

UNIVERSITY OF MISSOURI

COLLEGE OF AGRICULTURE

AGRICULTURAL EXPERIMENT STATION

BULLETIN 230

# Testing Fertilizers For Missouri Farmers: 1924



The Effect of Fertilizer on Potatoes.---The rows at the left received 400 pounds of high grade fertilizer per acre; those at the right no fertilizer.

COLUMBIA, MISSOURI

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## THE ADMINISTRATION OF THE MISSOURI FERTILIZER LAW

F. B. MUMFORD

*Director of the Experiment Station*

The purpose of the Missouri fertilizer law is to protect farmers from fraud in the purchase of commercial fertilizers. The methods of administration developed by this Experiment Station through long years of experience have not only protected farmers in the purchase and use of fertilizers, but have had other important results. Along with police protection, it has been the constant aim and policy to give information to farmers which will aid them in making a profitable use of fertilizing materials. It may be said that the methods of administration have been primarily educational. The result of such a policy has effected a great improvement in the methods of farming which require the use of fertilizer.

In addition to giving information to farmers, the Station has had frequent conferences with manufacturers of fertilizing materials and encouraged them to manufacture and sell the kinds of fertilizers to which Missouri soils respond profitably. The manufacturers have been willing to devote their efforts to the sale of such fertilizers and the farmers have in the main followed the advice of the Experiment Station to their great profit.

The general tendency at the present is for manufacturers to place on the market brands of fertilizer containing a comparatively high percentage of plant food. These brands cost more per ton, but are, nevertheless, in the main more profitable to use because they contain less filler, which has no fertilizing value. The cost per unit of actual plant food in high grade fertilizers is usually less than in the cheaper fertilizers containing more filler.

It cannot be too much emphasized that the brand name has little significance. The farmer should direct his attention to the guaranteed chemical composition and by referring to the bulletin published by the Experiment Station he can decide for himself as to the value of the fertilizers offered for sale in Missouri. The Experiment Station at Columbia is always ready to give advice on the use of fertilizers, based on careful investigations. Such advice is free and if followed may save the farmer costly experience.

# Testing Fertilizers for Missouri Farmers: 1924

## Report of the Chemist

L. D. HAIGH

The Missouri Fertilizer Law provides for an annual inspection of stocks of fertilizer sold in the State, the collection of samples from these stocks, the chemical analysis of these samples and the publication of the results obtained. As a result of the work conducted during 1924, the year covered by this report, 25 towns in 12 counties were visited in the spring and 80 samples were collected for analysis. In the fall seventy towns in 30 counties were visited and 351 samples collected for analysis. Five samples were sent in by fertilizer users for analysis. The results on the analysis of these samples appear in Table 5 of this report.

The samples collected for analysis represent 138 registered brands. However, a number of standard fertilizer mixtures and simple materials having a general use are registered and sold by all manufacturers. Therefore, the actual number of distinct kinds of fertilizer, amounts to only 40 out of a total of 431 samples.

The information on fertilizer usage as collected by the Experiment Station has shown consistently that there is no need for a large number of mixtures to meet the agricultural demands. As a consequence ten simple materials and mixtures have been selected and recommended for field crop needs in Missouri.\* They are 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 and 3-8-6. The tendency year by year has been toward the sale of a decreasing number of kinds of fertilizer mixtures in accordance with this recommendation.

For a number of years there has been published in this bulletin a classification of the tonnage of fertilizer sold in each county of the State. This information will be found in Table 8. It is based upon reports of fertilizer shipments of each company which are sent in during the shipping season. According to the statement of the companies reporting, these records of shipment are complete and the results shown should, therefore, be a close approximation to the actual amounts used in each county.

This summary shows very clearly how the kind of fertilizer purchased in the State as a whole, has tended more and more to fall into line with the recommendations of the Experiment Station. Briefly stated these recommendations call for, acid phosphate, bone meal and high grade mixed fertilizer.

A brief summary of this data for the State is given in Table 1.

The classifications in Tables 1 and 8 are defined as follows: Bone, including steam bone meal and raw bone meal; Acid Phosphate including 16, 18 and 20 per cent Acid Phosphate; High Grade Mixed, more than 14 units of plant food, including Half & Half; Medium Grade Mixed, less than 14 but more than

\*Missouri Agricultural Experiment Station Bulletin 200.

TABLE 1.—KINDS OF FERTILIZER USED EXPRESSED IN PERCENTAGE OF TOTAL TONNAGE

Year	Bone	Acid phosphate	Mixed fertilizer			Miscellaneous
			High grade	Medium grade	Low grade	
	per cent	per cent	per cent	per cent	per cent	per cent
1920	17.22	26.05	23.54	17.85	11.69	3.65
1921	15.98	29.39	28.81	16.34	8.71	.77
1922	10.13	41.70	29.70	12.72	3.94	1.81
1923	16.02	44.62	27.33	7.36	2.96	1.71
1924	12.76	49.05	31.51	4.58	0.94	1.16

10 units; Low Grade Mixed, 10 units or less; Miscellaneous, all simple fertilizer materials such as nitrate of soda, dried blood, dried manure, potash salts, etc.

Table 9 gives the tonnage of each plant food unit sold in Missouri during the year 1924. This is appended as supplementary information to the tonnage given in Tables 1 and 8.

### REGISTRATION

Registration is the first requirement of the Missouri Fertilizer Law. The reading of the law in part is as follows:

Section 2. Before any commercial fertilizer or material to be used as a fertilizer ----- 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 of the fertilizer (3) the guaranteed chemical composition of the fertilizer-----

Under this requirement 47 manufacturers in 1924 filed registration for 562 brands of fertilizers which were offered for sale in the State. However, many of these brands found no sale.

The manufacturers have already filed their registrations for 1925. These are listed in Table 7 of this bulletin for the benefit of those who will buy during the coming year.

### LABELING FERTILIZER

The second requirement of the Missouri Fertilizer Law is that the fertilizer shall be labeled in accordance with the registration. The reading of the law is as follows:

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.

In agreement with the above requirement every purchaser has a right to find on each package full information regarding the composition of his fertilizer and the name of the manufacturer responsible for its preparation.

Attention of dealers and all buyers of fertilizer is called to the practice of designating the popular fertilizer brand "Half and Half" by the figure formula  $1\frac{1}{2}$ -20 or 1-20, the second figure referring to total phosphoric acid. This figure formula for Half & Half is misleading and should not be used. When the second figure in a figure formula refers to total phosphoric acid it is clearly understood that we are designating total phosphoric acid from bone only. Half & Half does not contain 20 per cent of total phosphoric acid from bone. When phosphoric acid from other sources is present such as in a Half & Half fertilizer, the second figure should be the guaranteed percentage of available phosphoric acid in the mixture. If a figure formula for a Half & Half brand is used it should read  $1\frac{1}{2}$ -11,  $1\frac{1}{2}$ -13,  $1\frac{1}{2}$ -15 according to the percentage of available phosphoric acid which is guaranteed.

### ATTACHING REGISTRATION TAGS

The third requirement of the Missouri Fertilizer Law is that a registration tag shall be attached to every package of fertilizer regardless of its size. The words of the statute read as follows:

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 said 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.

It is necessary therefore that each sack or package regardless of its size carry a registration tag bearing the date of the calendar year in which the manufacturer or dealer, responsible for the registration, sells the goods.

It is also essential that the registration tag be attached to the outside of the package or the sack where it is plainly visible. In this connection some fertilizer companies have tried out the plan of stitching on the registration tags when the sack is being sewed by machinery. This practice is to be condemned, because it cuts the tag so nearly in two that a slight rub will cause it to fall off. Again if the tag is placed between the two laps of the sack at the top when it is sewed together, the tag is almost invisible and the part of the tag under the sewing of course cannot be seen at all without cutting open the sack. The intent of the law is not met when the purchaser is likely to miss seeing the tag altogether.

### VIOLETIONS OF THE MISSOURI FERTILIZER LAW

1. **Violations in Respect to Registration**—The following violations of the law respecting registration were found:

One ton of 16% Acid Phosphate and 12 tons of Special Wheat Grower were shipped to Theo. Lippert, Meta, Mo., by the Blood & Bone Fertilizer Co. of St. Louis, Mo. This company failed to register their goods previous to sale in the State, for the year 1924.

Dried Sheep Manure sold by Armour Fertilizer Works, East St. Louis to Iseman & Co., Farmington, had not been registered, as the law requires, by the Armour Fertilizer Works previous to making this sale.

Two hundred sacks of Armour's Wheat, Corn & Oats Grower were found at the warehouse of Laverne Woody, Golden City. Armour Fertilizer Works failed to register this brand previous to making sale as required by law.

Two and one-half tons of Swift's Tomato & Vegetable Grower 2-8-3 on hand at the warehouse of Richland Hardware Co., Richland, had not been registered for sale in 1924.

Fourteen sacks of Swift's Complete Fertilizer were found on hand at the warehouse of West Plains Grocery Co., West Plains, Mo. This brand had not been registered for sale in Missouri for the year 1924.

Fifty sacks of Red "W" Bone Meal and Phosphate were shipped to Farmers Grain & Supply Co., Golden City and 40 sacks of the same brand to Farmers Grain Elevator, Butler. This brand had not been registered previous to sale in Missouri in 1924 by Wilson & Co., manufacturer.

A stock of Pulverized Poultry Manure manufactured by the Poultry Feed Co., Chicago, Illinois, was found at the warehouse of the St. Louis Seed Co., St. Louis. This material had not been registered for sale as a fertilizer in his State in 1924.

**2. Violations with Respect to Labeling.**—The shipment of Dried Sheep Manure from Armour Fertilizer Works in the possession of Iseman & Co., Farmington, already mentioned in connection with violations with respect to registration, was contained in sacks which bore no labels of any kind.

Four shipments of Half & Half Fertilizer manufactured by the Floyd Plant Food Co. were found bearing on the label

"Available Phosphoric Acid 14 per cent."

The registration of the brand calls for the following reading of the label

"Available Phosphoric Acid 13 per cent."

These four shipments were made to Arthur Wilder, Laddonia; Farmers Elevator, St. Clair; Farmers Grain & Feed Co., Meta; Gastler Bros., Wellsville.

Also H. B. Fry, New Florence, had purchased a stock of 1-10-1 fertilizer from Floyd Plant Food Co. This bore no labels showing guaranteed analysis as required by law.

M. C. Reed & Son were selling their fertilizer, Insecticide and Tree Grower without labels as to guaranteed analysis. On instructions from the Experiment Station new labeling tags were prepared to be placed upon these packages.

Fourteen sacks of Half & Half Fertilizer from the Read Phosphate Co. were found at the warehouse of C. S. Eames, Hawk Point, which failed to show the percentage of available phosphoric acid on the label.

A stock of 80 sacks of fertilizer labeled Red Steer 1-18-4 was found at the warehouse of M. J. Richter, Lamar. The label 1-18-4 fertilizer is wrong as a formula name and is not in agreement with the registration of this brand.

The inspector found 100 sacks of Swift's 2¼-29 Bone Meal at the warehouse of Peer Bros., Lockwood, which had been placed in 1¼-29 Bone Meal sacks. Changes had been made on the label so that the brand name read 2¼-29 fertilizer, but under the Guaranteed Analysis it still read 1¼-29 fertilizer.

Twenty sacks of Wizard Brand Cattle Manure put out by the Pulverized Manure Co., E. St. Louis, were found at the warehouse of the St. Louis Seed

Co., St. Louis, which carried no labels showing brand name, guaranteed analysis and name and address of the manufacturer.

At the warehouse of the Aurora Lumber Co. there was found 30 sacks of Big Crop 2-12-6 from Armour Fertilizer Works, Kansas City, Kansas. Under Guaranteed Analysis the label read "Available Phosphoric Acid 10 per cent." To agree with the name above it should have read Available Phosphoric Acid, 12 per cent. Analysis of this sample shows 12 per cent available phosphoric acid. The analysis also shows that this fertilizer is really a 1-12-6 fertilizer instead of 2-12-6 (see Table 5).

**3. Violations with Respect to the use of the Registration Tags.**—The following cases were found where 1923 registration tags had been used on 1924 shipments.

Eight sacks of Dried Sheep Manure sold to the Neosho Seed Co. by the Pulverized Manure Co., Kansas City.

Three sacks of Acid Phosphate, and 8 sacks of 2-12-2 sold to Oakley-Pate Seed Co., Joplin and 40 sacks of 1-9-1 fertilizer, 55 sacks of 1-12-1 fertilizer, 14 sacks of 2-12-2 fertilizer, 12 sacks of 2-12-4, and 10 sacks of 2-6-2 sold to L. F. Dreibelbis, Sarcoxie, by the Interstate Fertilizer Co., Webb City.

Twenty sacks of Swift & Co. 1¼-29 Bone Meal sold to the Farmers Exchange, Springfield.

The following lots of fertilizer were found without the registration tags attached.

Five pound packages of Pulverized Sheep Manure in stock at the T. Lee Adams Seed Store, Kansas City.

Twenty sacks of Big Crop 2-12-2 (Armour Fertilizer Works) at the warehouse of McAfee Milling Co., Moberly.

Twenty-four sacks of 20 per cent Phosphate, 80 sacks of 16 per cent Acid Phosphate, 64 sacks of 2-16-2, and 16 sacks of 0-12-2 manufactured by American Agricultural Chemical Co. on hand at the Farmers Elevator & Supply Co., Troy.

Sixteen sacks of Darling's 16% Acid Phosphate had been resacked at the Farmers Grain & Livestock Co., Lockwood, without placing the tags on the new sacks.

One hundred and ten sacks of 3-24 Bone Meal from Swift & Co. were found on hand at the Vandalia Roller Mills and 80 sacks of 4½-23 Raw Bone Meal from the same manufacturer at the Farmers Exchange, Springfield.

Nine sacks of Victor Bone & Potash compound had been resacked at the Tucker Seed House, Carthage, without replacing the registration tags on the new sacks.

Five sacks of Big Crop 2-12 at the warehouse of Atkinson and Clark, McCredie.

### ATTENTION—DEALERS AND FARMERS

In the publication of this report the aim of the Experiment Station is to lay before you, all the facts you need in judging the quality of the fertilizer you are buying.

The results of the analysis of the samples collected, shown in Table 5, will show you how carefully the manufacturer has prepared his goods in accordance with the guaranteed analysis. It will also show the actual fertilizing value of each sample in dollars and cents.

Careful attention to the following rules will assure true fertilizer values.

(1) Buy only brands of fertilizer registered by the fertilizer manufacturers which are found in Table 7 of this report. If you do not find it there, write to the Experiment Station for information before making the purchase.

(2) When the registered fertilizer which you have purchased arrives at your station, observe at once if each and every sack bears the following registration tag.

101 to 200 lbs.	
<b>MISSOURI AGRICULTURAL EXPERIMENT STATION</b>	
<b>COLUMBIA, MISSOURI</b>	
<b>Registered</b> 1925	<b>F. B. Mumford</b> Director

If the fertilizer is contained in 100 lb. sacks, the legend at the top will read "1-100 lbs." Be sure the year date on the tag is "1925"—not some previous year.

No fertilizer is permitted to be sold without these tags. If they are missing, notify the shipping fertilizer company at once. Use care that these tags are not torn from the sacks in handling. When torn off they must be replaced. (Let the dealer read carefully the paragraph below on "Resacking Fertilizer"). If a farmer, do not accept any sack from your dealer that does not carry one of these registration tags. If a dealer, insist that the manufacturer attach the tags before shipment unless you are willing to attach these yourself before removal from the car.

(3) Read the labels on the sacks carefully. Let your attention be directed to the figures under the words, "Guaranteed Analysis." Compare these figures with those which appear in Table 7 for the registration of this brand. Nothing in the registration should be missing from the label. The two readings should also agree. Additional phrases such as "Ammonia", "Bone Phosphate of Lime", "Sulphate of Potash", etc. may be found. They do not represent any plant food in addition to the nitrogen, phosphoric acid and potash already indicated; but are simply other expressions for the same things. See that the words "Equivalent to" precede these expressions whenever they are used.

Elaborate phrases expressing wonderful crop results and other significant information to the buyer are often used as brand names. The guaranteed analysis rather than the brand name, will present the reliable facts.

(4) In case of seeming irregularity: notify the Missouri Agricultural Experiment Station of the following facts (a) The name and address of the fertilizer company with whom you have placed the order and (b) The failure of any shipment of fertilizer received by you to agree with the conditions outlined above.



### RESACKING FERTILIZER

It is often necessary to resack fertilizer which has been kept in storage for several months since the acid in the fertilizer rots the sacks so badly that they fall to pieces. The new sacks must bear the same label as the original sacks and the attached registration tags must be transferred to the new sacks. Resacked fertilizer not complying with the above conditions cannot be sold in the state.

### PACKAGE FERTILIZER

Package fertilizer is sold by retail seedsmen and florists in the cities for use on lawns, flowers and potted plants. Some dealers may not be aware of the fact that the Missouri fertilizer law requiring registration and the affixing of registration tags or labels applies to these packages also. The retailer handling these packages can obtain the protection which the law provides by refusing to purchase package fertilizer from any manufacturer, jobber or distributor who cannot produce proof that his goods have been registered with the Missouri Agricultural Experiment Station. On receiving the goods the dealer should examine each package to see that each bears the registration label. No package without this registration label should be offered for sale to his customers.

The market is flooded with a multitude of kinds of package fertilizer, which are being distributed among retailers for sale. Some of these are registered and some are not. The dealer should protect himself by using the above information, and avoid the embarrassment of violating the state law by offering unregistered and untagged goods to his customers. By receiving fertilizer goods which have not been registered, the dealer also accepts the responsibility for their composition and before he can sell these goods he must register and tag them according to law.

The director or chemist of the Missouri Agricultural Experiment Station is ready to verify or give information concerning the registration of any package fertilizer sold in Missouri.

### COMPARATIVE VALUATIONS

It is highly desirable in comparing different fertilizer mixtures and materials that some basis of money value be employed in this connection. Since the price of fertilizer materials are based largely upon the quantity of plant food which they contain it is thus possible to select values for each of the elementary plant food substances—nitrogen, phosphoric acid and potash—which may be used in calculating the value of a ton of any plant food carrier.

The unit value for any plant food constituent as selected by the Missouri Agricultural Experiment Station for this report may be defined as the average delivered cost in the State of one percent of the plant food constituent contained, on the average, in one ton of the regular simple carriers of this constituent, when sold in carload lots.

When these values are used in calculating the value of a fertilizer the result obtained represents a cash value based strictly upon its fertilizing properties and including the cost of containers and transportation. It does not include such costs as handling and storage after delivery, cost of collection, interest on

accounts, etc. Popularity of a certain kind of fertilizer in a given locality may have the effect of raising the selling price. Such things cannot well be included in a unit value which ought to deal only with the necessary and basic factors of value only. Therefore in considering these values due allowance must be made for these other factors in comparing with the selling price.

The additional labor and factory cost of manipulating these materials to make mixed fertilizer are not included in the value of these units. It will be noted therefore that greater discrepancy is shown between the value of a mixed fertilizer figured by these units and the actual selling price of this mixed fertilizer, than between the values and selling price of the simple fertilizer materials such as bone and acid phosphate. This wider difference in the case of mixed fertilizers may be considered the added cost which the purchaser is asked to pay for this convenience of having his fertilizer materials mixed and ready for use.

The values selected and used in this report are based upon the prevailing prices for fertilizer materials during the calendar year 1924. If they are to be used for calculating values during the year 1925, due allowance must be made for any rise or fall in prices which may take place in that interval.

The prices which have prevailed for 1924 have been in close agreement with the prices of 1923; therefore the same unit values have been selected which were used in last year's report. The 1924 values are therefore the following:

Total Nitrogen.....	\$4.25 per unit
Total Phosphoric Acid from bone.....	0.90 per unit
Insoluble Phosphoric Acid from bone	
(In mixtures, when so guaranteed in registration)	0.60 per unit
Available Phosphoric Acid.....	1.35 per unit
Potash, water soluble.....	1.10 per unit

### ESTIMATING THE VALUE OF A FERTILIZER

The unit values indicated above mean the values of one per cent of each constituent in a ton of fertilizer. One per cent of one ton is 20 pounds; therefore the unit value of \$4.25 for nitrogen means the value of 20 pounds of nitrogen contained in one ton of fertilizer. If a fertilizer is said to contain 1.65 per cent of nitrogen, its value as far as the nitrogen is concerned would be 1.65 times \$4.25 or \$7.01.

For the benefit of those who wish to use these values the method of calculating the value of a fertilizer may be illustrated as follows: First, calculate the guaranteed value by multiplying the unit values, by the percentages of the plant foods which are guaranteed. Take a 2-16-2 fertilizer for example. This is guaranteed to contain, 1.65 per cent nitrogen (2 per cent ammonia), 16 per cent available phosphoric acid and 2 per cent of potash. The guaranteed value is now calculated as follows:

$$\begin{array}{r}
 1.65 \text{ times } \$4.25 = \$ 7.01 \\
 16 \text{ times } \$1.35 = 21.60 \\
 2 \text{ times } \$1.10 = 2.20
 \end{array}$$

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$$\text{Total guaranteed value} = \$30.81$$

From the results of the analysis on any 2-16-2 fertilizer, we can calculate the actual plant food value for comparison with the above guaranteed value. Samples 5-10 found in Table 5, page 16, is a 2-16-2 fertilizer which on analysis has been found to contain 1.75 per cent nitrogen, 16.52 per cent available phosphoric acid and 2.20 per cent potash. Using these values we find the actual plant food value as follows.

$$\begin{array}{r} 1.75 \text{ times } \$4.25 = \$ 7.44 \\ 16.52 \text{ times } 1.35 = 22.30 \\ 2.20 \text{ times } 1.10 = 2.42 \\ \hline \end{array}$$

$$\text{Total found or actual value} = \$32.16$$

The results show that this fertilizer has an actual value of \$1.35 more than it is guaranteed to contain.

The above is the method followed in calculating all the guaranteed and found values given in Table 5.

The results of these guaranteed and found values for each manufacturer are brought together for comparison in Table 2. For all manufactures appearing in this table there was a total of 98 samples under the guarantee in value or 23.4 per cent. As compared with previous years this is the poorest showing in the last five years. This is shown as follows:

Year	Below guarantee in value
1920.....	14.2 per cent
1921.....	10.2 per cent
1922.....	16.7 per cent
1923.....	15.6 per cent
1924.....	23.4 per cent

Considering all the samples of all the companies together, it will be seen that on the average the value of plant food furnished per ton was \$1.03 in excess of the value guaranteed.

### CHEMICAL ANALYSIS

Table 5 shows the detailed results on the analysis of each sample collected in the inspection of 1924. These are arranged alphabetically under the name of the manufacturer and show side by side the percentages of plant food found—nitrogen, phosphoric acid and potash—as compared with the amount guaranteed in the sample. Bold-faced type is used when these percentages run under the guarantee.

Table 4 summarizes the results of Table 5 and shows plainly what plant food is deficient and how each company compares in these deficiencies. Most of the deficiencies occur in the analyses of mixed fertilizer and of acid phosphate, and may be summarized thus: Nitrogen deficiencies increased from 32 to 38.4 per cent as compared with last year; Available phosphoric acid from 17.7 to 26.4 per cent; and potash deficiencies from 23.8 to 41.5 per cent.

On the other hand the deficiencies in total phosphoric acid in bone goods were less, being 15.0 per cent instead of 18.7 per cent as shown last year. Most of the bone samples ran well over the guarantee in value and helped to compensate for the loss occurring in mixed fertilizer.

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		
Adair & McCarty Bros., Inc.....	28	2	7.1	0.38	0.78
American Agricultural Chemical Co., A. A. C. Brands.....	24	7	29.2	1.56	0.72
American Agricultural Chemical Co., Boar's Head Brands.....	3	1	33.3	0.80	0.16
American Agricultural Chemical Co., Bradley Brands.....	7	1	14.3	0.37	0.90
American Agricultural Chemical Co., Empire Brands.....	11	1	9.1	0.27	0.99
American Agricultural Chemical Co., Horseshoe Brands.....	17	6	35.3	0.38	0.80
Armour Fertilizer Works Armour Brands.....	7	1	14.3	0.14	1.28
Armour Fertilizer Works Big Crop Brands.....	65	18	27.7	0.64	1.48
Armour Fertilizer Works Tuscarora Brands.....	3	1	33.3	0.45	0.75
Blood & Bone Fertilizer Co. ....	2	1	50.0	1.68	-0.04
Calumet Fertilizer Co.....	3	2	66.6	0.88	-0.26
Cudahy Packing Co.....	25	5	20.0	2.19	1.71
Darling & Co.....	51	7	13.7	0.34	0.63
Floyd Plant Food Co.....	19	10	52.6	0.95	0.26
Interstate Fertilizer Co.....	11	1	9.1	2.93	1.15
Phosphated Manure Co.....	2	0	0.0	---	2.38
Pulverized Manure Co.....	5	0	0.0	---	1.48
Read Phosphate Co.....	7	2	28.6	0.14	2.13
Swift & Co., Pioneer Brands.....	2	2	100.0	0.08	-0.08
Swift & Co., Swift Brands.....	99	23	23.2	0.95	1.09
Virginia-Carolina Chemical Co.....	19	6	31.5	1.46	0.58
Wilson & Co.....	8	1	12.5	5.60	0.43
Total or average.....	418	98	23.4	\$0.98	\$1.03

\*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.

Samples sent in by farmers and others for analysis are reported at the end of Table 5 under "Miscellaneous Samples". Such samples are usually not obtained by a recognized method of obtaining a good average sample from a larger part of the total lot, therefore the results often show a wide divergence from the guarantee, which show that such samples do not furnish the most reliable basis for passing judgment on the fertilizer tested.

### AVAILABILITY OF NITROGEN

Table 3 gives the results of testing the quality of the nitrogen contained in the fertilizers collected during 1924. The results obtained are expressed as per cent Total Activity and are found by dividing the sum of the per cents of water soluble nitrogen and neutral permanganate soluble nitrogen by the per cent of total nitrogen present, expressing the results as per cent.

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

Manufacturer	Mixed Fertilizer			Bone Fertilizer		
	Nitrogen Activity Water Soluble	Nitrogen Activity Perman Soluble	Total Nitrogen Activity	Nitrogen Activity Water Soluble	Nitrogen Activity Perman Soluble	Total Nitrogen Activity
Adair & McCarty Bros., Inc.	75.71	11.96	87.47	-----	-----	-----
American Agric. Chemical Co.	74.54	15.77	90.31	23.17	68.59	91.76
Armour Fertilizer Works	75.57	16.87	92.44	28.34	63.44	91.78
Calumet Fertilizer Co.	42.68	37.80	80.48	34.05	56.52	90.57
Cudahy Packing Co.	40.22	47.27	87.49	22.41	66.42	88.83
Darling & Co.	82.63	9.91	92.54	15.63	73.88	89.51
Floyd Plant Food Co.	54.51	25.72	80.23	25.22	67.09	92.31
Interstate Fertilizer Co.	39.05	42.20	81.25	35.43	58.30	93.73
Phosphated Manure Co.	7.48	35.03	42.51	-----	-----	-----
Read Phosphate Co.	67.71	19.68	87.39	37.31	50.00	87.31
Swift & Co.	88.39	8.26	96.65	30.94	55.10	86.04
Virginia-Carolina Chemical Co.	62.22	23.46	85.68	9.26	82.44	91.70
Wilson & Co.	34.94	56.07	91.01	15.41	68.68	84.09
Totals	61.50	26.25	87.75	25.20	64.59	89.79

For example, a fertilizer contains 1.65 per cent total nitrogen. Of this 1.00 per cent is water soluble nitrogen and 0.40 per cent is insoluble nitrogen which was dissolved by neutral permanganate solution. The sum of these or 1.40, divided by 1.65 and expressed as per cent, gives the result 84.84 per cent total activity.

The expression Total Activity is used when the availability of the nitrogen has been obtained by chemical methods. Strictly speaking the availability of a plant food can be measured only by the added growth made by plants fertilized with this material. The chemical method does not necessarily give the same figure as would be given by a plant availability test, but it does indicate the quality of the nitrogen for plant feeding purposes as compared with other materials. For example a fertilizer showing a total activity of nitrogen of 85 per cent is a better nitrogen fertilizer than one showing an activity of 50 to 60 per cent.

The values for total nitrogen activity shown in Table 3 ranging around 80 per cent or higher show a quality of nitrogen which may be considered satisfactory. For values in total activity which range much lower, it would doubtless be necessary to increase markedly the quantity of fertilizer used, in order to obtain the same fertilizing effect due to nitrogen.

### TESTING LIMESTONE

The wise use of limestone for correcting the acid condition of the soil on the farms of Missouri is becoming more general each year, and many samples have been sent in for test. The cost of shipping crushed limestone is almost prohibitive in some cases, so that the handling and crushing of stone locally has attracted much attention. It is necessary of course that a good quality of stone be used and this can only be determined by a chemical test.

During 1924, 367 samples of limestone and other material from various parts of the state were submitted for this test. Table 6 is a report on these samples. The acid neutralizing power of the limestone is due to the presence of the calcium carbonate and magnesium carbonate contained therein. The results are reported as calcium carbonate equivalent, which means that the acid neutralizing power is reported as if it were all calcium carbonate. If a rock consisted of pure calcium carbonate it would test 100 per cent "calcium carbonate equivalent," if it were pure magnesium carbonate it would test 118 per cent "calcium carbonate equivalent." Thus a stone containing both calcium and magnesium carbonates may test over 100 per cent calcium carbonate equivalent. Examples of such tests will be found in Table 6.

When samples of limestone are sent in for test they should be accompanied by information on the location of the rock ledge, giving range, township, section and quarter and also distance and direction from the nearest town (giving the name of the town).

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

(Page 15)

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.	No.	Per cent	No.	No.	Per cent
A. D. Adair & McCarty Bros., Inc.															
M. F. A Brands.....	8	1	12.5	0	0	-----	28	3	10.7	7	4	57.1	43	8	18.6
American Agricultural Chemical Co.,															
A. A. C. Brands.....	20	12	60.0	9	1	11.1	14	4	28.5	8	1	12.5	51	18	35.3
American Agricultural Chemical Co.,															
Boars Head Brands.....	1	1	100.0	0	0	-----	3	1	33.3	1	0	0.0	5	2	40.0
American Agricultural Chemical Co.,															
Bradley Brands.....	4	1	25.0	0	0	-----	7	0	0.0	5	2	40.0	16	3	18.7
American Agricultural Chemical Co.															
Empire Brands.....	6	3	50.0	0	0	-----	11	0	0.0	6	2	33.3	23	5	21.7
American Agricultural Chemical Co.,															
Horseshoe Brands.....	13	11	84.6	0	0	-----	17	2	11.8	13	8	61.5	43	21	48.8
Armour Fertilizer Works, Armour Brands.....	7	2	28.6	0	0	-----	7	1	14.3	7	1	14.3	21	4	19.0
Armour Fertilizer Works, Big Crop Brands.....	45	16	35.5	22	1	4.5	43	16	37.2	15	7	46.6	125	40	32.0
Armour Fertilizer Works, Tuscarora Brands.....	2	1	50.0	0	0	-----	3	0	0.0	2	1	50.0	7	2	28.6
Blood & Bone Fertilizer Co., Steer Head Brands	1	0	0.0	0	0	-----	2	1	50.0	1	0	0.0	4	1	25.0
Brighton Chemical Co.....	1	0	0.0	0	0	-----	1	0	0.0	1	1	100.0	3	1	33.3
Calumet Fertilizer Co.....	2	0	0.0	1	1	100.0	2	2	100.0	1	0	0.0	6	3	50.0
Cochrane Packing Co.....	1	1	100.0	0	0	-----	1	1	100.0	1	1	100.0	3	3	100.0
Cudahy Packing Co. Bigwin Brands.....	24	6	25.0	15	2	13.3	10	6	60.0	3	1	33.3	52	15	28.8
Darling & Co., Darling Brands.....	30	12	40.0	12	1	8.3	39	9	23.1	14	6	42.8	95	28	29.4
Floyd Plant Food Co., F. P. F. Brands.....	13	4	30.7	4	2	50.0	15	9	60.0	5	1	20.0	37	16	43.2
Interstate Fertilizer Co., Interstate Brands.....	9	6	66.6	2	1	50.0	9	0	0.0	7	0	0.0	27	7	25.9
Poultry Feed Co.....	1	0	0.0	0	0	-----	1	0	0.0	1	0	0.0	3	0	0.0
Phosphated Manure Co.....	2	0	0.0	0	0	-----	2	0	0.0	2	0	0.0	6	0	0.0
Pulverized Manure Co.....	5	3	60.0	0	0	-----	5	0	0.0	5	0	0.0	15	3	20.0
Read Phosphate Co.....	3	1	33.3	1	0	0.0	6	3	50.0	2	0	0.0	12	4	33.3
Reed & Son.....	1	1	100.0	0	0	-----	1	0	0.0	1	1	100.0	3	2	66.6
Swift & Co., Pioneer Brands.....	2	1	50.0	0	0	-----	2	1	50.0	2	1	50.0	6	3	50.0
Swift & Co., Swift Brands.....	69	23	33.3	22	4	18.2	77	19	24.6	43	24	56.0	211	70	33.1
Tennessee Chemical Co.....	1	0	0.0	1	0	0.0	0	0	-----	0	0	-----	2	0	0.0
Virginia-Carolina Chemical Co.....	9	3	33.3	2	0	0.0	17	6	35.3	11	6	54.5	39	15	38.5
Wilson & Co.....	6	1	16.6	2	1	50.0	6	3	50.0	2	1	50.0	16	6	37.5
Total.....	286	110	38.4	93	14	15.0	329	87	26.4	166	69	41.5	874	280	32.0

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924

(Page 16)

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					
			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>A. D. Adair and McCarty Bros., Inc., Atlanta, Georgia M. F. A. Brands</b>															
5-1	16% Acid Phosphate.....	Farmers Exchange, Mt. View.....				20.21			2.12	16.00	18.09			21.60	24.42	
5-2	16% Acid Phosphate.....	Farmers Exchange, West Plains.....				18.53			1.92	16.00	16.61			21.60	22.42	
5-3	16% Acid Phosphate.....	Farmers Exchange, Mansfield.....				20.11			2.09	16.00	18.02			21.60	24.33	
10-1	16% Acid Phosphate.....	Farmers Coop. Elev., Canton.....				17.50			1.42	16.00	16.08			21.60	21.71	
10-2	16% Acid Phosphate.....	La Grange Elev. Co., La Grange.....				17.50			1.35	16.00	16.15			21.60	21.80	
10-3	16% Acid Phosphate.....	Coop. Ass'n., No. 300, Queen City.....				17.68			1.35	16.00	16.33			21.60	22.05	
10-4	16% Acid Phosphate.....	Farmers Elev., St. Clair.....				17.87			1.24	16.00	16.63			21.60	22.45	
10-5	16% Acid Phosphate.....	Billings Farmer Sales Ass'n., Billings.....				17.63			0.26	16.00	17.37			21.60	23.45	
10-6	16% Acid Phosphate.....	Greene Co. Farmers Sales Ass'n, Springfield.....				17.58			1.13	16.00	16.45			21.60	22.21	
10-7	16% Acid Phosphate.....	Producers Exchange, Olean.....				17.50			1.38	16.00	16.12			21.60	21.76	
10-8	16% Acid Phosphate.....	Farmers Elev. Co., Clinton.....				18.02			1.16	16.00	16.86			21.60	22.76	
10-10	16% Acid Phosphate.....	Farmers Ex., Maywood.....				17.61			1.53	16.00	16.08			21.60	21.71	
10-11	16% Acid Phosphate.....	Farmers Produce Co., Shelbina.....				17.80			1.43	16.00	16.37			21.60	22.10	
10-12	16% Acid Phosphate.....	Clarence Grain Co., Clarence.....				17.10			1.54	16.00	15.56			21.60	21.01	
10-246	16% Acid Phosphate.....	Producers Grain Co., Montgomery.....				17.13			0.91	16.00	16.22			21.60	21.90	
10-247	16% Acid Phosphate.....	Farmers Elev. & Supply Co., Buell.....				16.79			0.68	16.00	16.11			21.60	21.75	
10-248	16% Acid Phosphate.....	Farmers Elev. Co., Liege.....				17.61			0.99	16.00	16.17			21.60	21.83	
10-249	16% Acid Phosphate.....	Farmers Coop. Elev. Co., Els- berry.....				16.97			0.61	16.00	16.36			21.60	22.09	
10-13	18% Acid Phosphate.....	Producers Exchange, Olean.....				18.63			0.51	18.00	18.12			24.30	24.46	
10-250	18% Acid Phosphate.....	Producers Grain Co., Montgomery.....				18.27			0.24	18.00	18.03			24.30	24.34	
10-251	2-8-2 Fertilizer.....	Producers Grain Co., Montgomery.....	1.65	1.94	84.02	8.81			0.78	8.00	8.03	2.00	1.79	20.01	21.06	



10-252	12-8-2 Fertilizer	Farmers Coop. Elevator Co., Ellsberry	1.65	1.92	86.45	9.48	0.92	8.00	8.56	2.00	1.71	20.01	21.60	
10-253	2-12-0 Fertilizer	Farmers Coop. Elevator Co., Ellsberry	1.65	1.66	87.46	13.58	1.74	12.00	11.84			23.21	23.04	
5-4	2-12-2 Fertilizer	Farmers Exchange, Mountain View	1.65	1.57	88.52	13.66	0.82	12.00	12.84	2.00	1.98	25.41	26.18	
5-5	2-12-2 Fertilizer	Verona Farmers Sales Ass'n, Verona	1.65	1.68	86.89	14.65	1.37	12.00	13.28	2.00	2.28	25.41	27.58	
10-14	2-12-2 Fertilizer	Farmers Exchange, Kirksville	1.65	1.75	91.43	12.91	1.16	12.00	11.75	2.00	2.14	25.41	25.65	
10-15	2-12-2 Fertilizer	Farmers Elevator, St. Clair	1.65	1.76	89.20	13.60	0.34	12.00	13.26	2.00	1.74	25.41	27.29	
5-6	2-12-4 Fertilizer	Farmers Exchange, Ava	1.65	1.70	85.88	13.17	1.01	12.00	12.16	4.00	4.85	27.61	28.99	
<b>American Agricultural Chemical Co.</b>														
<b>St. Louis, Missouri</b>														
<b>A. A. C. Brands</b>														
5-7	20% Phosphate	W. H. Smith, Pierce City				22.59	0.50	1.03	20.00	21.56		27.00	29.11	
10-16	20% Phosphate	C. H. Hausman, Sullivan				22.33	0.50	1.99	20.00	20.34		27.00	27.46	
10-17	20% Phosphate	Clever Hdwe. Co., Clever				22.97	0.50	1.91	20.00	21.06		27.00	28.43	
10-254	20% Phosphate <sup>1</sup>	Farmers Elevator & Supply Co., Troy				20.85	0.50	1.21	20.00	19.64		27.00	26.51	
5-8	Big Boll Fertilizer	M. J. Morse Lumber Co., Thayer	1.65	1.50	91.32	13.98	0.50	1.81	12.00	12.17	2.00	2.02	25.41	25.03
5-9	Bone Meal	Wilhite Seed Co., Columbia	1.65	1.54	96.10	27.00	26.31					31.31	30.23	
10-18	Bone Meal	Lesch & Hurt, Ewing	1.65	1.78	94.94	27.00	28.97					31.31	33.64	
10-19	Bone Meal	H. S. Holt, New Bloomfield	1.65	1.57	94.26	27.00	30.38					31.31	34.01	
10-20	Bone Meal	Will Stoddard, Clapper	1.65	1.82	89.01	27.00	28.20					31.31	33.12	
10-21	Bone Meal	Swinney & Christian, Shelbina	1.65	1.36	94.11	27.00	30.50					31.31	33.23	
10-255	Bone Meal	Silex Grain Co., Silex	1.65	1.27	93.61	27.00	29.19					31.31	31.67	
10-255	Bone Meal	Wellsville Milling Co., Wellsville	1.65	1.33	95.48	27.00	29.09					31.31	31.83	
5-10	Double Wheat & Clover Grower	W. H. Smith, Pierce City	1.65	1.75	97.13	17.74	0.50	1.22	16.00	16.52	2.00	2.20	30.81	32.16
5-11	Double Wheat & Clover Grower	L. F. Dreibelbis, Sarcoxie	1.65	1.55	95.48 <sup>2</sup>	17.99	0.50	1.25	16.00	16.74	2.00	2.31	30.81	31.73
10-257	Double Wheat & Clover Grower <sup>1</sup>	Farmers Elev. & Supply Co., Troy	1.65	1.55	95.48 <sup>2</sup>	16.69	0.50	0.83	16.00	15.86	2.00	1.81	30.81	29.99
10-22	Half & Half Bone and Phosphate	Lesch & Hurt Ewing	0.82	1.13	89.38	20.00	20.00	12.70	12.00	7.30		19.69	14.66	
10-23	Half & Half Bone and Phosphate	Farmers Elev. Co., Laddonia	0.82	1.22	90.16	20.00	21.52	12.78	12.00	8.74		19.69	16.99	
5-12	Nitrate of Soda	Kaercher Seed Co., St. Louis	15.00	15.19	100.00							63.75	64.56	
10-258	Pure Raw Bone	Silex Grain Co., Silex	3.29	4.37	83.06	20.00	22.46					31.98	38.78	
10-259	Pure Raw Bone	Jno. Hendrick, Curryville	3.29	4.09	85.33	20.00	21.13					31.98	36.40	

<sup>1</sup>Without registration tags.

<sup>2</sup>Water soluble nitrogen only.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (Continued)

(Page 18)

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	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
5-13	Truck Fertilizer	Wilhite Seed Co., Columbia	2.47	2.42				9.77	0.50	1.31	8.00	8.46	6.00	6.19	27.90	28.52
5-14	Truck Fertilizer	Young Bros., West Plains	2.47	2.36	81.35			9.98	0.50	1.16	8.00	8.82	6.00	6.07	27.90	28.62
5-15	Truck Fertilizer	Wm. Beiller, Republic	2.47	2.23	79.36			9.69	0.50	1.38	8.00	8.31	6.00	6.18	27.90	27.50
5-16	Truck Fertilizer	W. H. Smith, Pierce City	2.47	2.38	76.04			9.67	0.50	1.21	8.00	8.46	6.00	6.49	27.90	28.68
<b>Boarshead Brands</b>																
10-24	16% Phosphate	Clever Hdwe. Co., Clever						17.35	0.50	1.94	16.00	15.41			21.60	20.80
10-260	16% Phosphate	Geo. Whiteside, Bowling Green						18.00	0.50	1.13	16.00	16.87			21.60	22.77
10-25	World of Good Super-phosphate	H. S. Holt, New Bloomfield	1.65	1.47	84.35 <sup>2</sup>			10.22	0.50	1.65	8.00	8.57	2.00	2.09	20.01	20.12
<b>Bradley Brands</b>																
10-261	All But Straw	Wellsville Milling Co., Wellsville						14.89	0.50	2.20	12.00	12.69	2.00	2.15	18.40	19.50
10-262	Best Grain Grower	W. F. Nicklin, Hawk Point	1.65	1.54	91.20			13.81	0.50	1.79	12.00	12.02	2.00	2.05	25.41	25.04
10-263	Corn & Wheat Phosphate	W. F. Nicklin, Hawk Point	0.82	1.14	85.96			10.62	0.50	1.32	8.00	9.30	1.00	1.51	15.39	19.07
10-264	High Grade Phosphate	Wellsville Milling Co., Wellsville						17.69	0.50	1.66	16.00	16.03			21.60	21.64
10-265	High Grade Phosphate	W. F. Nicklin, Hawk Point						17.84	0.50	1.74	16.00	16.10			21.60	21.74
10-266	Wheat & Clover Fertilizer	Wellsville Milling Co., Wellsville	0.82	0.85	83.52			11.50	0.50	1.23	10.00	10.27	1.00	0.96	18.09	18.53
10-267	Wheat & Clover Fertilizer	W. F. Nicklin, Hawk Point	0.82	0.90	84.43			11.96	0.50	1.22	10.00	10.74	1.00	0.95	18.09	19.38
<b>Empire Brands</b>																
10-27	16% Phosphate	A. M. Watts, Sparta						19.56	0.50	1.43	16.00	18.13			21.60	24.48
10-28	16% Phosphate	Soils Dep't, Columbia						18.88	0.50	1.73	16.00	17.15			21.60	23.15
10-29	16% Phosphate	E. D. Swinney & Christian Shelbina						18.48	0.50	1.89	16.00	16.59			21.60	22.40
10-268	16% Phosphate	Geo. Whiteside, Bowling Green						17.56	0.50	1.45	16.00	16.11			21.60	21.75
10-269	16% Phosphate	Geo. Whiteside, Bowling Green						17.78	0.50	1.52	16.00	16.26			21.60	21.95
10-31	Bone Black Fertilizer	A. M. Watts, Sparta	1.65	1.55	90.97			10.19	0.50	1.21	8.00	8.98	2.00	1.90	20.01	20.80
10-32	Middle West Grain Grower	Atkinson & Clark, McCredie	1.65	1.57	92.36			13.85	0.50	1.70	12.00	12.15	2.00	1.88	25.41	25.14
10-270	Middle West Grain Grower	Geo. Whiteside, Bowling Green	1.65	1.66	89.75			13.30	0.50	1.05	12.00	12.25	2.00	2.12	25.41	25.93
10-30	Wheat & Clover Grower	Farmers Elev. Co., Laddonia	0.82	0.85	83.53			10.64	0.50	1.31	8.00	9.33	1.00	1.05	15.39	17.37
10-33	Wheat & Clover Grower	Will Stoddard, Clapper	0.82	0.92	88.04			10.16	0.50	1.18	8.00	8.98	1.00	1.01	15.39	17.14

10-271	Wheat & Clover Grower Horseshoe Brands	Geo. Whiteside, Bowling Green	0.82	0.79	75.93	9.56	0.50	1.37	8.00	8.19	1.00	1.26	15.39	15.81
10-272	Acidulated Bone & Potash	Silex Grain Co., Silex	0.82	0.78	80.77 <sup>2</sup>	13.12	0.50	1.36	10.00	11.76	1.00	0.93	18.09	20.22
10-34	Economy Phosphate	Lesch & Hurt, Ewing				17.96	0.50	1.55	16.00	16.41			21.60	22.15
10-273	Economy Phosphate <sup>1</sup>	Farmers Elev. & Supply Co., Troy				17.19	0.50	1.48	16.00	15.71			21.60	21.21
10-274	Economy Phosphate	Silex Grain Co., Silex				18.53	0.50	1.68	16.00	16.85			21.60	22.75
10-275	Grain Maker <sup>1</sup>	Farmers Elev. & Supply Co., Troy				15.19	0.50	2.34	12.00	12.85	2.00	2.44	18.40	20.03
5-17	National Bone Dust	Young Bros., West Plains	1.65	1.54	88.30	9.80	0.50	1.68	8.00	8.12	2.00	1.94	20.01	19.64
10-35	National Bone Dust	Lesch & Hurt, Ewing	1.65	1.42	90.14	12.62	0.50	1.65	8.00	10.97	2.00	1.57	20.01	22.58
10-36	National Bone Dust	Vandalia Roller Mills, Vandalia	1.65	1.56	90.37	10.80	0.50	1.41	8.00	9.39	2.00	2.00	20.01	21.51
10-37	National Bone Dust	E. H. Dooley, Stoutsville	1.65	1.57	84.07 <sup>2</sup>	10.59	0.50	1.49	8.00	9.10	2.00	2.06	20.01	21.23
10-276	National Bone Dust	Farmers Elev. & Supply Co., Troy	1.65	1.55	88.38	10.15	0.50	2.11	8.00	8.04	2.00	1.84	20.01	19.46
5-18	Pioneer Grain Grower	Young Bros., West Plains	1.65	1.57	92.99	13.45	0.50	0.95	12.00	12.50	2.00	1.42	25.41	25.11
10-38	Pioneer Grain Grower	Lesch & Hurt, Ewing	1.65	1.58	80.38 <sup>2</sup>	13.22	0.50	1.31	12.00	11.91	2.00	1.78	25.41	24.76
10-39	Pioneer Grain Grower	Farmers Elev. Co., Laddonia	1.65	1.62	82.10 <sup>2</sup>	13.56	0.50	1.42	12.00	12.14	2.00	1.96	25.41	25.44
10-277	Pioneer Grain Grower	Geo. Whiteside, Bowling Green	1.65	1.54	89.60	13.69	0.50	1.55	12.00	12.14	2.00	1.88	25.41	25.01
5-19	Reliable Wheat Grower	Young Bros., West Plains	0.82	0.91	82.41	11.23	0.50	1.39	8.00	9.84	1.00	1.22	15.39	18.49
10-278	Reliable Wheat Grower	Silex Grain Co., Silex	0.82	1.05	83.80	10.13	0.50	1.31	8.00	8.82	1.00	1.36	15.39	17.87
10-279	War Brand	Silex Grain Co., Silex	1.65	1.41	88.64	14.22	0.50	1.49	12.00	12.73			23.21	23.18
	<b>Armour Fertilizer Works</b> <b>East St. Louis, Ill.</b> <b>Armour Brands</b>													
10-280	Sheep Manure <sup>3</sup>	Iseman & Co., Farmington		1.84		3.83		0.41		3.42		2.57		15.29
5-20	Wheat, Corn & Oats Special	T. M. Renfrow, West Plains	0.82	0.99	71.70	9.17	0.50	0.61	8.00	8.56	1.00	1.06	15.39	16.94
10-281	Wheat, Corn & Oats Special <sup>4</sup>	Laverne Woody, Golden City	0.82	0.97	68.03	9.06	0.50	0.69	8.00	8.37	1.00	1.01	15.39	16.53
5-21	Grain Grower	T. M. Renfrow, West Plains	1.65	1.54	88.31	10.21	0.50	2.03	8.00	8.18	2.00	2.07	20.01	19.87
10-40	Grain Grower	Rathbun Bros., Sparta	1.65	1.66	95.17	9.52	0.50	1.57	8.00	7.95	2.00	2.56	20.01	20.61
10-41	Grain Grower	E. B. Evans Feed & Seed Co., Springfield	1.65	1.59	98.05	10.31	0.50	2.15	8.00	8.16	2.00	2.29	20.01	20.30
10-72	1-12-1 Fertilizer	Otterville Coop. Co., Otterville	0.82	0.92	92.39	16.23	0.50	0.88	12.00	15.35	1.00	1.01	20.79	25.74
10-282	1-12-1 Fertilizer	Farmers Elev. Co., Silex	0.82	0.92	88.03	12.57	0.50	0.47	12.00	12.10	1.00	0.99	20.79	21.34
	<b>Big Crop Brands</b>													
5-22	16% Acid Phosphate <sup>5</sup>	Aurora Lumber Co., Aurora		1.99		24.62	0.50	13.42	16.00	11.20			21.60	28.98
5-23	16% Acid Phosphate	T. Lee Adams, Kansas City				21.15	0.50	2.71	16.00	18.44			21.60	24.89
10-42	16% Acid Phosphate	D. N. Hadfield, Durham				16.67	0.50	0.34	16.00	16.33			21.60	22.05
10-43	16% Acid Phosphate	Farmers Elev. & Exchange, Ewing				16.59	0.50	0.55	16.00	16.04			21.60	21.65

<sup>1</sup>Without registration tags.

<sup>2</sup>Water soluble nitrogen only.

<sup>3</sup>Not registered and without labels.

<sup>4</sup>Not registered.

<sup>5</sup>Not an Acid Phosphate.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (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	
						G'td	F'nd	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
10-44	16% Acid Phosphate.....	Farmers Coop. Elev., Canton.....				16.81	0.50	0.51	16.00	16.30					21.60	22.01
10-45	16% Acid Phosphate.....	W. E. Burchard, Crocker.....				15.51	0.50	0.55	16.00	14.96					21.60	20.20
10-46	16% Acid Phosphate.....	Bingham Hdwe. Co., Ozark.....				18.22	0.50	0.64	16.00	17.58					21.60	23.73
10-47	16% Acid Phosphate.....	Rathbun Bros., Sparta.....				16.36	0.50	0.39	16.00	15.97					21.60	21.56
10-48	16% Acid Phosphate.....	Pollock Mill & Elev. Co., Mexico.....				16.52	0.50	0.55	16.00	15.97					21.60	21.56
10-49	16% Acid Phosphate.....	Callaway Hdwe Co., Fulton.....				17.17	0.50	0.45	16.00	16.72					21.60	22.57
10-50	16% Acid Phosphate.....	E. B. Evans Feed & Seed Co., Springfield.....				16.02	0.50	0.53	16.00	15.49					21.60	20.91
10-51	16% Acid Phosphate.....	Farmers Elevator, Nevada.....				19.06	0.50	0.79	16.00	18.27					21.60	24.66
10-52	16% Acid Phosphate.....	Otterville Coop Co., Otterville.....				16.10	0.50	0.44	16.00	15.66					21.60	21.14
10-53	16% Acid Phosphate.....	Roy McFarland, Monroe City.....				16.67	0.50	0.60	16.00	16.07					21.60	21.69
10-54	16% Acid Phosphate.....	Farmers Elev. & Ex. Co., Palmyra.....				16.63	0.50	0.64	16.00	15.99					21.60	21.59
10-288	16% Acid Phosphate.....	J. G. Miller, Montgomery.....				17.40	0.50	0.34	16.00	17.06					21.60	23.03
10-289	16% Acid Phosphate.....	S. E. Hensley, Buell.....				16.26	0.50	0.66	16.00	15.60					21.60	21.06
10-290	16% Acid Phosphate.....	Farmers Elevator Co., Silex.....				15.95	0.50	0.34	16.00	15.61					21.60	21.07
10-55	20% Acid Phosphate.....	Bronestine Grain Co., Lewistown.....				20.56	0.50	0.30	20.00	20.26					27.00	27.35
5-24	Bone Meal.....	Aurora Lumber Co., Aurora.....	2.47	2.68	94.03	24.00	27.45								32.10	36.10
5-25	Bone Meal.....	E. Buchner, Pierce City.....	2.47	2.83	92.92	24.00	26.72								32.10	36.08
5-26	Bone Meal.....	T. Lee Adams, Kansas City.....	2.47	2.34	91.88	24.00	27.69								32.10	34.87
10-56	Bone Meal.....	D. N. Hadfield, Durham.....	2.47	2.63	97.96	24.00	26.48								32.10	35.01
10-57	Bone Meal.....	Farmers Coop. Elev., Canton.....	2.47	2.51	93.22	24.00	28.08								32.10	35.94
10-58	Bone Meal.....	W. E. Burchard, Crocker.....	2.47	2.22	97.32	24.00	27.58								32.10	34.26
10-59	Bone Meal.....	Bingham Hdwe. Co., Ozark.....	2.47	2.45	97.13	24.00	27.64								32.10	35.29
10-60	Bone Meal.....	Pollock Mill & Elev. Co., Mexico.....	2.47	2.68	92.16	24.00	27.17								32.10	35.84
10-61	Bone Meal.....	Atkinson & Clark, McCredie.....	2.47	2.63	88.20	24.00	27.95								32.10	36.34
10-62	Bone Meal.....	Callaway Hdwe. Co., Fulton.....	2.47	2.54	88.58	24.00	28.23								32.10	36.21
10-63	Bone Meal.....	Farmers Bureau, Camp Branch.....	2.47	2.59	89.18	24.00	27.39								32.10	35.66

10-64	Bone Meal	E. B. Evans Feed & Seed Co., Springfield	2.47	2.56	89.45	24.00	26.83											32.10	35.03
10-65	Bone Meal	Farmers Elevator, Nevada	2.47	2.33	92.70	24.00	28.23											32.10	35.31
10-66	Bone Meal	Otterville Coop. Co., Otterville	2.47	2.75	90.19	24.00	26.57											32.10	35.60
10-67	Bone Meal	Roy McFarland, Monroe City	2.47	2.49	89.96	24.00	27.71											32.10	35.52
10-284	Bone Meal	Wellsville Milling Co., Wellsville	2.47	2.66	92.84	24.00	26.62											32.10	35.27
10-285	Bone Meal	Clarence White, Montgomery	2.47	2.44	93.43	24.00	26.32											32.10	34.06
10-286	Bone Meal	S. E. Hensley, Buell	2.47	2.72	90.80	24.00	26.21											32.10	35.15
10-287	Bone Meal	Iseman & Co., Farmington	2.47	2.58	86.39	24.00	27.39											32.10	35.62
10-68	1/4-32 Bone Meal	Roy McFarland, Monroe City	1.03	0.99	88.88	32.00	30.90											32.10	32.02
10-283	1/4-32 Bone Meal	Carter Elev. Co., Jasper	1.03	0.93	93.55	32.00	32.83											33.18	33.50
10-69	Bone Meal & Acid Phosphate	D. N. Hadfield, Durham	0.82	0.97	83.50	20.00	19.94	9.00	5.87	11.00	14.07							23.74	26.63
10-70	Bone Meal & Acid Phosphate	Roy McFarland, Monroe City	0.82	0.93	83.87	20.00	20.01	9.00	6.30	11.00	13.71							23.74	26.24
10-291	Bone Meal & Acid Phosphate	S. E. Hensley, Buell	0.82	0.90	89.99	20.00	20.33	9.00	5.89	11.00	14.44							23.74	26.85
5-27	Half Bone Meal & Half Acid Phosphate	Aurora Lumber Co., Aurora	1.24	1.95	94.35	20.00	25.90	9.00	12.56	11.00	13.34							25.52	31.70
10-71	Half Bone Meal & Half Acid Phosphate	J. B. Robinson Hdwc. Co. Nevada	1.24	1.68	85.11	20.00	25.21	9.00	17.58	11.00	7.63							25.52	22.84
10-292	Half Bone Meal & Half Acid Phosphate	Wellsville Milling Co., Wellsville	1.24	1.45	93.78	20.00	24.04	9.00	12.58	11.00	11.46							25.52	27.03
10-293	Half Bone Meal & Half Acid Phosphate	Farmers Elev. Co., Silex	1.24	1.22	91.80	20.00	19.24	9.00	8.93	11.00	10.31							25.52	24.47
10-294	Raw Bone Meal	Farmers Elev. Co., Silex	3.70	3.97	86.64	22.00	23.56											35.53	38.07
5-28	2-10-4 Fertilizer	L. V. Hendricks, Brookline	1.65	1.56	88.51		12.84	0.50	1.87	10.00	10.97	4.00	4.03					24.91	25.87
10-73	2-12-0 Fertilizer <sup>1</sup>	Atkinson & Clark, McCredie	1.65	1.53	84.31		12.94	0.50	1.02	12.00	11.92							23.21	22.59
10-295	2-12-0 Fertilizer	Farmers Elevator Co., Silex	1.65	1.81	90.60		13.63	0.50	2.12	12.00	11.51							23.21	23.23
5-29	2-12-2 Fertilizer	Enson Frazee, Burnham	1.65	1.45	93.09		13.68	0.50	0.86	12.00	12.82	2.00	2.22					25.41	25.91
5-30	2-12-2 Fertilizer	Roy Nelson, Galena	1.65	1.68	89.28		13.78	0.50	0.89	12.00	12.89	2.00	2.04					25.41	26.78
10-74	2-12-2 Fertilizer	Bingham Hdwc. Co., Ozark	1.65	1.68	80.00		13.35	0.50	1.04	12.00	12.31	2.00	1.80					25.41	25.74
10-75	2-12-2 Fertilizer	Farmers Elev. Co., Vandalia	1.65	1.67	84.43		13.72	0.50	0.98	12.00	12.74	2.00	1.60					25.41	26.06
10-76	2-12-2 Fertilizer	E. B. Evans Feed & Seed Co., Springfield	1.65	1.76	91.80		13.29	0.50	0.96	12.00	12.33	2.00	1.73					25.41	25.82
10-77	2-12-2 Fertilizer <sup>1</sup>	Mc Afee Mill'g Co., Moberly	1.65	1.67	91.62		13.49	0.50	0.93	12.00	12.56	2.00	1.82					25.41	26.06
10-78	2-12-2 Fertilizer	Farmers Elevator & Ex. Co., Palmyra	1.65	1.64	91.46		13.61	0.50	0.83	12.00	12.78	2.00	1.72					25.41	26.11

<sup>1</sup>Without registration tags.

<sup>2</sup>Water soluble nitrogen only.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (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				
10-296	2-12-2 Fertilizer	R. E. Brown, South Troy	1.65	1.50	90.66	13.24	0.50	1.09	12.00	12.15	2.00	1.96	25.41	24.94	
10-297	2-12-2 Fertilizer	Farmers Elev. Co., Silex, Mo.	1.65	1.51	92.04	13.20	0.50	0.88	12.00	12.32	2.00	2.00	25.41	25.25	
10-298	2-12-2 Fertilizer	Farmers Coop. Elev. & Supply Co. Hawk Point	1.65	1.51	92.71	12.94	0.50	0.92	12.00	12.02	2.00	1.98	25.41	24.83	
5-31	2-12-6 Fertilizer <sup>6</sup>	Aurora Lumber Co., Aurora	1.65	0.98	77.54	14.38	0.50	1.01	12.00	13.37	6.00	7.04	29.81	29.96	
10-299	2-16-2 Fertilizer	Farmers Elev. Co., Silex	1.65	1.80	87.77 <sup>2</sup>	15.87	0.50	0.85	16.00	15.02	2.00	2.11	30.81	30.25	
6-5	3-8-6 Fertilizer	Rush Canning Co., Ridgeley	2.47	2.51	92.82	8.88	0.50	1.61	8.00	7.27	6.00	6.30	27.90	27.41	
10-300	0-14-4 Fertilizer	Farmers Elev. Co., Silex				13.78	0.50	0.66	14.00	13.12	4.00	4.11	23.30	22.23	
<b>Tuscarora Brands</b>															
10-79	16% Acid Phosphate	Farm Bureau, Camp Branch				17.64	0.50	0.70	16.00	16.94			21.60	22.87	
10-301	2-12-2 Fertilizer	Isenman & Co., Farmington	1.65	1.59	86.16 <sup>2</sup>	13.47	0.50	1.42	12.00	12.05	2.00	1.75	25.41	24.96	
10-302	2-16-2 Fertilizer	Isenman & Co., Farmington	1.65	1.67	89.46 <sup>2</sup>	16.68	0.50	0.68	16.00	16.00	2.00	3.22	30.81	32.24	
<b>Blood &amp; Bone Fertilizer Co. St. Louis, Mo.</b>															
10-303	Soluble Bone Phosphate <sup>7</sup>	Theo. Lippert, Meta				18.57		1.39	16.00	17.18			21.60	23.19	
10-304	Special Wheat Grower Medium Grade <sup>7</sup>	Theo. Lippert, Meta	1.03	1.07	67.29	9.08		2.48	8.00	6.60	1.00	1.04	16.28	14.60	
<b>Brighton Chemical Co. St. Louis Mo.</b>															
5-32	Plant Joy	St. Louis Seed Co., St. Louis	4.60	7.79	95.37	9.18		0.22	7.50	8.96	3.60	2.65	33.64	48.13	
<b>Calumet Fertilizer Co. New Albany, Indiana Calumet Brands</b>															
10-305	Acid Phosphate 16%	H. F. Deters, Bowling Green				17.00	16.46	1.00	0.81	16.00	15.65		21.60	21.13	
10-306	Crop Grower	H. F. Deters, Bowling Green	0.82	0.82	80.48	9.00	8.40	1.00	1.44	8.00	6.96	1.00	1.10	15.39	14.10
10-307	Special Pure Bone Meal	H. F. Deters, Bowling Green	0.82	1.38	90.57	30.00	28.46						30.49	31.48	

	<b>Cochrane Pkg. Co.</b> <b>Kansas City, Kan.</b> <b>Cochrane's Brand</b>															
10-81	Pulverized Sheep Manure.....	Springfield Seed Co., Springfield	2.00	1.56	51.92	3.00	1.27	1.00	0.41	2.00	0.86	1.00	0.85	12.30	8.73	
	<b>Cudahy Packing Co.</b> <b>Chicago, Illinois</b> <b>Bigwin Brands</b>															
10-82	High Grade 16% Acid Phosphate.....	Farmers Elevator, Boonville						18.44	2.16	16.00	16.28			21.60	21.98	
5-34	Half & Half.....	Factory, Kansas City, Kansas	1.23	1.66	91.50	20.00	23.48	7.00	10.50	13.00	12.98			26.98	28.78	
10-93	Half & Half.....	Farmers Coop. Ass'n, No. 103 Lancaster	1.23	1.36	91.17	20.00	21.54	7.00	10.78	13.00	10.76			26.98	24.51	
10-94	Half & Half.....	Farmers Coop. Ass'n, Sullivan	1.23	1.69	82.24	20.00	23.81	7.00	13.12	13.00	10.69			26.98	25.81	
10-95	Half & Half.....	Farmers Elev. Co., Vandalia	1.23	1.73	79.18	20.00	22.28	7.00	12.59	13.00	9.69			26.98	24.63	
10-96	Half & Half.....	Producer Exchange, Olean	1.23	1.50	82.66	20.00	23.22	7.00	13.14	13.00	10.08			26.98	24.18	
10-312	Half & Half.....	James Cunningham, Montgomery	1.23	1.69	89.34	20.00	22.84	7.00	12.88	13.00	9.96			26.98	24.83	
5-33	Steamed Bone Meal.....	Factory, Kansas City, Kansas	2.47	2.75	90.55	24.00	25.91							32.10	35.01	
10-83	Steamed Bone Meal.....	Farmers Coop. Elev., Canton	2.47	2.74	88.32	24.00	25.26							32.10	34.39	
10-84	Steamed Bone Meal.....	Coop. Ass'n No. 80, Greentop	2.47	2.85	90.17	24.00	26.42							32.10	35.89	
10-85	Steamed Bone Meal.....	Farmers Coop. Ass'n, Sullivan	2.47	2.28	87.28	24.00	26.16							32.10	33.23	
10-86	Steamed Bone Meal.....	Springfield Seed Co., Springfield	2.47	2.27	84.13	24.00	25.96							32.10	33.01	
10-87	Steamed Bone Meal.....	Farmers Elev. Co., Vandalia	2.47	2.74	84.67	24.00	24.29							32.10	33.51	
10-88	Steamed Bone Meal.....	Producers Exchange, Olean	2.47	2.46	84.55	24.00	25.40							32.10	33.32	
10-89	Steamed Bone Meal.....	Farmers Exchange, Nevada	2.47	2.62	86.64	24.00	25.74							32.10	34.31	
10-90	Steamed Bone Meal.....	Farmers Elevator, Boonville	2.47	2.60	89.64	24.00	24.78							32.10	33.35	
10-91	Steamed Bone Meal.....	Farmers Produce Co., Shelbina	2.47	3.30	91.21	24.00	23.87							32.10	35.51	
10-92	Steamed Bone Meal.....	Chas. W. Young, Shelbina	2.47	2.63	90.49	24.00	23.35							32.10	32.20	
10-308	Steamed Bone Meal.....	R. M. Wood, Lamar	2.47	2.82	91.13	24.00	25.40							32.10	34.85	
10-309	Steamed Bone Meal.....	Farmers Exchange, Rogersville	2.47	2.46	91.05	24.00	26.29							32.10	34.12	
10-310	Steamed Bone Meal.....	James Cunningham, Montgomery	2.47	2.15	92.09	24.00	27.05							32.10	33.49	
10-311	Steamed Bone Meal.....	Farmers Elev. & Supply Co., Buell	2.47	2.23	90.58	24.00	26.32							32.10	33.17	
10-97	2-12-2 Fertilizer.....	Canton Coop. Elev., Canton	1.65	1.67	94.59		19.08		6.25	12.00	12.83	2.00	1.90	25.41	26.51	
10-98	2-12-2 Fertilizer.....	Farmers Coop. Ass'n, Sullivan	1.65	2.27	81.50		22.02		4.11	12.00	17.91	2.00	2.12	25.41	36.16	
10-99	2-12-2 Fertilizer.....	Farmers Exchange, Nevada	1.65	2.35	86.38		21.81		4.06	12.00	17.75	2.00	2.95	25.41	37.20	

<sup>2</sup>Water soluble nitrogen only.

<sup>6</sup>Not labeled correctly.

<sup>7</sup>Not registered before sale.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (Continued)

(Page 24)

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>Darling &amp; Co.</b> <b>Union Stock Yards</b> <b>Chicago, Ill.</b> <b>Darling's Brands</b>		Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
5-35	16% Acid Phosphate.....	F. J. Cantrell, Mansfield.....					17.42	1.00	0.85	16.00	16.57			21.60	22.37
10-100	16% Acid Phosphate.....	Farmers' Ex., Kahoka.....					17.42	1.00	0.65	16.00	16.77			21.60	22.64
10-101	16% Acid Phosphate.....	Boaz Farm Club, Clever.....					16.59	1.00	0.34	16.00	16.25			21.60	21.94
10-102	16% Acid Phosphate.....	Farmers Exchange, Ozark.....					17.15	1.00	0.46	16.00	16.69			21.60	22.53
10-103	16% Acid Phosphate.....	Farmers Elev. Co., Vandalia.....					16.86	1.00	0.39	16.00	16.47			21.60	22.23
10-104	16% Acid Phosphate.....	McGuire & Owen, Auxvasse.....					16.76	1.00	0.55	16.00	16.21			21.60	21.88
10-105	16% Acid Phosphate.....	Atkinson & Clark, McCredie.....					17.86	1.00	0.66	16.00	17.20			21.60	23.22
10-106	16% Acid Phosphate.....	Fulton Co-op. Warehouse Ass'n, Fulton.....					17.35	1.00	0.47	16.00	16.88			21.60	22.79
10-107	16% Acid Phosphate.....	Mallory Grain Co., Paris.....					17.40	1.00	0.43	16.00	16.97			21.60	22.91
10-108	16% Acid Phosphate.....	J. L. Clark, Perry.....					16.38	1.00	0.48	16.00	15.90			21.60	21.47
10-313	16% Acid Phosphate.....	Louisiana Elev. Co., Louisiana.....					16.33	1.00	0.50	16.00	15.83			21.60	21.37
5-36	20% Acid Phosphate.....	W. E. Akin, Galena.....					21.63		0.75	20.00	20.88			27.00	28.19
10-109	20% Acid Phosphate.....	Gust Erbes, Moselle.....					20.77		0.27	20.00	20.50			27.00	27.68
10-110	20% Acid Phosphate.....	Farmers Elev. Co., Rush Hill.....					20.98		0.36	20.00	20.62			27.00	27.84
10-111	20% Acid Phosphate.....	Farming Elev. Co., Vandalia.....					21.57		0.24	20.00	21.33			27.00	28.80
10-112	20% Acid Phosphate.....	McGuire & Owen, Auxvasse.....					20.60		0.39	20.00	20.21			27.00	27.28
10-314	20% Acid Phosphate.....	Louisiana Elevator Co., Louisiana.....					20.29		0.25	20.00	20.04			27.00	27.05
10-315	20% Acid Phosphate.....	Burlbaw & Graham, Farmington.....					20.42		0.18	20.00	20.24			27.00	27.32
5-37	Big Harvest.....	Marion Palmer, Hartville.....	1.65	1.56	92.30		13.16	2.00	1.80	12.00	11.36	2.00	2.30	25.41	24.39
5-38	Big Harvest.....	W. F. Akin, Galena.....	1.65	1.55	94.77		13.66	2.00	0.85	12.00	12.81	2.00	1.89	25.41	25.96
10-113	Big Harvest.....	Gust Erbes, Moselle.....	1.65	1.58	86.71		13.23	2.00	0.80	12.00	12.43	2.00	1.99	25.41	25.69
10-114	Big Harvest.....	Farmers' Exchange, Conway.....	1.65	1.83	89.06		13.89	2.00	1.07	12.00	12.82	2.00	2.09	25.41	27.39



10-115	Big Harvest.....	Billings Farmer's Sales Ass'n, Billings.....	1.65	1.66	88.54	13.28	2.00	0.91	12.00	12.37	2.00	1.88	25.41	25.83
10-116	Big Harvest.....	Fulton Coop. Warehouse Ass'n, Fulton.....	1.65	1.06	89.62	15.04	2.00	1.14	12.00	13.90	2.00	1.53	25.41	24.96
10-316	Big Harvest.....	Louisiana Elev. Co., Louisiana.....	1.65	1.65	88.48	12.79	2.00	0.68	12.00	12.11	2.00	1.65	25.41	25.18
10-317	Big Harvest.....	Burlbaw & Graham, Farmington.....	1.65	1.54	88.96	11.48	2.00	0.68	12.00	10.80	2.00	1.77	25.41	23.08
10-117	Chicago Brand.....	Gust Erbes, Moselle.....	1.65	1.61	90.68	9.08	2.00	0.98	8.00	8.10	2.00	2.14	20.01	20.13
10-118	Crop King.....	Gust Erbes, Moselle.....	1.65	1.75	90.85	13.31	2.00	1.65	12.00	11.66	6.00	6.10	29.81	29.89
10-119	Fourteen Four Fertilizer.....	Gust Erbes, Moselle.....				14.68	0.50	0.71	14.00	13.97	4.00	4.04	23.30	23.30
10-318	Fourteen Four Fertilizer.....	Louisiana Elev. Co., Louisiana.....				14.53	0.50	0.42	14.00	14.11	4.00	4.48	23.30	23.98
10-319	Fourteen Four Fertilizer.....	Burlbaw & Graham, Farmington.....				13.76	0.50	0.47	14.00	13.29	4.00	4.93	23.30	23.36
10-120	Grain Grower.....	Gust Erbes, Moselle.....	0.82	1.37	88.32	11.81	2.00	1.64	12.00	10.17	1.00	2.19	20.79	21.96
10-121	Bone & Acid Phosphate Half & Half.....	Gust Erbes, Moselle.....	0.82	0.78	79.48	23.38	12.00	10.74	11.00	12.64			25.54	26.82
10-122	Bone & Acid Phosphate Half & Half.....	Farmers Exchange, Sparta.....	0.82	1.03	84.46	25.55	12.00	13.26	11.00	12.29			25.54	28.17
10-123	Bone & Acid Phosphate Half & Half.....	Pollock Mill & Elev. Co., Mexico.....	0.82	1.02	80.39	25.97	12.00	14.74	11.00	11.23			25.54	26.70
10-124	Bone & Acid Phosphate Half & Half.....	Farmer's Elev. Co., Rush Hill.....	0.82	0.79	79.77	23.27	12.00	10.21	11.00	13.06			25.54	27.12
10-125	Bone & Acid Phosphate Half & Half.....	Farmers Elev. Co., Vandalia.....	0.82	0.93	72.04	25.41	12.00	14.31	11.00	11.10			25.54	26.14
10-126	Bone & Acid Phosphate Half & Half.....	W. C. Cunningham & Son Holliday.....	0.82	1.07	83.18	24.04	12.00	13.62	11.00	10.42			25.54	25.82
10-127	Bone & Acid Phosphate Half & Half.....	J. L. Clark, Perry.....	0.82	0.79	78.48	22.74	12.00	9.54	11.00	13.20			25.54	26.90
10-128	Pure Ground Bone.....	Billings Farmer Sales Ass'n, Billings.....	1.85	2.00	86.50	28.00	29.45						33.06	35.01
10-129	Pure Ground Bone.....	Boaz Farm Club, Clever.....	1.85	1.90	87.37	28.00	29.35						33.06	34.50
10-130	Pure Ground Bone.....	Farmers Exchange, Sparta.....	1.85	1.73	87.85	28.00	30.47						33.06	34.77
10-131	Pure Ground Bone.....	Pollock Mill & Elev. Co., Mexico.....	1.85	2.15	90.69	28.00	29.60						33.16	35.78
10-132	Pure Ground Bone.....	Atkinson & Clark, McCredie.....	1.85	1.89	87.82	28.00	29.53						33.06	34.61

\*Water soluble nitrogen only.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (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	
						G'td	F'nd	G'td	F'nd	G'td	F'nd					
10-133	Pure Ground Bone.....	Fulton Coop. Warehouse Ass'n Fulton.....	1.85	2.14	91.58	28.00	29.79	-----	-----	-----	-----	-----	-----	-----	33.06	35.91
10-134	Pure Ground Bone.....	Producers Elev. & Ex. Co., Paris.....	1.85	2.22	90.09	28.00	28.96	-----	-----	-----	-----	-----	-----	-----	33.06	35.50
10-135	Pure Ground Bone.....	Mallory Grain Co., Paris.....	1.85	1.93	90.15	28.00	30.19	-----	-----	-----	-----	-----	-----	-----	33.06	35.37
10-136	Pure Ground Bone.....	Farmers Elev. Co., Vandalia.....	1.85	1.75	87.99	28.00	30.37	-----	-----	-----	-----	-----	-----	-----	33.06	34.77
10-137	Pure Ground Bone.....	J. L. Clark, Perry.....	1.85	1.84	84.77	28.00	28.71	-----	-----	-----	-----	-----	-----	-----	33.06	33.66
10-320	Pure Ground Bone.....	Louisiana Elev. Co., Louisiana.....	1.85	2.14	95.78	28.00	28.41	-----	-----	-----	-----	-----	-----	-----	33.06	34.67
10-321	Pure Ground Bone.....	Burlbaw & Graham, Farmington.....	1.85	1.87	93.57	28.00	27.13	-----	-----	-----	-----	-----	-----	-----	33.06	32.37
	<b>Floyd Plant Food Co.</b> <b>St. Louis, Mo.</b> <b>F. P. F. Brands</b>															
10-322	16% Acid Phosphate.....	Gastler Bros., Wellsville.....	-----	-----	-----	16.30	16.95	0.30	0.74	16.00	16.21	-----	-----	-----	21.60	21.88
10-323	16% Acid Phosphate.....	H. P. Fry, New Florence.....	-----	-----	-----	16.30	17.43	0.30	2.08	16.00	15.35	-----	-----	-----	21.60	20.72
10-324	16% Acid Phosphate.....	St. Francois Co., Purchasing and Sales Ass'n, Bismark.....	-----	-----	-----	16.30	16.46	0.30	0.73	16.00	15.73	-----	-----	-----	21.60	21.24
10-325	16% Acid Phosphate.....	Farmers Grain & Feed Co., Meta.....	-----	-----	-----	16.30	17.74	0.30	0.92	16.00	16.82	-----	-----	-----	21.60	22.71
10-326	18% Acid Phosphate.....	Gastler Bros., Wellsville.....	-----	-----	-----	18.40	18.02	0.40	0.92	18.00	17.10	-----	-----	-----	24.30	23.09
10-138	18% Acid Phosphate.....	Arthur Wilder, Laddonia.....	-----	0.84	-----	18.40	17.15	0.40	2.28	18.00	14.87	-----	-----	-----	24.30	23.64
10-141	Ground Steam Bone.....	Arthur Wilder, Laddonia.....	0.84	1.18	87.28	30.00	28.94	-----	-----	-----	-----	-----	-----	-----	30.57	31.07
10-327	Ground Steam Bone.....	Farmers Grain & Feed Co., Meta.....	0.84	1.39	93.52	30.00	29.19	-----	-----	-----	-----	-----	-----	-----	30.57	32.18
10-139	Half & Half <sup>6</sup> .....	Arthur Wilder, Laddonia.....	1.67	1.90	79.47	22.00	20.36	9.00	8.27	13.00	12.09	-----	-----	-----	30.05	29.36
10-140	Half & Half <sup>6</sup> .....	Farmer's Elevator, St. Clair.....	1.67	1.87	82.88	22.00	21.54	9.00	10.53	13.00	11.01	-----	-----	-----	30.05	28.21
10-330	Half & Half <sup>6</sup> .....	Farmers Grain & Feed Co., Meta.....	1.67	1.71	87.71	22.00	20.19	9.00	7.50	13.00	12.69	-----	-----	-----	30.05	28.90
10-331	Half & Half <sup>6</sup> .....	Gastler Bros., Wellsville.....	1.67	1.96	88.77	22.00	22.20	9.00	10.69	13.00	11.51	-----	-----	-----	30.05	29.27
10-328	Steam Bone Meal.....	Geo. Whiteside, Bowling Green.....	2.51	2.98	94.96	24.00	25.40	-----	-----	-----	-----	-----	-----	-----	32.27	35.53
10-329	Steam Bone Meal.....	H. F. Deters, Bowling Green.....	2.51	2.92	93.48	24.00	25.05	-----	-----	-----	-----	-----	-----	-----	32.27	34.96
10-332	1-10-1 Fertilizer <sup>8</sup> .....	H. P. Fry, New Florence.....	0.83	0.97	80.41	10.25	14.68	0.25	3.46	10.00	11.22	1.00	2.57	-----	18.13	22.10
10-333	2-8-2 Fertilizer.....	Gastler Bros., Wellsville.....	1.67	1.64	72.55	8.15	11.56	0.15	3.53	8.00	8.03	2.00	2.44	-----	20.10	20.49

10-334	2-12-2 Fertilizer	Gastler Bros., Wellsville	1.67	1.44	78.46	12.25	15.60	0.25	3.46	12.00	12.14	2.00	2.68	25.50	25.46
10-335	2-12-2 Fertilizer	Farmers Grain & Feed Co., Meta	1.67	1.48	98.06	12.25	14.88	0.25	3.37	12.00	11.51	2.00	1.61	25.50	23.60
5-39	4-4-1 Fertilizer	St. Louis Seed Co., St. Louis	3.30	2.86	71.67	4.10	6.04	0.10	0.44	4.00	5.40	1.00	1.65	20.53	21.27
<b>Interstate Fertilizer Co., Webb City, Missouri Interstate Brands</b>															
5-40	16% Acid Phosphate <sup>6</sup>	Oakley Pate Seed Co., Joplin					18.57		1.84	16.00	16.73			21.60	22.59
10-142	16% Acid Phosphate	Farmers Ex., Nevada					18.88		1.89	16.00	16.99			21.60	22.94
10-336	Raw Bone Meal	Lipscomb Grain & Seed Co., Liberal	3.69	3.37	91.69	22.00	20.26							35.48	32.55
10-337	Steam Bone Meal	Lipscomb Grain & Seed Co., Liberal	2.46	1.95	93.30	24.00	26.54							32.06	32.18
5-46	Steam Bone Sheep Manure and Potash <sup>1</sup>	L. F. Dreibelbis, Sarcoxie	1.65	2.50	97.20	14.00	15.52		11.00		4.52	2.00	2.12	17.31	19.06
5-41	Interstate 1-9-1 <sup>1</sup>	L. F. Dreibelbis, Sarcoxie	0.82	0.81	66.66		13.40	1.25	2.82	9.00	10.58	1.00	1.30	16.74	19.15
5-42	Interstate 1-12-1 <sup>1</sup>	L. F. Dreibelbis, Sarcoxie	0.82	0.80	76.25		17.67	1.50	2.82	12.00	14.85	1.00	1.30	20.79	24.88
5-43	Interstate 2-12-2 <sup>1</sup>	Oakley Pate Seed Co., Joplin	1.65	1.53	81.70		16.15	1.50	3.49	12.00	12.66	2.00	2.32	25.41	26.14
5-44	Interstate 2-12-2 <sup>1</sup>	L. F. Dreibelbis, Sarcoxie	1.65	1.69	86.39		16.88	1.50	3.75	12.00	13.13	2.00	2.76	25.41	27.95
10-338	Interstate 2-12-2	Factory	1.65	1.65	84.23		14.65	1.50	2.38	12.00	12.27	2.00	2.53	25.41	26.35
5-45	Interstate 2-12-4 <sup>1</sup>	L. F. Dreibelbis, Sarcoxie	1.65	1.63	85.26		16.52	1.50	4.05	12.00	12.47	4.00	4.15	27.61	28.33
<b>Poultry Feed Co., 343 S. Dearborn, Chicago</b>															
5-48	Pulverized Poultry Manure <sup>4</sup>	St. Louis Seed Co., St. Louis	4.10	4.69	88.05		3.57		0.29	1.70	3.28	1.30	1.42	21.16	25.92
<b>The Phosphated Manure Co., Kansas City, Missouri</b>															
5-47	Wizard Brand Phosphated Manure	T. Lee Adams Seed Co., Kansas City	0.82	1.23	39.02		9.56		0.39	9.00	9.17	1.00	1.16	16.74	18.89
10-339	Wizard Brand Phosphated Manure	T. C. Bassore, Rogersville	0.82	1.13	46.01		10.15		0.65	9.00	9.50	1.00	1.56	16.74	19.35

<sup>1</sup>Without registration tags.

<sup>4</sup>Not registered.

<sup>6</sup>Not labeled correctly.

<sup>8</sup>Not labeled.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (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
	<b>The Pulverized Manure Co., Kansas City, Mo., E. St. Louis, Ill. Wizard Brands</b>		Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
5-49	Cattle Manure <sup>s</sup> -----	St. Louis Seed Co., St. Louis-----	1.80	2.34	53.41	-----	1.62	-----	0.29	1.00	1.33	1.00	1.67	10.10	13.59	
5-50	Sheep Manure-----	Kaercher Seed Co., St. Louis-----	2.00	1.91	60.20	-----	1.85	-----	0.19	1.25	1.66	2.00	2.09	12.39	12.66	
5-51	Sheep Manure-----	St. Louis Seed Co., St. Louis-----	2.00	1.99	60.30	-----	1.59	-----	0.24	1.25	1.35	2.00	2.63	12.39	13.17	
5-52	Sheep Manure <sup>l</sup> -----	T. Lee Adams, Kansas City-----	2.00	2.02	57.43	-----	1.91	-----	0.25	1.25	1.66	2.00	2.97	12.39	14.10	
5-53	Sheep Manure-----	Harndon Seed Co., Kansas City--	2.00	1.97	57.35	-----	1.66	-----	0.21	1.25	1.45	2.00	2.91	12.39	13.53	
	<b>Read Phosphate Co., Nashville, Tenn.</b>															
10-340	Bone Meal-----	Burlbaw & Graham, Farmington--	2.47	2.68	87.31	24.00	26.47	-----	-----	-----	-----	-----	-----	32.10	35.21	
10-342	Half and Half <sup>b</sup> -----	C. S. Eames, Hawk Point-----	1.23	1.38	82.60	20.00	19.02	-----	7.08	12.00	11.94	-----	-----	21.43	21.99	
10-341	High Grade Bone & Potash-----	Burlbaw & Graham, Farmington--	-----	-----	-----	14.00	21.44	2.00	3.42	12.00	18.02	2.00	2.78	18.40	27.39	
10-343	Premium Grain Grower-----	Burlbaw & Graham, Farmington--	1.65	1.48	87.39	15.00	17.07	3.00	6.12	12.00	10.95	2.00	3.86	25.41	25.32	
5-54	Special High Grade Phosphate-----	Butler Co. Farm Bureau, Poplar Bluff-----	-----	-----	-----	18.00	20.36	2.00	4.49	16.00	15.87	-----	-----	21.60	21.42	
10-144	Special High Grade Phosphate-----	Billings Farmers Sales Ass'n, Billings-----	-----	-----	-----	18.00	20.65	2.00	4.30	16.00	16.35	-----	-----	21.60	22.07	
10-344	Special High Grade Phosphate-----	Burlbaw & Graham, Farmington--	-----	-----	-----	18.00	20.29	2.00	2.74	16.00	17.55	-----	-----	21.60	23.69	
	<b>Reed and Son, Carthage, Mo.</b>															
10-345	Reed's Insecticide and Tree Grower <sup>9</sup> -----	Reed and Asendorf, Carthage-----	4.18	2.18	93.57	-----	13.22	-----	3.48	1.08	9.74	5.99	5.91	25.82	28.92	

Swift & Co., National Stock Yards, Ill. Pioneer Brands																
5-75	2-12-2 Grain Grower	R. C. Hall, Ava	1.65	1.60	91.89	13.00	13.56	1.00	1.31	12.00	12.25	2.00	1.81	25.41	25.33	
5-76	3-12-4	R. C. Hall, Ava	2.47	2.47	96.35	13.00	12.59	1.00	0.75	12.00	11.84	4.00	4.12	31.10	31.01	
Swift's Brands																
5-55	1¼-29 Bone Meal Fertilizer	St. Louis Seed Co., St. Louis	1.03	1.73	89.58	29.00	29.95							30.48	34.31	
5-56	1¼-29 Bone Meal Fertilizer	Harviell Milling Co., Harviell	1.03	1.78	89.32	29.00	29.42							30.48	34.05	
10-158	1¼-29 Bone Meal Fertilizer	Lagrange Elev. Co., Lagrange	1.03	1.56	84.61	29.00	28.84							30.48	32.59	
10-159	1¼-29 Bone Meal Fertilizer	L. W. Nelson, St. Clair	1.03	1.06	88.68	29.00	31.03							30.48	32.44	
10-161	1¼-29 Bone Meal Fertilizer	Peter Erdel Jr., Rush Hill	1.03	1.67	77.23	29.00	29.06							30.48	33.25	
10-162	1¼-29 Bone Meal Fertilizer	Henderson ;& Rood, Auxvasse	1.03	1.55	79.98	29.00	31.03							30.48	34.52	
10-163	1¼-29 Bone Meal Fertilizer	Frank B. Van Dyke, Sedalia	1.03	1.06	90.56	29.00	32.04							30.48	33.35	
10-165	1¼-29 Bone Meal Fertilizer <sup>1</sup>	Farmers Exchange, Springfield	1.03	1.48	74.32	29.00	30.55							30.48	33.79	
10-166	1¼-29 Bone Meal Fertilizer	Producers Elevator & Exchange, Paris	1.03	1.07	88.78	29.00	32.51							30.48	33.81	
10-167	1¼-29 Bone Meal Fertilizer	Dunlap & Layer, Center	1.03	1.54	85.05	29.00	28.33							30.48	32.05	
10-168	1¼-29 Bone Meal Fertilizer	Shelbina Milling Co., Shelbina	1.03	1.52	86.83	29.00	28.93							30.48	32.50	
10-354	1¼-29 Bone Meal Fertilizer	I. A. Young, Arcola	1.03	1.45	84.13	29.00	31.39							30.48	34.41	
10-355	1¼-29 Bone Meal Fertilizer	Tucker Seed Store, Carthage	1.03	1.81	88.94	29.00	29.45							30.48	34.20	
10-356	1¼-29 Bone Meal Fertilizer	James Cunningham, Montgomery	1.03	1.01	94.05	29.00	32.92							30.48	33.92	
10-357	1¼-29 Bone Meal Fertilizer	J. T. Henry, Troy	1.03	1.57	92.98	29.00	30.50							30.48	34.12	
10-358	1¼-29 Bone Meal Fertilizer	Farmers Equity Ex., Bowling Green	1.03	1.43	90.20	29.00	30.62							30.48	33.64	
10-359	1¼-29 Bone Meal Fertilizer	Omer Webb Jasper	1.03	1.50	89.99	30.00	31.67							31.38	34.88	
10-360	2¼-29 Bone Meal Fertilizer <sup>6</sup>	Peer Bros, Lockwood	1.85	1.43	84.61	29.00	31.93							33.96	34.82	
10-169	Bone Meal Fertilizer	Crocker Hdwe Co., Crocker	2.47	2.92	89.03	24.00	25.60							32.10	35.45	
10-170	Bone Meal Fertilizer <sup>1</sup>	Vandalia Roller Mills, Vandalia	2.47	3.23	91.63	24.00	25.91							32.10	37.05	
10-171	Bone Meal Fertilizer	Farmers Elevator & Exchange, Palmyra	2.47	2.83	90.45	24.00	24.96							32.10	34.49	
10-172	Bone Meal & Phosphate Fertilizer	Farmers Exchange, Lewistown	0.82	0.80	81.25	20.00	21.21	5.00	4.15	15.00	17.06			26.74	28.92	
10-173	Bone Meal & Phosphate Fertilizer	L. W. Nelson, St. Clair	0.82	0.82	82.92	20.00	20.42	5.00	4.94	15.00	15.48			26.74	27.35	
10-174	Bone Meal & Phosphate Fertilizer	Crocker Hdwe. Co., Crocker	0.82	0.97	87.62	20.00	20.29	5.00	4.27	15.00	16.02			26.74	28.31	
10-175	Bone Meal & Phosphate Fertilizer	Richland Hdwe. Co., Richland	0.82	0.88	84.08	20.00	20.65	5.00	5.32	15.00	15.33			21.04	24.44	
10-176	Bone Meal & Phosphate Fertilizer	Peter Erdel, Jr., Rush Hill	0.82	0.82	96.34	20.00	20.57	5.00	4.32	15.00	16.24			21.04	25.43	

<sup>1</sup>Without registration tags.

<sup>2</sup>Not registered.

<sup>3</sup>Not labeled correctly.

<sup>4</sup>Not labeled.

<sup>6</sup>Incomplete labels.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (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
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
10-177	Bone Meal & Phosphate Fertilizer	Fulton Co-op Warehouse Ass'n, Fulton	0.82	0.84	80.94	20.00	20.42	5.00	4.40	15.00	16.02			26.74	27.84
10-178	Bone Meal & Phosphate Fertilizer	Farmers Elev. & Exchange Co., Monroe City	0.82	0.85	80.00	20.00	21.48	5.00	5.45	15.00	16.03			26.74	28.25
10-361	Bone Meal & Phosphate Fertilizer	Farmers Equity Exchange, Bowling Green	0.82	0.95	87.35	20.00	21.21	5.00	5.84	15.00	15.37			27.74	27.79
5-57	Champion Wheat & Corn Grower	Berryman-Kennedy Merc., Co. Poplar Bluff	1.65	1.61	92.54	13.00	13.31	1.00	1.60	12.00	11.71	2.00	2.06	25.41	24.92
5-58	Champion Wheat & Corn Grower	Grubaugh Hdwe. Co., Republic	1.65	1.55	82.58	13.00	13.49	1.00	1.16	12.00	12.33	2.00	2.00	25.41	25.44
10-179	Champion Wheat & Corn Grower	Farmers Elev. & Exchange, Ewing	1.65	1.64	92.07 <sup>2</sup>	13.00	13.15	1.00	0.98	12.00	12.17	2.00	1.89	25.41	25.48
10-181	Champion Wheat & Corn Grower	Crocker Hdwe. Co., Crocker	1.65	1.67	91.02 <sup>2</sup>	13.00	12.91	1.00	0.84	12.00	12.07	2.00	1.90	25.41	25.48
10-183	Champion Wheat & Corn Grower	Vandalia Roller Mills, Vandalia	1.65	1.54	91.55	13.00	12.71	1.00	1.06	12.00	11.65	2.00	2.03	25.41	24.51
10-184	Champion Wheat & Corn Grower	Frank B. Van Dyke, Sedalia	1.65	1.64	92.07 <sup>2</sup>	13.00	12.94	1.00	1.50	12.00	11.44	2.00	2.03	25.41	24.64
10-185	Champion Wheat & Corn Grower	Farmers Exchange, Springfield	1.65	1.68	91.07 <sup>2</sup>	13.00	13.19	1.00	1.03	12.00	12.16	2.00	2.00	25.41	25.76
10-186	Champion Wheat & Corn Grower	Shelbina Milling Co., Shelbina	1.65	1.65	90.30 <sup>2</sup>	13.00	12.66	1.00	1.64	12.00	11.02	2.00	2.03	25.41	24.12
10-362	Champion Wheat & Corn Grower	J. T. Henry, Troy	1.65	1.72	90.11 <sup>2</sup>	13.00	13.02	1.00	1.08	12.00	11.94	2.00	2.01	25.41	25.64
10-363	Champion Wheat & Corn Grower	Farmers Equity Exchange, Bowling Green	1.65	1.70	88.23 <sup>2</sup>	13.00	13.91	1.00	1.42	12.00	12.49	2.00	2.06	25.41	26.36
10-364	Champion Wheat & Corn Grower	Farmers Coop. Elev. & Supply Co. Hawk Point	1.65	1.68	90.47 <sup>2</sup>	13.00	13.02	1.00	1.43	12.00	11.59	2.00	1.95	25.41	24.94
10-365	Champion Wheat & Corn Grower	Farmers Elev. & Supply Co., Moscow	1.65	1.70	87.63	13.00	13.56	1.00	1.53	12.00	12.03	2.00	1.75	25.41	25.40
10-366	Champion Wheat & Corn Grower	St. Francois Co. Farm Bureau Purchasing & Sales Ass'n, Farmington	1.65	1.49	89.92	13.00	13.40	1.00	1.17	12.00	12.23	2.00	1.94	25.41	24.97
5-59	Complete Fertilizer <sup>4</sup>	West Plains Wholesale Grocery Co., West Plains	0.82	0.98	71.42		8.98		0.94	8.00	8.04	1.00	1.23	15.39	16.37
5-60	Diamond "K" Grain Grower	Grubaugh Hdwe. Co., Republic	0.82	1.70	92.95	12.50	11.72	0.50	0.88	12.00	10.84	1.00	2.85	20.79	25.00

10-367	Diamond "K" Grain Grower	Tucker Seed Store, Carthage	0.82	0.93	79.57 <sup>2</sup>	12.50	13.76	0.50	1.18	12.00	12.58	1.00	0.98	20.79	22.01
10-368	Diamond "K" Grain Grower	D. B. Sailor, Buell	0.82	0.96	84.37 <sup>2</sup>	12.50	13.47	0.50	1.03	12.00	12.44	1.00	0.91	20.79	21.87
10-369	Diamond "K" Grain Grower	Farmer's Coop. Elev. Co., Elsberry	0.82	1.02	81.37 <sup>2</sup>	12.50	13.40	0.50	1.30	12.00	12.10	1.00	1.24	20.79	20.00
5-61	High Grade Acid Phosphate Fertilizer	Harviell Milling Co., Harviell					17.71		1.03	16.00	16.68			21.60	22.52
5-62	High Grade Acid Phosphate Fertilizer	Berryman-Kennedy Merc. Co., Poplar Bluff					17.43		1.07	16.00	16.36			21.60	22.09
5-63	High Grade Acid Phosphate Fertilizer	Protiva-Horak Co., Willow Springs					17.92		0.42	16.00	17.50			21.60	23.63
5-64	High Grade Acid Phosphate Fertilizer	Mansfield Produce Co., Mansfield					17.86		0.51	16.00	17.35			21.60	23.42
5-65	High Grade Acid Phosphate Fertilizer	Grubaugh Hdw. Co., Republic					17.96		0.55	16.00	17.41			21.60	23.50
10-145	High Grade Acid Phosphate Fertilizer	Crocker Hdwe Co., Crocker					17.36		0.32	16.00	17.04			21.60	23.00
10-146	High Grade Acid Phosphate Fertilizer	Richland Hdwe. Co., Richland					17.66		0.57	16.00	17.09			21.60	23.07
10-147	High Grade Acid Phosphate Fertilizer	Peter Erdel, Jr., Rush Hill					17.54		0.41	16.00	17.13			21.60	23.13
10-148	High Grade Acid Phosphate Fertilizer	Fulton Co-op. Warehouse Ass'n, Fulton					17.28		0.53	16.00	16.75			21.60	22.61
10-149	High Grade Acid Phosphate Fertilizer	Frank B. Van Dyke, Sedalia					17.18		0.46	16.00	16.72			21.60	22.57
10-150	High Grade Acid Phosphate Fertilizer	Producers Elev. & Ex. Co., Paris					16.94		0.46	16.00	16.48			21.60	22.25
10-151	High Grade Acid Phosphate Fertilizer	Farmers Elev. & Ex. Co., Monroe City					17.00		0.38	16.00	16.62			21.60	22.44
10-152	High Grade Acid Phosphate Fertilizer	Dunlap & Layer, Center					17.00		0.48	16.00	16.52			21.60	22.30
10-153	High Grade Acid Phosphate Fertilizer	Shelbina Milling Co., Shelbina					17.24		0.56	16.00	16.68			21.60	22.52

<sup>2</sup>Water soluble nitrogen only.

<sup>4</sup>Not registered.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (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
						G'td	F'nd	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	Per Cent	
10-154	High Grade Acid Phosphate Fertilizer	Clarence Grain Co., Clarence					17.15		0.49	16.00	16.66			21.60	22.49
10-346	High Grade Acid Phosphate Fertilizer	Farmers Elevator Co., Silex					17.56		0.21	16.00	17.35			21.60	23.42
10-347	High Grade Acid Phosphate Fertilizer	J. T. Henry, Troy					17.61		0.28	16.00	17.33			21.60	23.40
10-348	High Grade Acid Phosphate Fertilizer	Farmers Equity Ex., Bowling Green					16.60		0.34	16.00	16.26			21.60	21.95
10-349	High Grade Acid Phosphate Fertilizer	Farmers' Coop. Elev. & Supply Co. Hawk Point					17.95		0.29	16.00	17.66			21.60	23.84
10-350	High Grade Acid Phosphate Fertilizer	Farmers Elev. & Supply Co., Moscow					18.58		0.51	16.00	18.07			21.60	24.39
10-351	High Grade Acid Phosphate Fertilizer	St. Francois Co. Purchasing & Sales Ass'n, Farmington					18.02		0.34	16.00	17.68			21.60	23.87
10-352	High Grade Acid Phosphate Fertilizer	St. Francois County Purchasing and Sales Ass'n., Bismark					17.15		0.33	16.00	16.82			21.60	22.71
10-155	20% Acid Phosphate Fertilizer	Farmers Elev. & Ex., Ewing					20.80		1.23	20.00	19.57			27.00	26.42
10-156	20% Acid Phosphate Fertilizer	L. W. Nelson, St. Clair					22.41		1.54	20.00	20.87			27.00	28.17
10-157	20% Acid Phosphate Fertilizer	Dunlap & Layer, Center					21.72		0.85	20.00	20.87			27.00	28.17
10-353	20% Acid Phosphate Fertilizer	U. L. Coleman, Hdwe. Co., Marionville					22.03		0.91	20.00	21.12			27.00	28.51
10-189	Raw Bone Meal Fertilizer <sup>1</sup>	Farmers Exchange, Springfield	3.70	4.22	94.40	23.00	22.97							36.43	38.61
5-66	Special Grain Grower	Harviell Milling Co., Harviell	1.65	1.68	94.05	11.00	11.75	1.00	1.32	10.00	10.43	2.00	2.02	22.71	23.44



10-370	Special Grain Grower	D. B. Sailor, Buell	1.65	1.43	92.30 <sup>a</sup>	11.00	10.57	1.00	1.14	10.00	9.43	2.00	2.19	22.71	21.22
10-190	Tomato & Vegetable Grower <sup>4</sup>	Richland Hdwe. Co., Richland	1.65	1.33	93.98		9.26		1.10	8.00	8.16	3.00	2.99	21.11	19.96
10-194	Red Steer 0-14-4 Fertilizer	Frank B. Van Dyke, Sedalia					14.65		0.45	14.00	14.20	4.00	3.72	23.30	23.26
10-195	Red Steer 0-14-4 Fertilizer	Farmers Elevator & Exchange Co., Monroe City					14.73		0.50	14.00	14.23	4.00	3.61	23.30	23.18
10-375	Red Steer 0-14-4 Fertilizer	M. J. Richter, Lamar					15.62		0.35	14.00	15.27	4.00	3.69	23.30	24.67
10-376	Red Steer 0-14-4 Fertilizer	Farmers Elevator & Supply Co., Moscow					14.73		0.43	14.00	14.30	4.00	3.88	23.30	23.58
10-371	Red Steer 1-12-4 Fertilizer	Omer Webb, Jasper	0.82	0.88	96.59 <sup>a</sup>	12.50	12.76	0.50	0.77	12.00	11.99	4.00	3.93	24.09	24.25
10-372	Red Steer 1-13-4 Fertilizer <sup>b</sup>	M. J. Richter, Lamar	0.82	0.98	84.68		18.22	5.00	4.50	13.00	13.72	4.00	3.94	28.44	29.72
5-67	Red Steer 2-12-2 Fertilizer	Harviell Milling Co., Harviell	1.65	1.52	89.47	13.00	13.99	1.00	2.05	12.00	11.94	2.00	1.89	25.41	24.66
5-68	Red Steer 2-12-2 Fertilizer	Protiva-Horak Co., Willow Springs	1.65	1.50	83.33	13.00	13.57	1.00	1.03	12.00	12.54	2.00	1.98	25.41	25.49
5-69	Red Steer 2-12-2 Fertilizer	E. F. Buchner, Pierce City	1.65	1.54	91.54	13.00	13.60	1.00	1.35	12.00	12.25	2.00	2.12	25.41	25.42
10-180	Red Steer 2-12-2 Fertilizer	L. W. Nelson, St. Clair	1.65	1.63	88.95 <sup>a</sup>	13.00	13.72	1.00	1.23	12.00	12.49	2.00	1.80	25.41	25.77
10-187	Red Steer 2-12-2 Fertilizer	Clarence Grain Co., Clarence	1.65	1.61	91.92 <sup>a</sup>	13.00	12.25	1.00	1.19	12.00	11.06	2.00	1.89	25.41	23.85
5-70	Red Steer 2-12-6 Fertilizer	E. F. Buchner, Pierce City	1.65	1.39	94.24 <sup>a</sup>	13.00	11.81	1.00	0.90	12.00	10.91	6.00	6.37	29.81	27.65
10-191	Red Steer 2-12-6 Fertilizer	Frank B. Van Dyke, Sedalia	1.65	1.52	98.09 <sup>a</sup>	13.00	11.59	1.00	0.70	12.00	10.89	6.00	5.98	29.81	27.74
5-71	Red Steer 2-16-2 Fertilizer	Harviell Milling Co., Harviell	1.65	1.68	94.64 <sup>a</sup>	17.00	17.67	1.00	1.37	16.00	16.30	2.00	1.93	30.81	31.27
5-72	Red Steer 2-16-2 Fertilizer	James Merc. Co., West Plains	1.65	1.26	94.44 <sup>a</sup>	17.00	17.43	1.00	1.05	16.00	16.38	2.00	1.36	30.81	28.97
5-73	Red Steer 2-16-2 Fertilizer	Grubaugh Hdw. Co., Republic	1.65	1.56	94.87 <sup>a</sup>	17.00	16.74	1.00	1.13	16.00	15.61	2.00	1.92	30.81	29.81
10-192	Red Steer 2-16-2 Fertilizer	Farmers Elev. & Ex., Ewing	1.65	1.66	98.19 <sup>a</sup>	17.00	16.16	1.00	0.94	16.00	15.22	2.00	2.38	30.81	30.23
10-193	Red Steer 2-16-2 Fertilizer	Frank B. Van Dyke, Sedalia	1.65	1.66	96.38 <sup>a</sup>	17.00	16.52	1.00	1.04	16.00	15.48	2.00	2.32	30.81	30.51
10-373	Red Steer 2-16-2 Fertilizer	J. T. Henry, Troy	1.65	1.69	98.22 <sup>a</sup>	17.00	17.20	1.00	1.06	16.00	16.14	2.00	2.06	30.81	31.24
5-74	Red Steer 3-8-6 Fertilizer	Mansfield Produce Co., Mansfield	2.47	2.37	97.00 <sup>a</sup>	9.00	8.57	1.00	0.63	8.00	7.94	6.00	5.99	27.90	27.38
10-196	3-12-4 Fertilizer	Farmers Exchange, Lewistown	2.47	2.18	97.70 <sup>a</sup>	13.00	11.99	1.00	0.48	12.00	11.51	4.00	4.04	31.10	29.25
10-374	3-12-4 Fertilizer	Farmers Elev. Co., Silex	2.47	2.17	98.15 <sup>a</sup>	13.00	12.61	1.00	0.56	12.00	12.05	4.00	3.84	31.10	29.71
5-77	Ox Bone Meal	The Tennessee Chemical Co., Chicago, Illinois Phil Ratliff, Neosho	2.47	2.57	94.16 <sup>a</sup>	24.00	26.90							32.10	35.13

<sup>1</sup>Without registration tags.

<sup>2</sup>Water soluble nitrogen only.

<sup>3</sup>Not registered.

<sup>4</sup>Not labeled correctly.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1924 (Continued)

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					
			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>Virginia-Carolina Chemical Co., Shreveport, La.</b>																
10-203	V-C 16% Superphosphate	Jackson Lumber Co., Smithton					16.69		0.77	16.00	15.92				21.60	21.49
10-377	V-C 16% Superphosphate	N. Johannes & Son, Lamar					18.12		0.84	16.00	17.28				21.60	23.33
10-378	V-C 16% Superphosphate	J. A. Karrenbrook, Moscow					18.58		0.48	16.00	18.10				21.60	24.44
10-379	V-C 16% Superphosphate	Laverne Woody, Golden City					18.32		0.64	16.00	17.68				21.60	23.87
10-197	Crescent Wheat Grower	H. B. Sutter Implement Co. Springfield	1.65	1.75	85.71		14.73		3.13	12.00	11.60				23.21	23.10
10-198	Good as Gold Standard Guano	Jackson Lumber Co., Smithton	0.82	1.04	82.69		13.16		1.02	12.00	12.14	1.00	1.28		20.79	22.22
10-199	Good Luck Wheat Special	H. B. Sutter Implement Co., Springfield	1.65	1.68	86.31		12.76		0.81	12.00	11.95	2.00	2.24		25.41	25.73
10-200	Good Luck Wheat Special	Jackson Lumber Co., Smithton	1.65	1.56	85.21		12.76		1.40	12.00	11.36	2.00	2.05		25.41	24.23
10-382	Good Luck Wheat Special	J. A. Karrenbrook, Moscow	1.65	1.75	82.28		13.16		0.88	12.00	12.28	2.00	1.98		25.41	26.20
10-384	Monarch Grain Grower	Omer Webb, Jasper					17.71		1.26	15.00	16.45	2.00	2.20		22.35	24.65
10-202	V-C Steamed Bone Meal	Jackson Lumber Co., Smithton	2.50	2.30	93.04	22.00	24.94								30.43	32.23
10-386	V-C Steamed Bone Meal	N. Johannes & Son, Lamar	2.50	2.70	90.37	22.00	25.26								30.43	34.21
10-380	Victor Bone & Potash Compound	N. Johannes & Son, Lamar					16.90		1.68	15.00	15.22	3.00	2.79		23.55	23.62
10-381	Victor Bone & Potash Compound	Tucker Seed Store, Carthage					17.97		1.54	15.00	16.43	3.00	2.97		23.55	25.45
5-78	V-C Double Strength Money Saver	T. M. Renfrow, West Plains	1.65	1.48	91.90		18.28		1.65	16.00	16.63	2.00	1.87		30.81	30.80
10-383	V-C Grain Grower	J. A. Karrenbrook, Moscow					13.02		0.67	12.00	12.35	2.00	2.08		18.40	18.96
10-201	V-C Half & Half Bone & Phosphate	Jackson Lumber Co., Smithton	1.23	1.23	89.42	20.00	17.23	9.00	10.13	11.00	7.10				25.48	20.22
5-79	V-C Special Phosphate & Potash	L. F. Dreibelbis, Sarcoxie					16.79		2.30	14.00	14.49	4.00	3.57		23.30	23.49
10-385	V-C Special Phosphate & Potash	J. A. Karrenbrook, Moscow					13.50		0.87	14.00	12.63	4.00	3.70		23.30	21.21

<b>Wilson &amp; Co., New Albany, Indiana Red "W" Brand</b>																	
10-204	Acid Phosphate 16 %	Farmers Grain Elev. Butler					17.00	18.49	1.00	2.31	16.00	16.18				21.60	21.84
10-387	Acid Phosphate 16 %	Farmers Grain & Supply Co., Golden City				17.00	17.74	1.00	2.44	16.00	15.30					21.60	20.66
10-205	Bone Meal & Acid Phosphate <sup>7</sup>	Farmers Grain Elevator, Butler	0.82	1.08	72.21		22.08	10.50	14.54	12.50	7.54					20.37	14.77
10-388	Bone Meal & Acid Phosphate <sup>7</sup>	Farmers Grain & Supply Co., Golden City	0.82	1.72	91.27		20.93	10.50	9.44	12.50	11.49					20.37	22.82
10-206	Corn & Wheat Special	Farmers Grain Elevator, Butler	1.65	1.38	88.40	9.00	12.33	1.00	3.77	8.00	8.56	2.00	2.90			20.01	20.62
10-389	Raw Bone Meal	Omer Webb, Jasper	3.70	3.89	77.37	23.00	25.14									36.43	39.16
10-390	Special Bone Meal	Farmers Grain & Supply Co., Golden City	0.82	2.61	90.79	30.00	26.16									30.49	33.63
10-207	Two in One	Farmers Grain Elevator, Butler	1.65	1.73	93.63	17.00	20.11	1.00	3.78	16.00	16.33	2.00	1.99			30.81	31.59
<b>Miscellaneous Samples</b>																	
5-230	3-8-3 Fertilizer, Armour Fertilizer Works	P. R. Moffatt, Washburn	2.47	2.02			11.86	0.50	2.09	8.00	9.77	3.00	3.63			24.60	25.77
10-227	Raw Bone Meal, Interstate Fertilizer Co.	Lipscomb Grain & Seed Co., Liberal	3.69	3.44		22.00	20.42									35.48	33.00
10-228	3-12-4 Fertilizer, Adair & Mc- Carty Bros., Inc.	Farmers Exchange, Rolla	2.47	3.06			14.14		0.26	12.00	13.88	4.00	3.37			31.10	35.46
12-1	16% Acid Phosphate, Wilson & Co.	Neosho Seed Co., Neosho				17.00	16.54	1.00	1.82	16.00	14.72					21.60	19.87
12-5	Fertilizer from mine, Pierce City	L. L. Hunt, Mount Vernon		0.03			0.18						0.00				

<sup>7</sup>Without registration tags.

<sup>7</sup>Not registered before sale.

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- 1	Roy W. Carpenter, Monroe City	Limestone	93.63
1- 2	J. J. Reid, Ridgeway	Limestone 1	95.97
1- 3	J. J. Reid, Ridgeway	Limestone 2	95.65
1- 4	Edw. Eversole, Hillsboro	Limestone 1	95.02
1- 5	Edw. Eversole, Hillsboro	Limestone 2	65.85
1- 6	Edw. Eversole, Hillsboro	Limestone	102.81
1- 7	E. T. Itschner, Hillsboro	Limestone	101.91
1- 8	E. T. Itschner, Hillsboro	Limestone	103.54
1- 9	E. T. Itschner, Hillsboro	Limestone	96.81
1-10	C. W. Campbell, Bowling Green	Limestone	90.34
1-11	C. W. Sheppard, Peculiar	Limestone 1	96.80
1-12	C. W. Sheppard, Peculiar	Limestone 2	96.90
1-13	C. W. Sheppard, Peculiar	Limestone 3	97.11
1-14	C. W. Sheppard, Peculiar	Limestone 4	96.90
1-15	C. W. Sheppard, Peculiar	Limestone 5	96.33
1-16	C. W. Sheppard, Peculiar	Limestone 6	96.96
1-30	McGuire & Son, Conway	Limestone	98.64
1-32	Lester Van Ruebel, Pevely	Limestone	97.53
1-33	Laurence James, Glencoe	Limestone	97.01
1-34	H. J. Krennig, Florissant	Limestone, crushed	82.20
1-82	F. G. Kraege, Palmyra	Limestone 1	96.37
1-83	F. G. Kraege, Palmyra	Limestone 2	97.25
1-84	V. H. Kern, St. Louis	Limestone 1	96.48
1-85	V. H. Kern, St. Louis	Limestone 2	95.39
1-86	V. H. Kern, St. Louis	Limestone 3	96.22
1-87	S. F. Russel, Troy	Limestone	91.92
1-88	Industrial Iron Works, Clinton	Limestone, crushed	83.39
1-89	Industrial Iron Works, Clinton	Lime and ashes	119.32
2- 7	E. S. Matteson, Paris	Limestone, crushed	94.97
2- 8	E. S. Matteson, Paris	Limestone, crushed	97.12
2- 9	F. M. Adams, Goodland	Limestone	96.34
2-10	F. M. Adams, Goodland	Limestone, crushed	95.08
2-15	Roy W. Carpenter, Monroe City	Limestone	96.50
2-16	K. G. Harmon, Extension Service	Limestone	97.91
2-17	K. G. Harmon, Extension Service	Limestone	95.98
2-18	K. G. Harmon, Extension Service	Limestone	97.39
2-19	K. G. Harmon, Extension Service	Limestone	96.66
2-20	K. G. Harmon, Extension Service	Limestone	93.90
2-21	K. G. Harmon, Extension Service	Limestone	98.43
2-22	K. G. Harmon, Extension Service	Limestone	91.19
2-23	Edw. J. Kopp, Washington	Limestone 1	98.64
2-24	Edw. J. Kopp, Washington	Limestone 2	73.06
2-25	Edw. J. Kopp, Washington	Limestone 3	103.02
2-26	Edw. J. Kopp, Washington	Limestone 4	61.18
2-27	Edw. J. Kopp, Washington	Limestone 5	100.57
2-28	Edw. J. Kopp, Washington	Limestone 6	101.29
2-29	Edw. J. Kopp, Washington	Limestone 7	100.41
2-30	O. D. Phipps, Denton	Limestone	90.09
2-31	Paul H. Schott, Calhoun	Rock	2.15
3-38	Guy Gastineau, Ellington	Limestone, crushed	100.25
3-39	B. E. Augenbrecht, Stover	Lime	49.46
3-40	Ernest Winston, Knobnoster	Limestone, crushed	91.82
3-41	Chas. E. Erickson, Springfield	Limestone, crushed	98.26
3-42	R. J. Reynolds, Norwood	Limestone I	102.39
3-43	R. J. Reynolds, Norwood	Limestone II	102.64
3-44	R. J. Reynolds, Norwood	Limestone III	98.77
3-45	R. J. Reynolds, Norwood	Limestone H	100.12

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- 46	Jos. F. Neuner, Rich Fountain	Limestone	97.81
3- 47	Frank Mense, Silcox	Limestone	93.69
3- 48	W. H. Ballger, Wright City	Limestone 1	94.50
3- 49	W. H. Ballger, Wright City	Limestone 2	96.76
3- 51	T. M. Keyser, Jackson	Limestone I	99.47
3- 52	T. M. Keyser, Jackson	Limestone II	93.19
3- 53	T. M. Keyser, Jackson	Limestone I	82.49
3- 54	T. M. Keyser, Jackson	Limestone II	94.00
3- 55	T. M. Keyser, Jackson	Limestone III	97.72
3- 56	John Bergsieker, Augusta	Limestone	97.66
3- 65	T. F. Lueker, Jefferson City	Limestone	95.65
3- 66	David Meeker, Butler	Limestone 1	93.15
3- 67	David Meeker, Butler	Limestone 2	96.45
3- 68	David Meeker, Butler	Limestone 3	92.94
4- 1	Alfred Theilmann, New Melle	Limestone 1	87.41
4- 2	Alfred Theilmann, New Melle	Limestone 2	89.47
4- 3	Alfred Theilmann, New Melle	Limestone 3	97.31
4- 4	Alfred Theilmann, New Melle	Limestone 4	95.81
4- 5	Alfred Theilmann, New Melle	Limestone 5	97.21
4- 6	D. L. Pippin, Marshall	Limestone, crushed	88.67
4- 7	C. W. Campbell, Bowling Green	Limestone I	95.65
4- 8	C. W. Campbell, Bowling Green	Limestone II	96.21
4- 9	C. W. Campbell, Bowling Green	Limestone III	96.26
4- 10	C. W. Campbell, Bowling Green	Limestone IV	96.76
4- 11	C. W. Campbell, Bowling Green	Limestone V	96.56
4- 12	C. W. Campbell, Bowling Green	Limestone VI	97.21
4- 13	C. W. Campbell, Bowling Green	Limestone VII	97.66
4- 20	C. W. Campbell, Bowling Green	Limestone, crushed	90.67
4- 25	O. W. Clabaugh, Sedalia	Limestone 25	96.55
4- 26	O. W. Clabaugh, Sedalia	Limestone 45	90.77
4- 27	Louis Langenberg, Drake	Limestone yellow	88.22
4- 33	Frank Busch, Union	Limestone 1	87.97
4- 34	Frank Busch, Union	Limestone 2	93.26
4- 35	Frank Busch, Union	Lime	113.77
4- 36	E. V. Tuttle, Bagnell	Limestone	90.47
4- 38	C. W. Campbell, Bowling Green	Limestone	82.95
4- 39	W. T. Copeland, St. James	Limestone	95.57
4- 40	Alfred Theilmann, New Melle	Limestone 1	95.01
4- 41	Alfred Theilmann, New Melle	Limestone 2	95.46
4- 42	Alfred Theilmann, New Melle	Limestone 3	95.11
4- 43	Alfred Theilmann, New Melle	Limestone 4	95.97
5- 82	C. W. Vetter, Perryville	Limestone 43	93.59
5- 83	C. W. Vetter, Perryville	Limestone 44	96.54
5- 86	E. T. Itschner, Hillsboro	Limestone	92.82
5- 88	E. L. Garrett, Higginsville	Limestone, crushed	81.60
5- 89	Geo. Hawn, Windsor	Limestone, crushed	81.18
5- 90	A. Friese, Old Monroe	Limestone, crushed	93.54
5- 91	Martin P. Tenholder, Leopold	Limestone 1	93.54
5- 92	Martin P. Tenholder, Leopold	Limestone 2	91.26
5- 93	Martin P. Tenholder, Leopold	Limestone 3	102.43
5- 94	Martin P. Tenholder, Leopold	Limestone 4	100.05
5- 95	Martin P. Tenholder, Leopold	Limestone 5	99.33
5- 96	R. A. Carey, Prairie Home	Limestone	99.23
5- 97	Paul Bebermeyer, Unionville	Limestone	91.74
5- 98	A. E. Hercules, St. Charles	Limestone 1	92.92
5- 99	A. E. Hercules, St. Charles	Limestone 2	77.77
5-212	Ray Schaefer, Greenfield	Limestone 1	99.53

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
5-213	Ray Schaefer, Greenfield	Limestone 2	90.54
5-217	W. F. Delp, Springfield	Limestone	99.86
5-218	Glencoe Lime & Cement Co.	Limestone, waste	100.72
5-219	L. C. Gragg, Appleton City	Limestone, crushed	94.98
5-220	D. W. Rusk & Sons, Windsor	Limestone, crushed	81.30
5-221	Elza Hammond, Harris	Limestone screenings	80.74
5-222	E. S. Matteson, Paris	Limestone, crushed	80.33
5-223	T. B. Miller, West Plains	Limestone	85.66
5-224	W. M. Spencer, Independence	Limestone	91.50
5-225	C. B. McGinnis, Ozark	Limestone 1	99.19
5-226	C. B. McGinnis, Ozark	Limestone 2	99.29
6- 1	George Springer, Frankford	Limestone 1	98.96
6- 2	George Springer, Frankford	Limestone 2	97.87
6- 3	R. C. Wommack, Fair Grove	Limestone	99.83
6- 17	J. M. Malang, Joplin	Chats from Eureka Mines	68.86
6- 18	T. M. Keyser, Jackson	Limestone 1	95.92
6- 19	T. M. Keyser, Jackson	Limestone 2	96.92
6- 20	T. M. Keyser, Jackson	Limestone 3	87.39
6- 21	J. R. Hansen, Clayton	Lime waste	94.21
6- 22	T. C. Amos, Russellville	Limestone	97.12
7- 44	Sid Thompson, South Fork	Rock	96.50
7- 45	Sid Thompson, South Fork	Rock	68.60
7- 46	Sid Thompson, South Fork	Rock	83.95
7- 47	V. C. Pinet, Linn	Limestone 1	91.45
7- 48	V. C. Pinet, Linn	Limestone 2	95.14
7- 49	V. C. Pinet, Linn	Limestone 3	97.64
7- 52	Mo. Pacific Ry. Shops, Sedalia	Lime material	103.38
7- 53	David Meeker, Butler	Limestone, crushed	84.23
7- 54	C. C. Keller, Mountain Grove	Limestone	100.03
7- 55	Michael Kertz, Bloomsdale	Limestone rock 1	90.22
7- 56	Michael Kertz, Bloomsdale	Limestone rock 2	97.64
7- 57	Michael Kertz, Bloomsdale	Limestone, crushed	93.15
7- 58	Ellis H. McAllister, Washington	Limestone 1	92.19
7- 59	Ellis H. McAllister, Washington	Limestone 2	95.07
7- 60	Ellis H. McAllister, Washington	Limestone 3	94.86
7- 61	Ellis H. McAllister, Washington	Limestone 4	92.24
7- 62	Ellis H. McAllister, Washington	Limestone 5	103.25
7- 63	C. T. Aarons, St. Louis	Rock	101.63
7- 64	N. J. Glover, Red Top	Limestone	99.94
7- 65	Sugar Creek Creamery Co., Marshfield	Limestone, crushed	99.44
7- 66	John Wilson, Leslie	Limestone yellow, I	91.44
7- 67	John Wilson, Leslie	Limestone yellow, II	99.74
7- 68	Western Lime Works, Ste. Genevieve	"Lime forklings"	128.34
7- 69	O. S. Hanks, Kansas City	Burnt limestone and wood ashes	121.98
7- 92	Ira Drymon, Harrisonville	Limestone, crushed	79.18
7- 93	Ira Drymon, Harrisonville	Limestone, crushed	74.52
7- 94	A. J. Clayton, Keytesville	Limestone, red, I	85.46
7- 95	A. J. Clayton, Keytesville	Limestone, gray, red spotted, II	95.08
7- 96	David Meeker, Butler	Limestone, crushed	82.93
7- 98	T. M. Keyser, Jackson	Limestone I	80.20
7- 99	T. M. Keyser, Jackson	Limestone II	95.84
8- 1	B. B. Branstetter, Liberty	Limestone	99.32
8- 2	Fred Davison, Elkland	Limestone, gray rock	104.90
8- 3	Fred Davison, Elkland	Limestone, yellow	100.58
8- 4	C. W. Vetter, Perryville	Limestone	100.84
8- 5	Ben Frank, Jefferson City	Limestone	100.83

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
8- 6	T. F. Lueker, Jefferson City	Limestone 1	100.73
8- 7	T. F. Lueker, Jefferson City	Limestone 2	101.04
8- 8	J. R. Tunnell, Mountain View	Limestone, crushed	96.70
8- 9	David Meeker, Butler	Limestone	89.52
8-10	David Meeker, Butler	Limestone, crushed	81.31
8-11	John A. Krause, Osage City	Limestone 1	102.15
8-12	John A. Krause, Osage City	Limestone 2	96.69
8-13	John A. Krause, Osage City	Limestone 3	102.20
8-14	John A. Krause, Osage City	Limestone 4	100.45
8-15	J. Robt. Hall, Linneus	Limestone, crushed	94.48
8-16	C. H. Falspen, Cuba	Limestone 1	64.79
8-17	C. H. Falspen, Cuba	Limestone 2	104.05
8-18	C. H. Falspen, Cuba	Limestone 3	19.06
8-19	C. H. Falspen, Cuba	Limestone 4	101.27
8-20	C. H. Falspen, Cuba	Limestone 5	102.05
8-21	C. H. Falspen, Cuba	Limestone 6	105.90
8-22	C. H. Falspen, Cuba	Limestone 7	47.87
8-23	C. W. Vetter, Perryville	Limestone N 46	102.20
8-24	C. W. Vetter, Perryville	Limestone S 47	100.98
8-25	T. M. Keyser, Jackson	Limestone 1	96.64
8-26	T. M. Keyser, Jackson	Limestone 2	96.43
8-27	T. M. Keyser, Jackson	Limestone 1	95.62
8-28	T. M. Keyser, Jackson	Limestone 2	97.62
8-29	T. M. Keyser, Jackson	Limestone 3	99.32
8-30	T. M. Keyser, Jackson	Limestone 4	100.14
8-37	T. M. Keyser, Jackson	Limestone 1	92.17
8-38	T. M. Keyser, Jackson	Limestone 2	93.86
8-39	N. J. Meyer, Farmington	Limestone	63.82
8-40	C. W. Vetter, Perryville	Limestone 48	83.21
8-41	C. W. Vetter, Perryville	Limestone 49	84.39
8-42	T. M. Keyser, Jackson	Limestone, crushed	94.20
8-58	T. M. Keyser, Jackson	Limestone 1	100.19
8-59	T. M. Keyser, Jackson	Limestone 2	100.84
8-60	Geo. L. Hawn, Windsor	Limestone	79.97
8-96	Longview Farm, Lees Summit	Limestone	83.85
8-97	Longview Farm, Lees Summit	Burnt Lime	116.93
8-98	Westerman Bros. & Co., Weaubleau	Limestone	97.80
9- 49	Buckheit & Son, Fair Grove	Limestone, crushed	98.19
9- 50	C. H. Lee, Fair Grove	Limestone	100.43
9- 51	J. Robt. Hall, Linneus	Limestone, crushed	94.67
9- 52	David Meeker, Butler	Limestone, crushed	81.92
9- 53	David Meeker, Butler	Limestone, crushed	98.91
9- 54	J. Robt. Hall, Linneus	Limestone, crushed	87.78
9- 55	T. M. Keyser, Jackson	Limestone 1	96.81
9- 56	T. M. Keyser, Jackson	Limestone 2	97.45
9- 57	T. M. Keyser, Jackson	Limestone 3	96.14
9- 58	T. M. Keyser, Jackson	Limestone 4	94.59
9- 59	J. Robt. Hall, Linneus	Limestone, crushed	92.02
9- 63	Peter Friese, Daisy	Limestone 1	88.83
9- 64	Peter Friese, Daisy	Limestone 2	88.06
9- 65	Peter Friese, Daisy	Limestone 3	96.86
9- 66	Peter Friese, Daisy	Limestone 4	94.13
9- 67	Peter Friese, Daisy	Limestone 5	78.55
9- 68	Peter Friese, Daisy	Limestone 6	85.38
9- 69	Peter Friese, Daisy	Limestone 7	85.49
9- 70	Peter Friese, Daisy	Limestone 8	88.11
9- 71	Peter Friese, Daisy	Limestone 9	85.05

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
9-72	Peter Friese, Daisy	Limestone 10	87.42
9-73	I. M. Friese, Sedgewickville	Limestone 1	101.05
9-74	I. M. Friese, Sedgewickville	Limestone 2	103.13
9-75	I. M. Friese, Sedgewickville	Limestone 3	97.94
9-76	C. R. Corde l, Union	Limestone	100.66
9-77	O. E. Allen, Farmington	Limestone	93.59
9-78	C. H. E. Walther, Boonville	Limestone, crushed	90.81
9-79	J. R. bt. Hall, Linneus	Limestone, crushed	86.39
9-80	W. F. Vaughan, Springfield	Limestone 1	97.48
9-81	W. F. Vaughan, Springfield	Limestone 2	97.93
9-85	David Meeker, Butler	Limestone, crushed	81.40
9-86	Herman Freese, Foristell	Limestone 1	78.83
9-87	Herman Freese, Foristell	Limestone 2	90.61
9-88	Herman Freese, Foristell	Limestone 3	92.59
9-89	Joe Jones, Bowling Green	Limestone 1, white	98.06
9-90	Joe Jones, Bowling Green	Limestone 2, yellow	97.30
9-91	T. F. Leuker, Jefferson City	Limestone 1	100.33
9-92	T. F. Leuker, Jefferson City	Limestone 2	94.21
9-93	Ira Drymon, Harrisonville	Limestone, crushed	79.29
9-94	Ira Drymon, Harrisonville	Limestone, crushed	82.63
9-95	Jno. M. Phelan, Jamestown	Limestone 1	98.69
9-96	Jno. M. Phelan, Jamestown	Limestone 2	97.97
9-97	Jno. M. Phelan, Jamestown	Limestone 3	99.05
9-98	Jno. M. Phelan, Jamestown	Limestone 4	98.99
9-99	Jno. M. Phelan, Jamestown	Limestone 5	99.05
9-100	Jno. M. Phelan, Jamestown	Limestone 6	98.22
9-101	R. L. Furry, Bolivar	Limestone 1	99.02
9-102	R. L. Furry, Bolivar	Limestone 2	98.84
9-103	R. L. Furry, Bolivar	Limestone 3	99.10
9-104	R. L. Furry, Bolivar	Limestone, crushed	97.24
9-105	James S. Smith, Lawson	Limestone, crushed	81.25
9-106	G. A. Kumbier, Phillipsburg	Limestone 1	96.11
9-107	G. A. Kumbier, Phillipsburg	Limestone 2	105.32
9-110	G. R. Skinner, Columbia	Limestone	98.02
9-111	G. R. Skinner, Columbia	Limestone	98.22
9-112	G. R. Skinner, Columbia	Limestone	98.53
9-113	G. R. Skinner, Columbia	Limestone	13.85
9-114	Taylor Williams, Fair Grove	Limestone, crushed	97.09
9-115	C. W. Vetter, Perryville	Limestone 50	88.09
9-116	C. W. Vetter, Perryville	Limestone 51	80.68
9-117	C. W. Vetter, Perryville	Limestone 52	91.12
9-118	C. W. Vetter, Perryville	Limestone 53	87.93
9-119	Dan Frieze, Sedgewickville	Limestone 1	91.18
9-120	Dan Frieze, Sedgewickville	Limestone 2	99.25
9-121	Dan Frieze, Sedgewickville	Limestone 3	97.45
9-122	Dan Frieze, Sedgewickville	Limestone 4	98.33
9-123	Dan Frieze, Sedgewickville	Limestone 5	73.22
9-124	Wm. Roth, Gerster	Limestone	97.35
9-126	J. K. Ackerman, Fair Grove	Limestone	98.99
9-127	J. F. Kincaid, Mendon	Limestone, crushed	77.18
9-128	Ira Drymon, Harrisonville	Limestone, rock	97.04
9-129	Ira Drymon, Harrisonville	Limestone, crushed	84.13
9-130	Ira Drymon, Harrisonville	Limestone, crushed	70.80
9-131	T. M. Keyser, Jackson	Limestone 1	100.28
9-132	T. M. Keyser, Jackson	Limestone 2	86.75
9-133	T. M. Keyser, Jackson	Limestone 1	95.19
9-134	T. M. Keyser, Jackson	Limestone 2	93.60
9-135	E. S. Matteson, Paris	Limestone, crushed	93.44



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
9-136	Ben Hoerstkamp, New Haven ----	Limestone 1, gray brown stone.....	102.60
9-137	Ben Hoerstkamp, New Haven ----	Limestone 2, white.....	84.80
10-209	G. R. Skinner, Columbia.....	Limestone.....	96.47
10-210	Jas. A. Haller, Holden.....	Limestone.....	95.17
10-211	G. R. Skinner, Columbia.....	Limestone.....	97.84
10-214	Ed. Thieman, Wentzville.....	Limestone 1, white.....	90.87
10-215	Ed. Thieman, Wentzville.....	Limestone 2, yellow.....	96.53
10-216	Will Walther, Jefferson City.....	Limestone.....	95.75
10-217	C. W. Vetter, Perryville.....	Limestone 54.....	95.59
10-218	C. W. Vetter, Perryville.....	Limestone 55.....	90.50
10-219	C. W. Vetter, Perryville.....	Limestone 56.....	96.06
10-221	B. B. Branstetter, Liberty.....	Limestone.....	90.50
10-222	Howard G. Beumer, Gray Summit ..	Limestone 1.....	99.10
10-223	Howard G. Beumer, Gray Summit ..	Limestone 2.....	85.30
10-224	Howard G. Beumer, Gray Summit ..	Limestone 3.....	90.50
10-225	Howard G. Beumer, Gray Summit ..	Limestone 4.....	96.95
10-226	Howard G. Beumer, Gray Summit ..	Limestone 5.....	91.75
10-400	R. A. Langwell, Beaman.....	Limestone 1.....	89.92
10-401	R. A. Langwell, Beaman.....	Limestone 2.....	87.87
10-402	R. F. Palmer, Parkville.....	Limestone 1.....	95.85
10-403	R. F. Palmer, Parkville.....	Limestone 2.....	94.64
10-404	R. F. Palmer, Parkville.....	Limestone 3.....	88.35
10-405	Chas. E. Brown, Carrollton.....	Limestone 1.....	96.64
10-406	Chas. E. Brown, Carrollton.....	Limestone 2.....	92.81
10-407	Chas. E. Brown, Carrollton.....	Limestone 3.....	90.71
10-408	Chas. E. Brown, Carrollton.....	Limestone 4.....	93.70
10-409	Chas. E. Brown, Carrollton.....	Limestone 5.....	89.98
10-410	Chas. E. Brown, Carrollton.....	Limestone 6.....	94.22
10-411	Chas. E. Brown, Carrollton.....	Limestone 7.....	88.56
10-412	J. H. H. Mote, Carthage.....	Limestone, crushed.....	93.12
10-413	John Howat, Huntsville.....	Limestone, rock.....	24.22
11- 2	T. M. Keyser, Jackson.....	Limestone.....	93.91
11- 12	T. F. Lueker, Jefferson City.....	Limestone.....	98.95
11- 13	C. W. Vetter, Perryville.....	Limestone No. 57.....	80.42
11- 14	C. W. Vetter, Perryville.....	Limestone No. 58.....	94.33
11- 15	C. W. Vetter, Perryville.....	Limestone No. 59.....	89.34
11- 16	C. W. Vetter, Perryville.....	Limestone No. 60.....	93.59
11- 20	J. S. Cronkhite, Conway.....	Limestone No. 1.....	97.84
11- 21	J. S. Cronkhite, Conway.....	Limestone No. 2.....	81.31
11- 22	David Meeker, Butler.....	Limestone No. 1.....	96.53
11- 23	David Meeker, Butler.....	Limestone No. 2.....	95.59
11- 24	David Meeker, Butler.....	Limestone, crushed.....	83.52
11- 25	Elmer H. Borgmann, Foristell.....	Limestone.....	94.01
11- 26	Tom Hardin, Marceline.....	Limestone, crushed.....	86.30
11- 27	D. R. Forrester, Chillicothe.....	Limestone, screenings.....	80.95
11- 28	D. R. Forrester, Chillicothe.....	Limestone, chat.....	92.44
11- 29	E. T. Winenbaugh, Pierce City.....	Limestone 1.....	94.69
11- 30	E. T. Winenbaugh, Pierce City.....	Limestone 2.....	1.55
11- 31	E. T. Winenbaugh, Pierce City.....	Limestone 3.....	1.44
11- 33	Frank Kaiser, Jonesburg.....	Limestone.....	97.43
11- 36	David Meeker, Butler.....	Limestone 1.....	83.78
11- 37	David Meeker, Butler.....	Limestone 2.....	56.55
11- 38	David Meeker, Butler.....	Limestone 3.....	94.80
11- 39	O. E. Allen, Farmington.....	Limestone 1.....	101.36
11- 40	O. E. Allen, Farmington.....	Limestone 2.....	101.99
11- 42	Albert E. Evans, Hamilton.....	Limestone.....	97.40
11- 44	Ben Frank, Jefferson City.....	Limestone.....	97.37

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- 45	H. J. Bollinger, Millersville.....	Limestone 1.....	96.95
11- 46	H. J. Bollinger, Millersville.....	Limestone 8.....	78.80
11- 47	O. E. Allen, Farmington.....	Limestone.....	78.96
11- 48	G. R. Skinner, Columbia.....	Limestone 1.....	98.27
11- 49	G. R. Skinner, Columbia.....	Limestone 2.....	98.74
11- 50	G. R. Skinner, Columbia.....	Limestone 3.....	98.06
11- 51	G. R. Skinner, Columbia.....	Limestone 4.....	94.17
11- 52	G. R. Skinner, Columbia.....	Limestone 5.....	98.37
11- 53	G. R. Skinner, Columbia.....	Limestone 6.....	1.45
11- 54	G. R. Skinner, Columbia.....	Limestone 7.....	97.58
11- 55	Marble-head Lime Co., Hannibal...	Limestone, screenings.....	94.43
12- 2	O. E. Allen, Farmington.....	Limestone.....	101.88
12- 7	J. A. Icenhower, Fair Grove.....	Limestone.....	96.95
12- 8	O. V. Singleton, Dadeville.....	Limestone 1.....	102.99
12- 9	O. V. Singleton, Dadeville.....	Limestone 2.....	103.40
12- 10	O. V. Singleton, Dadeville.....	Limestone 3.....	98.26
12- 11	C. W. Vetter, Perryville.....	Limestone 61.....	95.01
12- 12	C. W. Vetter, Perryville.....	Limestone 62.....	92.70
12- 13	C. W. Vetter, Perryville.....	Limestone 63.....	94.38
12- 14	C. W. Vetter, Perryville.....	Limestone 64.....	88.03
12- 15	C. W. Vetter, Perryville.....	Limestone 65.....	85.93
12- 16	C. W. Vetter, Perryville.....	Limestone 66.....	96.22
12- 17	L. L. Hunt, Mt. Vernon.....	Limestone, oolitic.....	96.58
12- 19	D. R. Forrester, Chillicothe.....	Limestone.....	97.16
12- 20	W. Leiber, Gerster.....	Limestone.....	97.74

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

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total	Available	Insoluble	
		Per Cent	Per Cent	Per Cent	
<b>American Agricultural Chemical Co., St. Louis, Missouri</b>					
<b>"A. A. C." Brands</b>					
20% Phosphate.....			20.00	0.50	
Potash Fertilizer.....			10.00	0.50	10.00
Muck Soil Special.....	0.82		8.00	0.50	15.00
Big Boll Fertilizer.....	1.65		12.00	0.50	2.00
Wheat & Clover Grower.....	1.65		16.00	0.50	2.00
Truck Fertilizer.....	2.47		8.00	0.50	6.00
Fruit & Grass Fertilizer.....	7.40		7.00	0.50	3.00
Bone Meal.....	1.65	27.00			
Pure Raw Bone.....	3.29	20.00			
Nitrate of Soda.....	15.00				
Sulphate of Ammonia.....	20.00				
Muriate of Potash.....					50.00
Half and Half Bone and Phosphate.....	0.82		12.00	8.00*	
<b>"Boarshead" Brands</b>					
16% Phosphate.....			16.00	0.50	
Grain Grower.....			12.00	0.50	4.00
Harvest King.....	0.82		8.00	0.50	3.00
Ammoniated Bone & Potash.....	0.82		12.00	0.50	1.00
World of Good Fertilizer.....	1.65		8.00	0.50	2.00
World of Good Corn & Wheat Grower.....	1.65		12.00	0.50	2.00
Sandy Soil Crop Grower.....	1.65		8.00	0.50	5.00
<b>"Empire" Brands</b>					
16% Phosphate.....			16.00	0.50	
Phosphate & Potash.....			12.00	0.50	4.00
Crop Grower.....	0.82		8.00	0.50	3.00
Farmers Favorite.....	0.82		12.00	0.50	1.00
Bone Black Fertilizer.....	1.65		8.00	0.50	2.00
Middle West Grain Grower.....	1.65		12.00	0.50	2.00
Potato Fertilizer.....	1.65		8.00	0.50	5.00
<b>"Horseshoe" Brands</b>					
Economy Phosphate.....			16.00	0.50	
Grain Maker.....			12.00	0.50	4.00
Animal Bone, Manure & Potash.....	0.82		8.00	0.50	3.00
Acidulated Bone & Potash.....	0.82		12.00	0.50	1.00
National Bone Dust.....	1.65		8.00	0.50	2.00
Pioneer Grain Grower.....	1.65		12.00	0.50	2.00
Vegetable Grower.....	1.65		8.00	0.50	5.00
<b>Arkansas Fertilizer Co., Little Rock, Arkansas</b>					
<b>White Diamond Brands</b>					
Acid Phosphate.....			16.00		
Blood, Bone and Potash.....	2.00		12.00		1.50
Early Harvest.....	1.65		12.00		2.00
Ammoniated Bone Superphosphate.....	1.65		9.00		2.00
Corn Grower, without Potash.....	1.65		11.00		

\*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	
		Per Cent	Per Cent	Per Cent	
Blood and Bone Fertilizer.....	1.50		11.00		1.50
Queen of the South.....	1.65		12.00		
Southwest Wheat Grower.....	0.82		15.00		1.00
20th Century.....	1.65		9.00		2.00
Gro-Fast Fertilizer.....	1.65		8.00		2.00
Kali Superphosphate.....			11.00		3.00
Economy.....	0.82		10.00		2.00
Number 39.....	0.82		10.00		1.00
New South.....	1.65		10.00		
Commonwealth Wheat Grower.....	0.82		8.00		1.00
Commonwealth Corn Grower.....	0.82		8.00		2.00
Superphosphate with Potash.....			10.00		2.00
Superphosphate with Ammonia.....	0.82		12.00		
Special Wheat Grower "B".....	1.00		7.00		1.00
Pure Raw Bone Meal.....	3.70	23.00			
Bone Phospo Mixture.....	1.65	20.00	12.00	8.00*	
Raw Bone and Potash.....	2.47	18.00			2.00
Muriate of Potash.....					50.00
Kainit.....					14.00
Kainit.....					12.50
Nitrate of Soda.....	15.50				
Sulphate of Ammonia.....	20.56				
Southern Queen.....	1.65		10.00		2.00
<b>The Armour Fertilizer Works, Chicago, Illinois</b>					
<b>Big Crop Brands</b>					
2-12-2 Fertilizer.....	1.65		12.00	0.50	2.00
2-16-2 Fertilizer.....	1.65		16.00	0.50	2.00
2-12-6 Fertilizer.....	1.65		12.00	0.50	6.00
3-8-6 Fertilizer.....	2.47		8.00	0.50	6.00
4-12-0 Fertilizer.....	3.30		12.00	0.50	
0-14-4 Fertilizer.....			14.00	0.50	4.00
16% Acid Phosphate.....			16.00	0.50	
20% Superphosphate.....			20.00	0.50	
Bone Meal.....	2.47	24.00			
Half Bone Meal & Half Acid Phosphate.....	1.24	20.00	11.00	9.00*	
Bone Meal and Acid Phosphate.....	0.82	20.00	11.00	9.00*	
Raw Bone Meal.....	3.70	22.00			
Nitrate of Soda.....	14.85				
4-16-4 Fertilizer.....	3.30		16.00	0.50	4.00
<b>Armour Brands</b>					
Special Lawn & Garden Fertilizer.....	2.47		12.00	0.50	4.00
1-12-1 Fertilizer.....	0.82		12.00	0.50	1.00
Grain Grower.....	1.65		8.00	0.50	2.00
<b>Tuscarora Brands</b>					
2-12-2 Fertilizer.....	1.65		12.00	0.50	2.00
2-16-2 Fertilizer.....	1.65		16.00	0.50	2.00
2-12-6 Fertilizer.....	1.65		12.00	0.50	6.00

\*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	Avail-able	Insolu-ble	
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
3-8-6 Fertilizer.....	2.47		8.00	0.50	6.00
4-12-0 Fertilizer.....	3.30		12.00	0.50	
0-14-4 Fertilizer.....			14.00	0.50	4.00
16% Acid Phosphate.....			16.00	0.50	
20% Superphosphate.....			20.00	0.50	
Bone Meal.....	2.47	24.00			
Half Bone Meal & Half Acid Phosphate.....	1.24	20.00	11.00	9.00*	
Bone Meal & Acid Phosphate.....	0.82	20.00	11.00	9.00*	
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
4-16-4 Fertilizer.....	3.30		16.00	0.50	4.00
<b>Ash Grove Lime &amp; Portland Cement Co., Kansas City, Missouri "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>					
Accadian Sulphate of Ammonia.....	20.75				
<b>Blood &amp; Bone Fertilizer Co., St. Louis, Missouri 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 Grade).....	1.03		8.00	1.00	1.00
Special Crop Grower (High).....	1.64		8.00	1.00	2.00
Ammoniated Bone Phosphate (High Grade).....	1.64		12.00	1.00	0.00
Ammoniated Bone Phosphate (Medium Grade).....	1.03		10.00	1.00	0.00
Special Corn Grower (High).....	2.06		8.00	1.00	3.00
Special Corn Grower (Medium).....	1.65		8.00	1.00	2.00
Special Oat Grower (High Grade).....	1.65		8.00	1.00	2.00
Special Oat Grower (Medium Grade).....	1.03		7.00	1.00	1.00
Missouri Special Fertilizer.....	1.65		12.00		2.00
Twelve-Four Fertilizer.....			12.00		4.00
Soluble Bone Phosphate.....			16.00		
Soluble Bone Phosphate.....			18.00		
Soluble Bone Phosphate.....			20.00		

\*From Bone

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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	
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
<b>Bone Base Fertilizer Corporation, Pierce City, Missouri</b>					
<b>Radio Active Brands</b>					
High Grade Truck Grower.....	0.91		16.00	1.00*	3.00
High Grade Corn & Cotton Grower.....	2.00		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.....	0.82		15.00	1.00*	2.50
<b>Bone Products Company, Washington, Missouri</b>					
Raw Bone Meal.....	3.52	26.41			
<b>Calumet Fertilizer Co., New Albany, Ind.</b>					
<b>Calumet Brands</b>					
High Grade Tobc. & Tr. Gr.....	2.47	11.00	10.00	1.00	4.00
Two Twelve Six.....	1.65	13.00	12.00	1.00	6.00
Two Twelve Two.....	1.65	13.00	12.00	1.00	2.00
Otto Voyles Two in One.....	1.65	17.00	16.00	1.00	2.00
Two Eight Two.....	1.65	9.00	8.00	1.00	2.00
Potato & Tobacco Special.....	1.65	9.00	8.00	1.00	5.00
Onion & Tobacco Grower.....	0.82	9.00	8.00	1.00	3.00
Crop Grower.....	0.82	9.00	8.00	1.00	1.00
Twelve Twelve.....		13.00	12.00	1.00	12.00
Ten Ten Hummer.....		11.00	10.00	1.00	10.00
Fifteen Seven & One-half.....		16.00	15.00	1.00	7.50
Half & Half.....	2.06	12.00	6.00	6.00	1.00
Acid Phosphate 16%.....		17.00	16.00	1.00	
Acid Phosphate 20%.....		21.00	20.00	1.00	
Raw Bone Meal.....	3.70	20.00			
Special Pure Bone Meal.....	0.82	30.00			
<b>The Cudahy Packing Co., Chicago, Illinois</b>					
<b>Bigwin Brands</b>					
Steamed Bone Meal.....	2.47	24.00			
Half & Half 1½ and 13.....	1.23	20.00	13.00	7.00*	
High Grade 16% Acid Phosphate.....			16.00		
High Grade 18% 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% Acid Phosphate.....			20.00		
High Grade Fertilizer 2-12-0.....	1.65		12.00		
Raw Bone Meal.....	3.70	22.00			

\*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	
		Per Cent	Per Cent	Per Cent	
Nitrate of Soda .....	15.00				
Muriate of Potash .....					58.00
<b>Darling &amp; Company, Union Stock Yards, Chicago, Illinois 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
Sure Winner .....	0.82		10.00	2.00	4.00
Grain Grower .....	0.82		12.00	2.00	1.00
Fourteen Four .....			14.00	0.50	4.00
16% Acid Phosphate .....			16.00	0.50	
20% Acid Phosphate .....			20.00	0.50	
Bone and Acid Phosphate Half & Half .....	0.82		11.00	12.00*	
Pure Ground Bone .....	1.85	28.00			
Pulverized Sheep Manure .....	1.85		1.00		1.00
Blood & Bone .....	4.94	12.00			
Nitrate of Soda .....	14.82				
Kempfert Potash .....					58.00
Special Lawn Grower .....	4.11		8.00	2.00	7.00
Tomato Grower .....	1.65		12.00	2.00	2.00
<b>Earp-Thomas Cultures Corporation, Long Island City, N. Y.</b>					
Stumplant Tablets .....	11.00		11.71	0.36	15.00
<b>The Empire Guano Company Nashville, Tennessee</b>					
Red Banner 20% Acid Phosphate .....		22.00	20.00	2.00	
Premium Acid Phosphate .....		19.00	18.00	1.00	
Climax Acid Phosphate .....		18.00	16.00	2.00	
Wheat, Oat & Corn Grower .....	0.82	16.00	8.00	8.00	1.00
Blood, Bone & Potash .....	1.65	13.00	8.00	5.00	2.00
Missouri Premium Guano .....	0.41	12.00	8.00	4.00	4.00
Missouri Grain Grower .....	0.82	15.00	12.00	3.00	1.00
Premium Grain Grower .....	1.65	15.00	12.00	3.00	2.00
Climax Cotton Grower .....	1.65	15.00	12.00	3.00	2.00
Premium 2-16-2 .....	1.65	18.00	16.00	2.00	2.00
Bone Meal & Phosphate .....	1.85	20.00	12.00	8.00	
Raw Bone Meal .....	3.70	20.00			
Bone Meal .....	2.47	24.00			
High Grade Potash Phosphate .....		12.00	10.00	2.00	4.00
<b>The Excell Laboratories, Chicago, Illinois</b>					
Zenkes, NEW PLANT LIFE (Domestic Strength) ..	1.40	1.10	1.07	0.02	0.54
Zenkes NEW PLANT LIFE (Full Strength) .....	2.80	2.20	2.14	0.05	1.08

\*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	
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
<b>The Flower City Plant Food Co., Inc.</b>					
Rochester, New York					
Walker's Excelsior Plant Food.....	5.00		7.00		3.00
Japanese Fern and Palm Food.....	5.00		6.00		1.00
Fairy Brand Plant Food Manufactured for Archias Seed Store Corp., Sedalia, Mo.....	3.00		7.00		2.00
<b>Floyd Plant Food Co.,</b>					
St. Louis, Missouri					
F. P. F. Brands					
2-16-2.....	1.67	16.25	16.00	0.25	2.00
2-12-4.....	1.67	12.25	12.00	0.25	4.00
3-12-3.....	2.51	12.25	12.00	0.25	3.00
4-8-6.....	3.30	8.15	8.00	0.15	6.00
2-12-2.....	1.67	12.25	12.00	0.25	2.00
1-12-1.....	0.83	12.25	12.00	0.25	1.00
1-10-1.....	0.83	10.25	10.00	0.25	1.00
2-8-2.....	1.67	8.15	8.00	0.15	2.00
4-6-2 ("Common Sense" brand).....	3.30	6.15	6.00	0.15	2.00
2-12-0.....	1.67	12.25	12.00	0.25	
0-10-10.....		10.25	10.00	0.25	10.00
0-12-6.....		12.25	12.00	0.25	6.00
0-14-4.....		14.25	14.00	0.25	4.00
0-14-2.....		14.25	14.00	0.25	2.00
0-10-5.....		10.25	10.00	0.25	5.00
20% Acid Phosphate.....		20.10	20.00	0.10	
18% Acid Phosphate.....		18.40	18.00	0.40	
16% Acid Phosphate.....		16.30	16.00	0.30	
Half & Half (½ 18% Acid Phosphate (½ Ground) Raw Bone.....	1.67	22.00	13.00	9.00*	
Ground Steam Bone (1 & 30).....	0.84	30.00			
Steam Bone Meal (3 & 24).....	2.51	24.00			
Ground Raw Bone.....	3.28	22.00			
Ammonia, Bone, Phosphate & Potash.....	0.83	20.00	11.50	8.50	4.00
Garden Fertilizer (4-4-1).....	3.30	4.10	4.00	0.10	1.00
Nitrated-Gypsum (for lawns).....	2.51				
<b>Ford Motor Co.,</b>					
Detroit, Michigan					
Ford Ammonium Sulphate.....	20.80				
<b>Leonard Haefele,</b>					
825 Tesson St.,					
St. Louis, Mo.					
Star Brand					
Ground Steamed Bone.....	3.10	17.70			
<b>Interstate Fertilizer Co.,</b>					
Webb City, Missouri					
Interstate Brands					
Grain Special 2-10-2.....(1)	1.65		10.00	1.50	2.00
Jaspér Co., Special 2-8-2.....(2)	1.65		8.00	1.25	2.00

\*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	
		Per Cent	Per Cent	Per Cent	
2-12-2.....(3)	1.65		12.00	1.50	2.00
1-8-1.....(4)	0.82		8.00	1.25	1.00
1-12-1.....(5)	0.82		12.00	1.50	1.00
Sheep Manure & Phos. 1-12-2.....(6)	0.82		12.00	1.50	2.00
Steam Bone, Sheep Manure and Potash.....(7)	1.65		6.00	8.00*	2.00
Half Bone Meal & Half Acid Phosphate.....(8)	1.23		12.00	8.00*	0.00
Steam Bone Meal 3-24.....(11)	2.46	24.00			0.00
Acid Phosphate.....(12)			16.00		0.00
2-12-4.....(13)	1.65		12.00	1.50	4.00
Raw Bone Meal 4 1/2-22.....(14)	3.69	22.00			
2-8-5.....(15)	1.65		8.00	1.25	5.00
1-16-2.....(16)	0.82		16.00	1.50	2.00
Sheep Manure Mixture 1-9-1.....(19)	0.82		9.00	1.25	1.00
1/2-15-2.....(20)	0.41		15.00	1.50	2.00
Acid Phosphate with Sheep Manure filler 0-16-0 (22)			16.00		
1-12-4.....(25)	0.82		12.00	1.50	4.00
1-16-1.....(26)	0.82		16.00	1.50	1.00
Potato Special 2-8-10.....(28)	1.65		8.00	1.25	10.00
2-16-2.....(40)	1.65		16.00	1.50	2.00
2-10-4.....(41)	1.65		10.00	1.50	4.00
Lawn Special 4-6-2.....(42)	3.30		6.00	0.75	2.00
<b>Jacksonville Reduction Company</b>					
<b>Jacksonville, Illinois</b>					
Fertilizer (Bone Meal).....	3.73	18.00			
<b>F. Klein,</b>					
<b>105 Elm Ave.,</b>					
<b>Kirkwood, Mo.</b>					
G-N Brand.....	0.40		.005		
Garden Brand.....	2.48		.004		1.00
<b>Mt. Pleasant Fertilizer Co., Inc.,</b>					
<b>Shreveport, La.</b>					
<b>Mt. Pleasant Brands</b>					
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		0.10
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% Superphosphate.....			20.00		
16% Superphosphate.....			16.00		

\*From bone.

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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	
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Steamed Bone Meal.....	2.50	22.00			
Raw Bone Meal.....	3.70	20.00			
Bone Meal & Phosphate.....	1.23	20.00	11.00	9.00*	
<b>Natural Guano Company, Aurora, Illinois</b>					
<b>Sheep's Head Brand</b>					
Pulverized Sheep Manure.....	2.25		1.00	0.25	2.00
<b>Nitrate Agencies Co., New Orleans, Louisiana</b>					
Nitrate of Soda.....	15.00				
<b>Oyama Products Company, Newburgh, New York</b>					
Oyama Plant Food.....	17.00		17.35		24.52
<b>The Phosphated Manure Company, Kansas City, Missouri</b>					
<b>Wizard Brand</b>					
Phosphated Manure.....	0.82		9.00		1.00
<b>Prosperity Laboratories, 16th &amp; Charlottes Sts., North Kansas City, Missouri</b>					
Prosperity Lawn Food.....	7.40		7.00	0.50	3.00
Prosperity Shrub Food.....	6.00		6.00	0.50	2.00
Prosperity Sod Food.....	2.40		13.00	0.50	1.00
Prosperity Potted Plant Food.....	2.40		6.00	0.50	2.00
<b>The Pulverized Manure Company, Chicago, Illinois</b>					
<b>Wizard Brand</b>					
Cattle Manure.....	1.80		1.00		1.00
Sheep Manure.....	2.00		1.25		2.00
<b>Read Phosphate Company, Nashville, Tennessee</b>					
Red Diamond Acid Phosphate.....		18.00	16.00	2.00	
High Grade Premium Acid Phosphate.....		19.00	18.00	1.00	
Red Diamond 20% Acid Phosphate.....		22.00	20.00	2.00	
High Grade Potash Mixture.....		12.00	10.00	2.00	4.00
Corn, Wheat & Oat Grower.....	0.82	16.00	8.00	8.00	1.00
Blood & Bone No. 1.....	1.65	13.00	8.00	5.00	2.00
Missouri Special.....	0.41	12.00	8.00	4.00	4.00
Missouri Grain Special.....	0.82	15.00	12.00	3.00	1.00
Premium Grain Grower.....	1.65	15.00	12.00	3.00	2.00
Red Diamond 2-16-2.....	1.65	18.00	16.00	2.00	2.00
Raw Bone Meal.....	3.70	20.00			
Half & Half.....	1.85	20.00	12.00	8.00	
Bone Meal.....	2.47	24.00			
Quick Cotton Grower.....	1.65	15.00	12.00	3.00	2.00

\*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	
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
High Grade Bone & Potash .....	----	14.00	12.00	2.00	2.00
Red Diamond Potash Mixture.....	----	16.00	15.00	1.00	5.00
<b>C. F. Shumaker Fertilizer Co., St. Louis, Missouri</b>					
Special Lawn and Floral Food.....	2.00	-----	4.00	-----	3.00
Ground Burley Tobacco-Stems.....	2.00	-----	-----	-----	7.00
Reenforced Sheep Manure.....	2.00	-----	4.50	-----	3.50
<b>Swift &amp; Co., Fertilizer Works, St. Louis, Missouri Swift's Brands</b>					
Red Steer 0-12-4 .....	-----	-----	12.00	-----	4.00
Pulverized Manure .....	1.65	2.00	1.00	1.00	2.00
Bone Meal & Phosphate Fertilizer.....	0.82	20.00	15.00	5.00*	-----
High Grade Acid Phosphate Fertilizer.....	-----	-----	16.00	-----	-----
Red Steer 20% Acid Phosphate Fertilizer.....	-----	-----	20.00	-----	-----
4 1/4-23 Raw Bone Meal Fertilizer.....	3.70	23.00	-----	-----	-----
3-24 Bone Meal Fertilizer.....	2.47	24.00	-----	-----	-----
2 3/4-29 Bone Meal Fertilizer.....	1.85	29.00	-----	-----	-----
2 3/4-27 Bone Meal Fertilizer.....	1.85	27.00	-----	-----	-----
1 3/4-30 Bone Meal Fertilizer.....	1.03	30.00	-----	-----	-----
1 3/4-29 Bone Meal Fertilizer.....	1.03	29.00	-----	-----	-----
Sulphate of Ammonia.....	20.75	-----	-----	-----	-----
Nitrate of Soda .....	14.76	-----	-----	-----	-----
Kempfert Potash Salts.....	-----	-----	-----	-----	58.00
Champion Wheat & Corn Grower.....	1.65	13.00	12.00	1.00	2.00
Red Steer 2-12-2 .....	1.65	13.00	12.00	1.00	2.00
Special Grain Grower.....	1.65	11.00	10.00	1.00	2.00
Red Steer 2-10-2 .....	1.65	11.00	10.00	1.00	2.00
Diamond "K" Grain Grower.....	0.82	12.50	12.00	0.50	1.00
Diamond "A" Fertilizer.....	2.47	9.00	8.00	1.00	3.00
Red Steer 3-8-6 .....	2.47	9.00	8.00	1.00	6.00
Red Steer 3-12-4 .....	2.47	13.00	12.00	1.00	4.00
Red Steer 2-12-6 .....	1.65	13.00	12.00	1.00	6.00
Red Steer 1-12-4 .....	0.82	12.50	12.00	0.50	4.00
Red Steer 2-16-2 .....	1.65	17.00	16.00	1.00	2.00
Red Steer 4-12-0.....	3.29	13.00	12.00	1.00	-----
Blood & Phosphate Fertilizer.....	1.65	13.00	12.00	1.00	-----
Red Steer 0-14-4 .....	-----	-----	14.00	-----	4.00
Vigora .....	3.29	-----	12.00	-----	4.00
<b>The Tennessee Chemical Co., Chicago, Illinois "Ox" Brands</b>					
2-12-2 Fertilizer.....	1.65	-----	12.00	0.50	2.00
2-16-2 Fertilizer.....	1.65	-----	16.00	0.50	2.00
2-12-6 Fertilizer.....	1.65	-----	12.00	0.50	6.00
3-8-6 Fertilizer.....	2.47	-----	8.00	0.50	6.00
4-12-0 Fertilizer.....	3.30	-----	12.00	0.50	-----
0-14-4 Fertilizer.....	-----	-----	14.00	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	Avail-able	Insol-uble	
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
16% Acid Phosphate.....			16.00	0.50	-----
20% Superphosphate.....			20.00	0.50	-----
Bone Meal.....	2.47	24.00	-----	-----	-----
Half Bone Meal & Half Acid Phosphate.....	1.24	20.00	11.00	9.00*	-----
Bone Meal & Acid Phosphate.....	0.82	20.00	11.00	9.00*	-----
Raw Bone Meal.....	3.70	22.00	-----	-----	-----
1-12-1 Fertilizer.....	0.82	-----	12.00	0.50	1.00
Standard.....	1.65	-----	8.00	0.50	2.00
4-16-4 Fertilizer.....	3.30	-----	16.00	0.50	4.00
<b>Toyah Valley Sulphur Co.,</b>					
<b>New Orleans, Louisiana</b>					
Toyah Valley Agricultural Sulphur Compound sold under the trade name of "TOVASCO".					
GUARANTEED ANALYSIS					
Free (Elemental) Sulphur.....	5.00%				
Sulphur Trioxide (in Calcium Sulphate).....	20.00%				
Available Phosphoric Acid.....	None Guaranteed				
Nitrogen.....	None Guaranteed				
Potash.....	None Guaranteed				
<b>United States Gypsum Co.,</b>					
<b>Wilmington, Delaware</b>					
"Ben Franklin Agricultural Gypsum" (Land Plaster)					
This product consists of gypsum, which contains the following:					
Ca SO <sub>4</sub> 2H <sub>2</sub> O.....	93.16%				
Ca CO <sub>3</sub> .....	2.54%				
Mg CO <sub>3</sub> .....	70%				
<b>Virginia-Carolina Chemical Co.,</b>					
<b>Shreveport, Louisiana</b>					
V-C Plant Food for Vegetables, Lawns and 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

\*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	
		Per Cent	Per Cent	Per Cent	
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% Superphosphate.....			20.00		
V-C 18% Superphosphate.....			18.00		
V-C 16% Superphosphate.....			16.00		
Victor 16% Superphosphate.....			16.00		
Victor 14% Acid Phosphate.....			14.00		
Muriate of Potash.....					48.00
Genuine Imported Kainit.....					12.40
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	20.00	11.00	9.00*	
V-C Nitrate of Soda.....	14.81				
V-C Ground Tobacco Stems.....	1.65				6.00
<b>Wessel, Duval &amp; Co.,</b>					
25 Broad Street,					
New York, N. Y.					
Nitrate of Soda.....	14.87				
Nitrate of Soda containing Potash.....	12.00				5.00
<b>Wilson &amp; Company</b>					
New Albany, Ind.					
Red "W" Brands					
Three Ten Four.....	2.47	11.00	10.00	1.00	4.00
Two Twelve Six.....	1.65	13.00	12.00	1.00	6.00
Two Twelve Two.....	1.65	13.00	12.00	1.00	2.00
Two in One.....	1.65	17.00	16.00	1.00	2.00
Corn & Wheat Special.....	1.65	9.00	8.00	1.00	2.00
Two Eight Five.....	1.65	9.00	8.00	1.00	5.00
One Eight Three.....	0.82	9.00	8.00	1.00	3.00
Special Grain Fertilizer.....	0.82	9.00	8.00	1.00	1.00
Twelve Twelve.....		13.00	12.00	1.00	12.00
Ten Ten Hummer.....		11.00	10.00	1.00	10.00
Fifteen Seven & One Half.....		16.00	15.00	1.00	7.50
Half & Half.....	2.06	12.00	6.00	6.00	1.00
Acid Phosphate 16%.....		17.00	16.00	1.00	
Acid Phosphate 20%.....		21.00	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 1924			Fertilizers classified for 1924					Misc.
	Spring	Fall	Total	Bone	Acid Phosphate	Mixed Fertilizer			
						High <sup>1</sup> grade	Med. <sup>2</sup> grade	Low <sup>3</sup> grade	
Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Adair.....	1	50	51	---	32	11	8	---	---
Andrew.....	0	0	0	---	---	---	---	---	---
Atchison.....	4	---	4	---	---	---	---	---	4
Audrain.....	140	800	940	168	436	285	45	6	---
Barry.....	371	294	665	162	87	351	58	2	5
Barton.....	105	815	920	277	368	255	---	---	20
Bates.....	2	163	165	23	106	36	---	---	---
Benton.....	40	285	325	91	68	70	64	27	5
Bollinger.....	97	58	155	17	31	89	10	8	---
Boone.....	38	272	310	23	263	21	---	---	3
Buchanan.....	38	62	100	32	35	32	---	---	1
Butler.....	34	---	34	---	30	4	---	---	---
Caldwell.....	15	62	77	23	47	7	---	---	---
Callaway.....	50	410	460	121	241	92	4	2	---
Camden.....	20	---	20	---	3	17	---	---	---
Cape Girardeau.....	49	106	155	13	81	56	---	3	2
Carroll.....	---	102	102	6	70	26	---	---	---
Carter.....	30	15	45	13	---	27	---	5	---
Cass.....	31	129	160	9	120	16	15	---	---
Cedar.....	45	153	198	19	160	5	14	---	---
Chariton.....	17	227	244	14	199	31	---	---	---
Christian.....	244	385	629	49	346	202	28	4	---
Clark.....	---	3	3	---	3	---	---	---	---
Clay.....	2	26	28	23	2	3	---	---	---
Clinton.....	75	15	90	23	67	---	---	---	---
Cole.....	17	616	633	35	480	111	5	1	1
Cooper.....	28	394	422	27	170	225	---	---	---
Crawford.....	41	123	164	25	114	24	---	1	---
Dade.....	15	383	398	97	106	187	8	---	---
Dallas.....	0	0	0	---	---	---	---	---	---
Daviess.....	1	56	57	---	55	2	---	---	---
DeKalb.....	30	30	60	---	59	1	---	---	---
Dent.....	31	65	96	11	52	33	---	---	---
Douglas.....	160	---	160	---	17	143	---	---	---
Dunklin.....	257	17	274	33	35	205	---	---	1
Franklin.....	60	868	928	89	440	367	8	24	---
Gasconade.....	33	449	482	39	290	93	26	34	---
Gentry.....	---	22	22	---	16	---	---	---	6
Greene.....	264	491	755	94	280	369	11	---	1
Grundy.....	16	27	43	11	31	---	---	---	1
Harrison.....	---	109	109	---	62	47	---	---	---
Henry.....	20	187	207	12	114	70	11	---	---
Hickory.....	16	111	127	11	71	33	12	---	---
Holt.....	0	0	0	---	---	---	---	---	---
Howard.....	25	45	70	---	48	12	---	---	10
Howell.....	585	257	842	32	294	430	72	13	1
Iron.....	---	21	21	2	---	19	---	---	---
Jackson.....	165	214	379	48	284	38	9	---	---
Jasper.....	124	1519	1643	291	625	538	30	5	154

<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 1924			Fertilizers classified for 1924					Misc.
	Spring	Fall	Total	Bone	Acid Phosphate	Mixed Fertilizer			
						High grade	Med. grade	Low grade	
Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	
Jefferson.....	17	79	96	10	66	20	---	---	---
Johnson.....	51	150	201	8	125	68	---	---	---
Knox.....	1	175	176	64	94	18	---	---	---
Laclede.....	290	341	631	16	254	195	166	---	---
Lafayette.....	---	22	22	---	22	---	---	---	---
Lawrence.....	391	792	1183	215	654	264	50	---	---
Lewis.....	19	640	659	118	407	122	12	---	---
Lincoln.....	318	1161	1479	108	600	554	200	17	---
Linn.....	131	21	152	---	135	1	16	---	---
Livingston.....	1	60	61	---	59	2	---	---	---
McDonald.....	30	49	79	1	75	---	3	---	---
Macon.....	1	312	313	30	69	174	40	---	---
Madison.....	82	164	246	41	136	64	---	5	---
Maries.....	---	64	64	16	17	31	---	---	---
Marion.....	2	646	648	27	550	47	21	2	1
Mercer.....	0	0	0	---	---	---	---	---	---
Miller.....	15	511	526	111	279	63	69	4	---
Mississippi.....	362	---	362	---	260	74	28	---	---
Moniteau.....	16	653	669	190	248	211	18	2	---
Monroe.....	---	521	521	183	283	39	---	16	---
Montgomery.....	142	714	856	119	420	196	121	---	---
Morgan.....	19	597	616	102	233	249	32	---	---
New Madrid.....	138	---	138	---	123	15	---	---	---
Newton.....	199	646	845	94	510	234	5	2	---
Nodaway.....	1	18	19	---	19	---	---	---	---
Oregon.....	35	57	92	---	33	59	---	---	---
Osage.....	20	320	340	25	205	84	16	10	---
Ozark.....	10	---	10	---	---	10	---	---	---
Pemiscot.....	40	---	40	---	30	10	---	---	---
Perry.....	30	103	133	1	56	64	12	---	---
Pettis.....	14	273	287	47	178	58	4	---	---
Phelps.....	93	282	375	66	231	73	5	---	---
Pike.....	268	803	1071	131	528	279	81	47	5
Platte.....	---	33	33	32	---	1	---	---	---
Polk.....	182	433	615	47	277	194	31	35	31
Pulaski.....	84	171	255	27	67	142	19	---	---
Putnam.....	20	---	20	---	5	15	---	---	---
Ralls.....	16	377	393	55	236	87	6	9	---
Randolph.....	35	116	151	12	67	72	---	---	---
Ray.....	35	15	50	1	20	29	---	---	---
Reynolds.....	2	---	2	---	---	---	---	---	2
Ripley.....	474	30	504	1	230	272	---	1	---
St. Charles.....	57	716	773	38	539	178	12	6	---
St. Clair.....	18	99	117	4	48	60	---	---	5
St. Francois.....	150	345	495	73	232	177	6	5	2
Ste. Genevieve.....	---	32	32	---	27	3	---	2	---
St. Louis.....	192	50	242	21	53	80	2	7	79
Saline.....	---	79	79	---	79	---	---	---	---
Schuyler.....	8	94	102	15	27	60	---	---	---

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 1924			Fertilizers classified for 1924					Misc. Tons
	Spring	Fall	Total	Bone Tons	Acid Phos- phate Tons	Mixed Fertilizer			
						High grade Tons	Med. grade Tons	Low grade Tons	
Scotland.....	3	5	8	---	3	5	---	---	---
Scott.....	510	---	510	---	410	70	6	---	24
Shannon.....	15	---	15	---	7	8	---	---	---
Shelby.....	35	766	801	239	343	219	---	---	---
Stoddard.....	71	1	72	---	71	---	1	---	---
Stone.....	243	5	248	---	12	236	---	---	---
Sullivan.....	59	58	117	6	67	44	---	---	---
Taney.....	30	---	30	---	---	30	---	---	---
Texas.....	154	252	406	46	311	49	---	---	---
Vernon.....	27	155	182	45	79	58	---	---	---
Warren.....	84	553	637	96	293	173	55	5	15
Washington.....	50	106	156	21	35	55	26	19	---
Wayne.....	48	43	91	3	55	30	---	3	---
Webster.....	836	295	1131	15	286	675	122	---	33
Worth.....	15	14	20	---	29	---	---	---	---
Wright.....	402	85	487	43	150	294	---	---	---
Totals for Spring..	9927	---	---	353	4102	4540	603	145	184
Totals for Fall.....	---	25538	---	4173	13293	6637	1020	187	228
Totals for 1924 ..	---	---	35465	4526	17395	11177	1623	332	412

TABLE 9.—TONNAGE OF THE PLANT FOOD CONSTITUENTS SOLD IN MISSOURI 1924 (approximate)

Kinds of Fertilizer	Fertilizer* tonnage	Nitrogen	Plant Food Tonnage		
			Phosphoric acid from bone P <sub>2</sub> O <sub>5</sub>	Available phosphoric acid P <sub>2</sub> O <sub>5</sub>	Potash K <sub>2</sub> O
			Tons	Tons	Tons
Bone.....	4664.36	95.37	1216.26	---	---
Half and Half.....	2604.87	27.08	322.48	208.38	---
Acid Phosphate.....	17756.96	---	---	2924.59	---
High Grade Mixed.....	8588.15	131.87	1.16	1048.59	210.58
Medium Grade Mixed.....	1785.28	24.28	---	145.78	30.47
Low Grade Mixed.....	692.87	5.70	---	55.31	6.93
Nitrate and Ammonium Sul- phate.....	55.05	8.47	---	---	---
Potash Salts.....	247.58	---	---	---	6.33
Dried Manure.....	73.04	1.45	---	.90	1.43
Total.....	36468.16	292.22	1539.90	4383.55	255.74

\*Contains additional tonnage to that in table 8.



**Financial Statement**  
**FERTILIZER CONTROL FUND**  
of the  
**MISSOURI AGRICULTURAL EXPERIMENT STATION**

For the year ending December 31, 1924	Dr.	Cr.
<b>Receipts</b>		
Balance January 1, 1924 .....	\$ 8,084.19	
Receipts from sale of Tags 1924 .....	19,495.62	
Total Available .....	\$27,579.81	
<b>Expenditures</b>		
Salaries .....		\$ 6,742.33
Labor .....		1,631.81
Stationery & Office Supplies .....		325.17
Scientific Supplies, consumable .....		1,941.19
Feeding Stuffs .....		866.60
Sundry Supplies .....		993.79
Postage, Telegraph & Telephone .....		186.87
Travel Expenses .....		711.61
Freight & Express .....		251.69
Publications .....		6,170.58
Heat, Light, Water & Power .....		364.54
Furniture, Furnishings, & Fixtures .....		163.54
Library .....		274.82
Scientific Equipment .....		47.13
Live Stock .....		25.25
Tools, Machinery, & Appliances .....		262.23
Buildings & Land .....		634.34
Contingent Expenses .....		44.30
Total Expenditures .....		\$21,637.79
Balance cash on hand December 31, 1924....		\$ 5,942.02
	\$27,579.81	\$27,579.81