.00	4.00
<b>The Excell Laboratories, 4535 Ravenswood Ave., Chicago, Ill.</b>					
Zenkes "New Plant Life" (Liquid) (Domestic Strength).....	1.40	---	1.07	0.02	0.54
Zenkes "New Plant Life" (Liquid) (Full Strength).....	2.80	---	2.14	0.05	1.08
<b>The Fertilizer Corporation of America Pierce City, Missouri Radio Active Brands</b>					
High Grade Truck Grower*.....	0.91	---	16.00	1.00	3.00
High Grade Corn & Cotton Grower*.....	0.82	---	15.00	1.00	2.00
Special Tomato Grower*.....	0.41	---	10.50	1.00	2.00
Special Wheat Grower*.....	0.41	---	10.00	1.00	2.00
Special Flower Grower.....	2.50	---	2.50	0.75	3.00
Nature's Own Deposit of Pre-historic Sea Life.....	2.65	---	2.60	0.65	3.00
<b>The Flower City Plant Food Co., Rochester, New York</b>					
Walker's Excelsior Plant Food.....	5.00	---	7.00	---	3.00
Fairy Brand Plant Food.....	3.00	---	7.00	---	2.00
Japanese Fern and Palm Food.....	5.00	---	6.00	---	1.00

\*All Phosphoric Acid is derived from bone except 2 per cent. †From bone  
No Acid Phosphate or Sulphuric Acid used in any of these goods and they are free from Chlorine and from free Sulphuric Acid.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K O)
		Total	Avail- able	Insol- uble	
<b>Ford Motor Co., Detroit, Michigan</b> Ford Ammonium Sulphate .....	20.80	----	----	----	----
<b>Leonard Haeefe, 825 Tesson St., St. Louis, Missouri</b> Star Brand Ground Steamed Bone .....	3.10	17.70	----	----	----
<b>Jacksonville Reduction Co., Jacksonville, Illinois</b> Fertilizer (Bone Meal) .....	3.73	18.00	----	----	----
<b>Mount Pleasant Fertilizer Co., Inc. Shreveport, La.</b> Mt. Pleasant Brands					
3-12-4 Fertilizer.....	2.47	----	12.00	----	4.00
3-8-6 Fertilizer.....	2.47	----	8.00	----	6.00
2-12-6 Fertilizer.....	1.65	----	12.00	----	6.00
2-16-2 Fertilizer.....	1.65	----	16.00	----	2.00
2-14-2 Fertilizer.....	1.65	----	14.00	----	2.00
2-12-2 Fertilizer.....	1.65	----	12.00	----	2.00
1-12-1 Fertilizer.....	0.82	----	12.00	----	1.00
4-12-0 Fertilizer.....	3.30	----	12.00	----	0.00
2-12-0 Fertilizer.....	1.65	----	12.00	----	0.00
15-3 Phosphate & Potash .....	----	----	15.00	----	3.00
15-2 Phosphate & Potash .....	----	----	15.00	----	2.00
14-4 Phosphate & Potash .....	----	----	14.00	----	4.00
12-2 Phosphate & Potash .....	----	----	12.00	----	2.00
10-4 Phosphate & Potash .....	----	----	10.00	----	4.00
20 per cent Superphosphate.....	----	----	20.00	----	----
16 per cent Superphosphate.....	----	----	16.00	----	----
Steamed Bone Meal .....	2.50	22.00	----	----	----
Raw Bone Meal.....	3.70	20.00	----	----	----
Bone Meal & Phosphate.....	1.23	----	11.00	9.00*	----
<b>Natural Guano Co., Aurora, Illinois</b> Sheep's Head Brand Pulverized Sheep Manure .....	2.25	----	1.00	0.25	2.00
<b>The Nitragin Co., Inc. Milwaukee, Wisconsin</b> Plantpep.....	14.00	----	10.00	----	12.00
<b>Nitrate Agencies Co., New Orleans, Louisiana</b> Nitrate of Soda .....	15.00	----	----	----	----

\*From bone



TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Available	Insoluble	
<b>Oyama Products Co., Newburgh, New York</b> Oyama Plant Food.....	17.00	----	17.35	----	24.52
<b>The Phosphated Manure Co., Chicago, Illinois</b> Wizard Brands Phosphated Manure.....	0.82	----	9.00	----	1.00
<b>The Pulverized Manure Co., Chicago, Illinois</b> Wizard Brand Cattle Manure.....	1.80	----	1.00	----	1.00
Sheep Manure.....	2.00	----	1.25	----	2.00
<b>Read Phosphate Co., Nashville, Tennessee</b> Red Diamond 2-16-2.....	1.65	----	16.00	2.00	2.00
Premium Grain Grower.....	1.65	----	12.00	3.00	2.00
Quick Cotton Grower.....	1.65	----	12.00	3.00	2.00
Missouri Premium Guano.....	0.41	----	8.00	4.00	4.00
Blood & Bone No. 1.....	1.65	----	10.00	2.00	2.00
Favorite Cotton Grower.....	1.65	----	10.00	2.00	2.00
Corn, Wheat & Oats Grower.....	0.82	----	10.00	2.00	1.00
Farmers Special Manure.....	0.82	----	10.00	2.00	3.00
No. 6 Truck Grower.....	2.47	----	8.00	5.00	6.00
High Grade Potash Mixture.....	----	----	10.00	2.00	4.00
Red Diamond Acid Phosphate.....	----	----	16.00	2.00	----
Red Diamond 20 per cent Acid Phosphate.....	----	----	20.00	----	----
Missouri Grain Special.....	0.82	----	12.00	3.00	1.00
Bone Meal & Phosphate.....	0.82	----	16.00	4.00*	----
Pure Raw Bone Meal.....	3.70	22.00	----	----	----
<b>C. F. Schumaker Fertilizer Co., St. Louis, Missouri</b> Special Lawn and Floral Food.....	2.00	----	4.00	----	3.00
Ground Tobacco Stems.....	1.50	----	----	----	4.00
<b>Smith Agricultural Chemical Co., Columbus, Ohio</b> Smiths SACCO Plant Food.....	3.29	----	10.00	----	4.00
<b>Swift and Co., Fertilizer Works St. Louis, Mo.</b> Swift's Brands Red Steer 2-12-2.....	1.65	----	12.00	1.00	2.00
Red Steer 2-10-2.....	1.65	----	10.00	1.00	2.00
Red Steer 1-12-1.....	0.82	----	12.00	0.50	1.00
Red Steer 3-8-3.....	2.47	----	8.00	1.00	3.00
Red Steer 3-8-6.....	2.47	----	8.00	1.00	6.00
Red Steer 3-12-4.....	2.47	----	12.00	1.00	4.00
Red Steer 2-12-6.....	1.65	----	12.00	1.00	6.00

\*From bone

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Avail- able	Insolu- ble	
Red Steer 1-12-4 .....	0.82	----	12.00	0.50	4.00
Red Steer 2-16-2 .....	1.65	----	16.00	1.00	2.00
Red Steer 4-12-0 .....	3.29	----	12.00	1.00	----
Red Steer 2-12-0 .....	1.65	----	12.00	1.00	----
Red Steer 0-14-4 .....	----	----	14.00	----	4.00
Red Steer 0-12-4 .....	----	----	12.00	----	4.00
Pulverized Manure .....	1.65	----	1.00	1.00	2.00
Bone Meal & Phosphate Fertilizer .....	0.82	----	15.00	5.00*	----
Red Steer 16 per cent Acid Phosphate Fertilizer .....	----	----	16.00	----	----
Red Steer 20 per cent Acid Phosphate Fertilizer .....	----	----	20.00	----	----
Raw Bone Meal Fertilizer 4 1/4-23 .....	3.70	23.00	----	----	----
Bone Meal Fertilizer 3-24 .....	2.47	24.00	----	----	----
Bone Meal Fertilizer 2 3/4-29 .....	1.85	29.00	----	----	----
Bone Meal Fertilizer 2 3/4-27 .....	1.85	27.00	----	----	----
Bone Meal Fertilizer 1 3/4-30 .....	1.03	30.00	----	----	----
Bone Meal Fertilizer 1 3/4-29 .....	1.03	29.00	----	----	----
Sulphate of Ammonia .....	20.75	----	----	----	----
Nitrate of Soda .....	14.76	----	----	----	----
Kemfert Potash Salts .....	----	----	----	----	58.00
Swift's Red Steer 1-13-4 .....	0.82	----	13.00	5.00*	4.00
VIGORO .....	3.29	----	12.00	----	4.00
<b>Tennessee Chemical Co.,</b>					
Chicago, Ill.					
<b>"OX" Brands</b>					
4-16-4 Fertilizer .....	3.30	----	16.00	0.50	4.00
3-8-6 Fertilizer .....	2.47	----	8.00	0.50	6.00
2-16-8 Fertilizer .....	1.65	----	16.00	0.50	8.00
3-12-4 Fertilizer .....	2.47	----	12.00	0.50	4.00
2-16-2 Fertilizer .....	1.65	----	16.00	0.50	2.00
2-12-6 Fertilizer .....	1.65	----	12.00	0.50	6.00
2-12-2 Fertilizer .....	1.65	----	12.00	0.50	2.00
4-12-0 Fertilizer .....	3.30	----	12.00	0.50	----
0-14-4 Fertilizer .....	----	----	14.00	0.50	4.00
16 Per Cent Acid Phosphate .....	----	----	16.00	0.50	----
Superphosphate .....	----	----	20.00	0.50	----
Bone Meal .....	2.47	24.00	----	----	----
Raw Bone Meal .....	3.70	22.00	----	----	----
Standard .....	1.65	----	8.00	0.50	2.00
1-12-1 Fertilizer .....	0.82	----	12.00	0.50	1.00
<b>United States Gypsum Co.,</b>					
Wilmington, Delaware					
<b>Land Plaster</b>					
This product consists of gypsum which contains the following:					
CaSO <sub>4</sub> 2H <sub>2</sub> O .....	93.16	per cent			
CaCO <sub>3</sub> .....	2.54	per cent			
MgCO <sub>3</sub> .....	0.70	per cent			

\*From Bone

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI, 1925; (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Available	Insoluble	
<b>Virginia Carolina Chemical Co., Shreveport, La.</b>					
V-C Plant Food for Vegetables, Lawns & Flowers	4.94	----	8.00	----	3.00
Memphis Truck	3.30	----	10.00	----	4.00
V-C Special Vegetable Grower	2.47	----	12.00	----	4.00
V-C Truck Fertilizer	2.47	----	8.00	----	6.00
Royal Vegetable Fertilizer	2.47	----	8.00	----	4.00
Eureka High Grade Guano	2.47	----	9.00	----	3.00
V-C Double Strength Money Saver	1.65	----	16.00	----	2.00
V-C Progressive Farmer Fertilizer	1.65	----	14.00	----	2.00
Good Luck Wheat Special	1.65	----	12.00	----	2.00
V-C Star Brand Fertilizer	1.65	----	12.00	----	6.00
Good as Gold Standard Guano	0.82	----	12.00	----	1.00
V-C 1-12-4 Fertilizer	0.82	----	12.00	----	4.00
V-C Delta Land Fertilizer	7.00	----	8.00	----	----
V-C Dixie Special Without Potash	3.00	----	10.00	----	----
V-C Champion Ammoniated Superphosphate	3.30	----	12.00	----	----
Crescent Wheat Grower	1.65	----	12.00	----	----
Capital Ammoniated Superphosphate	1.65	----	10.00	----	----
Victor Bone & Potash Compound	----	----	15.00	----	3.00
V-C Special Phosphate & Potash	----	----	14.00	----	4.00
Monarch Grain Grower	----	----	15.00	----	2.00
V-C Phosphate & Potash	----	----	10.00	----	4.00
V-C Grain Grower	----	----	12.00	----	2.00
Capital Phosphate & Potash Compound	----	----	10.00	----	2.00
V-C 20 per cent Superphosphate	----	----	20.00	----	----
V-C 18 per cent Superphosphate	----	----	18.00	----	----
V-C 16 per cent Superphosphate	----	----	16.00	----	----
Victor 16 per cent Superphosphate	----	----	16.00	----	----
Victor 14 per cent Acid Phosphate	----	----	14.00	----	----
Muriate of Potash	----	----	----	----	48.00
Genuine Imported Kainit	----	----	----	----	12.46
Tip Top Nitrogen Compound	13.16	----	2.00	----	----
V-C Steamed Bone Meal	2.50	22.00	----	----	----
V-C Raw Bone Meal	3.70	20.00	----	----	----
V-C Half & Half Bone & Phosphate	1.23	----	11.00	9.00*	----
V-C Nitrate of Soda	14.81	----	----	----	----
V-C Ground Tobacco Stems	1.65	----	----	----	6.00
<b>Wessel, Duval and Co., 25 Broad St., New York, N. Y.</b>					
Nitrate of Soda	14.87	----	----	----	----
Nitrate of Soda containing Potash	12.00	----	----	----	5.00
<b>Wilson and Co., New Albany, Indiana Red "W" Brands</b>					
Three Ten Four	2.47	----	10.00	1.00*	4.00
Tobacco Grower	2.47	----	8.00	1.00*	6.00
Two Twelve Six	1.65	----	12.00	1.00*	6.00

\*From bone

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1925 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Avail- able	Insolu- ble	
Two Twelve Two .....	1.65	----	12.00	1.00*	2.00
Two in One .....	1.65	----	16.00	1.00*	2.00
Two Eight Sixteen .....	1.65	----	8.00	1.00*	16.00
Two Eight Ten .....	1.65	----	8.00	1.00*	10.00
Two Eight Five .....	1.65	----	8.00	1.00*	5.00
Corn and Wheat Special .....	1.65	----	8.00	1.00*	2.00
One Eight Eight .....	0.82	----	8.00	1.00*	8.00
One Eight Three .....	0.82	----	8.00	1.00*	3.00
Special Grain Fertilizer .....	0.82	----	8.00	1.00*	1.00
Fifteen Seven & One-half .....	----	----	15.00	1.00*	7.50
Fourteen Four .....	----	----	14.00	1.00*	4.00
Twelve Twelve .....	----	----	12.00	1.00*	12.00
Ten Ten Hummer .....	----	----	10.00	1.00*	10.00
Ten Five .....	----	----	10.00	1.00*	5.00
Eight Twenty-four .....	----	----	8.00	1.00*	24.00
Half & Half .....	2.06	----	6.00	6.00*	1.00
Acid Phosphate 16 per cent .....	----	----	16.00	1.00*	----
Acid Phosphate 20 per cent .....	----	----	20.00	1.00*	----
Raw Bone Meal .....	3.70	23.00	----	----	----
Special Bone Meal .....	0.82	30.00	----	----	----

\*From bone

TABLE 8.—APPROXIMATE SALE OF FERTILIZERS IN THE STATE OF MISSOURI, BY COUNTIES, BASED UPON REPORT OF SHIPMENTS BY THE FERTILIZER COMPANIES.

County	Sales in 1925			Fertilizers classified for 1925					Misc.
	Spring	Fall	Total	Bone	Acid Phosphate	Mixed Fertilizer			
						High Grade	Med. <sup>2</sup> Grade	Low <sup>3</sup> Grade	
Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	
Adair.....	15	45	60	5	18	29	8	---	---
Andrew.....	5	33	38	---	31	2	---	5	---
Atchison.....	25	---	25	---	25	---	---	---	---
Audrain.....	226	645	871	69	322	351	127	---	2
Barry.....	657	588	1245	196	219	719	109	---	2
Barton.....	115	1300	1415	270	537	558	8	35	7
Bates.....	14	460	474	46	363	64	---	---	1
Benton.....	29	436	465	79	150	159	46	30	1
Bollinger.....	156	168	324	25	109	174	16	---	---
Boone.....	32	343	375	9	318	47	---	---	1
Buchanan.....	55	71	126	19	60	47	---	---	---
Butler.....	122	---	122	3	48	70	1	---	---
Caldwell.....	48	257	305	8	261	36	---	---	---
Callaway.....	46	451	497	98	223	160	16	---	---
Camden.....	28	20	48	---	5	43	---	---	---
Cape Girardeau.....	13	170	183	9	73	96	2	---	3
Carroll.....	44	239	283	31	186	66	---	---	---
Carter.....	30	30	60	5	2	51	2	---	---
Cass.....	111	448	559	7	371	148	49	---	---
Cedar.....	75	306	381	33	320	27	1	---	---
Chariton.....	45	483	528	1	418	88	21	---	---
Christian.....	315	660	975	64	554	322	35	---	---
Clark.....	10	33	43	---	38	2	3	---	---
Clay.....	11	97	108	10	88	10	---	---	---
Clinton.....	85	114	199	27	151	21	---	---	---
Cole.....	15	922	937	18	735	157	27	---	---
Cooper.....	1	514	515	15	236	261	3	---	---
Crawford.....	5	221	226	28	168	27	3	---	---
Dade.....	16	647	663	112	320	223	7	---	1
Dallas.....	20	---	20	---	10	10	---	---	---
Davies.....	3	96	99	---	52	47	---	---	---
DeKalb.....	15	59	74	---	70	3	---	---	1
Dent.....	46	67	113	8	40	65	---	---	---
Douglas.....	258	33	291	12	35	244	---	---	---
Dunklin.....	288	---	288	2	11	273	---	---	2
Franklin.....	94	1199	1293	77	686	472	58	---	---
Gasconade.....	19	484	503	32	256	178	37	---	---
Gentry.....	1	15	16	---	15	1	---	---	---
Greene.....	388	925	1313	127	490	680	9	---	7
Grundy.....	22	130	152	8	123	21	---	---	---
Harrison.....	71	103	174	1	154	19	---	---	---
Henry.....	24	309	333	29	217	83	3	---	1
Hickory.....	80	332	412	3	326	81	2	---	---
Holt.....	---	1	1	---	---	---	---	---	1
Howard.....	3	126	129	---	115	14	---	---	---
Howell.....	629	139	768	6	217	467	30	28	20
Iron.....	18	129	147	1	70	75	1	---	---
Jackson.....	394	427	821	117	316	196	1	---	191
Jasper.....	220	3098	3318	420	1039	1585	90	---	184
Jefferson.....	9	49	58	---	46	12	---	---	---

<sup>1</sup>Contains 14 or more plant food units.  
<sup>2</sup>Less than 14, but more than 10 units.  
<sup>3</sup>10 plant food units or less.

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TABLE 8.—APPROXIMATE SALE OF FERTILIZERS IN THE STATE OF MISSOURI, BY COUNTIES, BASED UPON REPORT OF SHIPMENTS BY THE FERTILIZER COMPANIES. (Continued)

County	Sales in 1925			Fertilizers classified for 1925					Misc.
	Spring	Fall	Total	Bone	Acid Phosphate	Mixed Fertilizer			
						High Grade	Med. <sup>2</sup> Grade	Lows Grade	
Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	
Johnson.....	88	246	334	26	180	127	---	---	1
Knox.....	17	242	259	83	121	52	3	---	---
Laclede.....	250	339	589	14	236	171	168	---	---
Lafayette.....	1	161	162	37	116	8	---	---	1
Lawrence.....	445	1379	1824	181	988	542	80	30	3
Lewis.....	61	689	750	101	413	115	121	---	---
Lincoln.....	331	1817	2148	101	831	940	276	---	---
Linn.....	157	202	359	6	320	23	10	---	---
Livingston.....	45	81	126	1	110	15	---	---	---
McDonald.....	90	68	158	4	67	87	---	---	---
Macon.....	48	521	560	22	144	392	2	---	---
Madison.....	80	208	288	28	126	108	26	---	---
Maries.....	---	65	65	12	38	15	---	---	---
Marion.....	17	833	850	39	649	64	97	1	---
Mercer.....	---	27	27	4	17	6	---	---	---
Miller.....	46	710	756	161	375	209	10	---	1
Mississippi.....	53	---	53	---	---	53	---	---	---
Moniteau.....	15	718	733	147	339	243	4	---	---
Monroe.....	60	616	676	97	308	271	---	---	---
Montgomery.....	241	837	1078	104	439	304	230	---	1
Morgan.....	30	706	736	51	294	382	9	---	---
New Madrid.....	57	---	57	---	56	1	---	---	---
Newton.....	329	1258	1587	114	855	600	18	---	---
Nodaway.....	5	117	122	4	112	2	1	3	---
Oregon.....	185	67	252	1	41	210	---	---	---
Osage.....	29	458	487	14	296	172	5	---	---
Ozark.....	97	---	97	---	---	97	---	---	---
Pemiscot.....	---	---	---	---	---	---	---	---	---
Perry.....	34	146	180	2	64	108	6	---	---
Pettis.....	61	593	654	56	463	123	11	1	---
Phelps.....	78	443	521	50	355	113	2	1	---
Pike.....	375	1079	1454	45	621	670	103	13	2
Platte.....	32	32	64	---	54	6	4	---	---
Polk.....	330	599	929	69	520	295	---	---	45
Pulaski.....	144	212	356	14	116	187	33	---	6
Putnam.....	50	30	80	---	12	68	---	---	---
Ralls.....	15	565	580	19	424	112	25	---	---
Randolph.....	101	308	409	22	197	189	---	---	1
Ray.....	101	90	191	8	137	45	1	---	---
Reynolds.....	4	15	19	---	15	---	---	---	4
Ripley.....	744	16	760	---	346	368	45	---	1
St. Charles.....	82	754	836	69	457	279	31	---	---
St. Clair.....	60	196	256	17	56	183	---	---	---
St. Francois.....	264	469	733	102	242	367	22	---	---
Ste. Genevieve.....	---	58	58	---	54	4	---	---	---
St. Louis.....	239	207	446	18	50	90	82	---	206
Saline.....	---	161	161	1	160	---	---	---	---
Schuyler.....	33	203	236	40	109	85	2	---	---
Scotland.....	---	18	18	1	3	7	6	---	1
Scott.....	123	15	138	---	15	93	7	---	23

<sup>1</sup>Contains 14 or more plant food units.  
<sup>2</sup>Less than 14, but more than 10 units.  
<sup>3</sup>10 plant food units or less.

TABLE 8.—APPROXIMATE SALE OF FERTILIZERS IN THE STATE OF MISSOURI, BY COUNTIES, BASED UPON REPORT OF SHIPMENTS BY THE FERTILIZER COMPANIES. (Continued)

County	Sales in 1925			Fertilizers classified for 1925					Misc.
	Spring	Fall	Total	Bone	Acid Phosphate	Mixed Fertilizer			
						High Grade	Med. Grade	Low Grade	
Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Shannon	33	---	33	---	17	16	---	---	---
Shelby	126	1077	1203	181	589	428	5	---	---
Stoddard	125	125	250	1	166	83	---	---	---
Stone	254	18	272	11	13	247	---	---	1
Sullivan	94	31	125	---	88	37	---	---	---
Taney	31	---	31	---	---	31	---	---	---
Texas	288	411	699	52	395	252	---	---	---
Vernon	45	366	411	76	105	224	6	---	---
Warren	39	636	675	62	277	231	105	---	---
Washington	30	185	215	30	34	108	43	---	---
Wayne	50	96	146	5	95	46	---	---	---
Webster	1179	266	1445	50	272	1064	43	---	16
Worth	---	4	4	---	4	---	---	---	---
Wright	481	102	583	9	273	300	---	---	1
Totals for Spring	13373	---	---	377	4564	7159	777	25	471
Totals for Fall	---	39304	---	4015	20342	12980	1577	122	268
Totals for 1925	---	---	52677	4392	24906	20139	2354	147	739
Percentage of Total	25.39	74.61	100.00	8.34	47.28	38.23	4.47	0.28	1.40

<sup>1</sup>Contains 14 or more plant food units.

<sup>2</sup>Less than 14, but more than 10 units.

<sup>3</sup>10 plant food units or less.

TABLE 9.—TONNAGE OF THE PLANT FOOD CONSTITUENTS SOLD IN MISSOURI 1925 (approximate)

Kinds of Fertilizer	Fertilizer Tonnage	Plant Food Tonnage				
		Nitrogen	Phosphoric Acid from bone	Available Phosphoric Acid	Insoluble Phosphoric Acid	Potash
Bone	5021.41	102.34	1279.11	---	---	---
Half & Half	1620.62	16.30	199.33	132.08	---	---
Arid Phosphate	24962.49	---	---	4225.59	---	---
High Grade	17784.69	285.18	---	2182.15	---	460.70
Medium Grade	2417.11	35.34	---	195.46	---	49.81
Low Grade	41.00	0.34	---	3.28	---	0.41
Sodium nitrate and Ammonium Sulphate	255.74	40.72	---	---	---	---
Dried Manure	274.37	5.49	---	2.74	---	5.49
Dried Blood	0.28	0.04	---	---	---	---
Potash Salts	1162.70	---	---	---	---	21.45
Ground Rock Phosphate	10.00	---	---	---	3.30	---
Totals	53550.41	485.68	1478.44	6741.30	3.30	537.86

# FINANCIAL STATEMENT

## Fertilizer Control Fund

of the

## Missouri Agricultural Experiment Station

For the year ending December 31, 1925

### Receipts

Balance January 1, 1925.....	\$ 5,942.02
Receipts from Sales of Tags, 1925.....	29,505.75
	<hr/>
Total Available.....	\$35,447.77

### Expenditures

Salaries.....	10,719.28
Labor.....	2,691.46
Stationery & Office Supplies.....	1,772.48
Supplies.....	1,074.82
Feeding Stuffs.....	865.76
Sundry Supplies.....	1,352.05
Postage, Telegraph & Telephone.....	219.80
Travel Expense.....	724.04
Freight & Express.....	357.76
Publications.....	1,636.07
Heat, Light, Water & Power.....	430.60
Furniture & Fixtures.....	255.24
Library.....	200.90
Scientific Equipment.....	185.87
Live Stock.....	19.50
Tools, Machinery & Appliances.....	475.93
Building and Land.....	205.77
Contingent Expenses.....	44.60
	<hr/>
	23,231.93
Balance Cash on hand, December 31, 1925.....	\$12,215.84