

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
BULLETIN 260

Testing Fertilizers for Missouri Farmers; 1927



Fertilized and unfertilized wheat. Wheat in the left yielded 27.16 bushels, on the right 15.37 bushels.

COLUMBIA, MISSOURI

APRIL, 1928

Agricultural Experiment Station

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TESTING FERTILIZERS FOR MISSOURI FARMERS; 1927

Report of the Chemist

L. D. HAIGH

The sale of fertilizer in the State of Missouri is regulated by State law, found in Article 12, Chapter 109, Revised Statutes 1919. Three requirements must be met by the company or individual responsible for placing the goods on sale in the State. They are:

1. Annual registration of each brand to be sold with the Missouri Agricultural Experiment Station, giving the name of the brand and the percentage of plant food it will contain.

2. Labels to be affixed to each container of fertilizer, either printed upon the sack or package or upon a tag attached to the same, giving the following information: (a) brand name, (b) name and address of the manufacturer, (c) guaranteed analysis of the fertilizer brand under which the fertilizer is sold.

3. Registration tags to be affixed to each sack or package of fertilizer. These are sold by the Agricultural Experiment Station to the manufacturer, who has registered as required above, so that the tags may be placed upon the package before leaving the factory.

The full text of the Missouri Fertilizer Law may be obtained by writing for Circular 152 to the Missouri Agricultural Experiment Station, Columbia, Missouri.

The law further authorizes the Missouri Agricultural Experiment Station to conduct inspection of the stocks of fertilizer sold in the State to see that the manufacturers have complied with the above requirements. Samples of the goods found on the market are drawn by the inspectors, according to the rules of the Association of Official Agricultural Chemists, and analyzed by the Department of Agricultural Chemistry of the Agricultural Experiment Station. The results of these analyses in comparison with the guarantees are given in this bulletin, also violations found by the inspectors in connection with the three requirements mentioned above.

INSPECTION

Distribution of fertilizer occurs in two seasons in Missouri, the spring season from February to May and the fall season in September and October. Inspections are conducted in both of these seasons and samples are obtained for analysis. The results of these two inspections are indicated below:

	In Spring	In Fall
Counties visited	10	54
Towns visited	12	138
Samples collected	57	496

A large number of the samples obtained were superphosphate (acid phosphate) and bone meal. Both of these materials yield a profitable return on Missouri soils which accounts for their wide use. Complete mixed fertilizers are most profitable on soils of low fertility and their use will therefore tend to increase with succeeding years.

As a result of the inspection of stocks of fertilizer during the calendar year 1927, violations in three classes were found.

VIOLETIONS OF THE MISSOURI FERTILIZER LAW

(1) **Violations With Respect to Registration.**—Twenty sacks of Big Crop 4-16-8 fertilizer, manufactured by the Armour Fertilizer Works, were sold to Raymond Brown, South Troy. This brand had not been registered for 1927 previous to its sale.

Package fertilizer, manufactured by Fernola Fertilizing Works, Minneapolis, Minn., were sold to the Thiemann Floral Company of Moberly, without the goods being registered for sale in 1927.

Steam Bone Meal formula 2-27, manufactured by the Floyd Plant Food Company for the Missouri Farmers' Association had been sold to the following dealers without registration: Lagrange Elevator Company, Lagrange; Farmers' Cooperative Association, Union; Farmers' Exchange, Jasper; Verona Farmers' Sales Association, Verona; Farmers' Exchange, Monett; and Produce Exchange, Versailles.

Blood Meal sold as a fertilizer by Swift & Co. Fertilizer Works to the St. Louis Seed Company had not been registered for sale by the manufacturer.

(2) **Violations With Respect to Labelling.**—Steam Bone Meal sold by the Crocker Packing Company, Joplin, to the Lipscomb Grain & Seed Company, Liberal, bore labels reading according to the Kansas State Law instead of the Missouri Law.

The Cudahy Packing Company sold 20% Acid Phosphate to the Farmers' Exchange, Gallatin, carrying labels worded in accordance with the Kansas State Law instead of the Missouri Law.

M. F. A. 3-8-6 fertilizer from the Floyd Plant Food Company factory to the Farmers' Exchange, St. James, bore such indistinct

labels that the guaranteed analysis on the sacks could not be read.

A shipment of Steam Bone Meal, also from Floyd Plant Food Company, was sold to the Center Elevator and Merchantile Company, Center. This shipment carried no labels whatever.

A lot of M. F. A. Bone and Phosphate mixture from the Floyd Plant Food Company was found at the Lohman Produce Company warehouse. The labels on the bags did not agree with the accepted brand name and guaranteed analysis as filed in the registration, the brand name being misleading and the guaranteed analysis being incomplete.

The labels on the sacks of fertilizer from the Federal Chemical Company were incomplete as all failed to give the percentage of nitrogen present in the fertilizer.

The Blood Meal fertilizer sold by Swift & Co. Fertilizer Works to the St. Louis Seed Company and a stock of 25-pound bags of 1 $\frac{1}{4}$ -29 Bone Meal Fertilizer at the same warehouse from the same manufacturer did not carry labels showing guaranteed analysis. Sacks of 1 $\frac{1}{4}$ -29 Bone Meal Fertilizer from Swift & Co. Fertilizer Works on hand at the warehouse of Whitlock Lines, Monett, carried poorly printed labels so that it was impossible to read parts of the guaranteed analysis. The brand, Bone Meal and Phosphate Fertilizer, put out by Swift & Co. Fertilizer Works, carried the brand name "Red Steer 1-20" which is misleading and does not agree with the registered name.

(3) Violations With Respect to the Use of Registration Tags.
—Armour's Lawn and Garden Grower had been supplied to the Farmers' Exchange, Rolla, in 10-pound packages. These individual packages did not carry the registration labels as required by law.

A lot of 20 sacks of 16% Acid Phosphate, sold to A. W. Poundstone, Oronogo, by Crocker Packing Company, did not carry registration tags.

Pure Ground Bone from Darling & Co., sold to Chas. Honold, Beaufort, and 30 sacks of Darling's 16% Acid Phosphate, 7 sacks of Darling's 20% Acid Phosphate and 60 sacks of Darling's 2-12-2, sold to Carthage Cash Mercantile Company, carried 1926 registration tags. All of these sales were made in 1927.

Packages of Fernola fertilizer sold to the Thiemann Floral Company by the Fernola Fertilizing Works did not carry the registration labels as required by law.

The Kaercher Seed Company of St. Louis offered for sale 10-

pound packages of Sheep Manure to which they had not affixed the registration labels according to the fertilizer law.

The Read Phosphate Company had sold, during the year 1927, to Elliott Hardware Company, Crocker, 100 sacks of Red Diamond Acid Phosphate and 60 sacks of Premium Grain Grower 2-12-2. All of these sacks carried the 1926 registration tags.

The following dealers were selling resacked fertilizers which did not carry the registration tags as required by law.

Leader Mill & Elevator Company, Wellsville
 Farmers Union Mercantile Company, Norborne
 John T. Millbank, Chillicothe
 Huntsville Elevator Company, Huntsville
 Roberts Bros., Cabool
 Farmers Produce & Grain Exchange, Chillicothe
 Farmers Elevator, Silex.

VIOLETIONS SUMMARIZED

The violations just indicated are summarized in Table 1. Each brand inspected represents three legal requirements, therefore the

TABLE 1.—SUMMARY OF VIOLATIONS EXPRESSED IN PERCENTAGE

Fertilizer company	Brands inspected	Total number requirements represented	Number violations found	Violation percentage
American Agricultural Chemical Company.....	112	336	0	0.0
Arkansas Fertilizer Company.....	5	15	0	0.0
Armour Fertilizer Works.....	48	144	2	1.4
Barrett Company.....	1	3	1	33.3
Blood & Bone Fertilizer Company....	8	24	0	0.0
Calumet Fertilizer Corporation....	4	12	0	0.0
Crocker Packing Company.....	17	51	2	39.2
Cudahy Packing Company.....	20	60	1	16.7
Darling & Company.....	33	99	4	4.0
Empire Guano Company.....	3	9	0	0.0
Federal Chemical Company.....	12	36	9	25.0
Fernola Fertilizing Works.....	1	3	2	66.7
Floyd Plant Food Company.....	110	330	9	2.7
Read Phosphate Company.....	21	63	2	3.2
Swift & Company Fertilizer Works..	116	348	5	1.4
Virginia-Carolina Chemical Corporation.....	20	60	0	0.0
Total or average.....	531	1593	37	2.3

total number of requirements to be fulfilled by each company is found by multiplying the number of brands inspected by three. The number of violations actually found in this company's goods is divided by this total to express the same in per cent.

IMPORTANT SUGGESTIONS TO HANDLERS OF FERTILIZER

Suggestions to Manufacturers:—Buyers of fertilizer are urged to buy only registered fertilizer. It is therefore important that every manufacturer file his registrations early, before January 1, in order that his registrations may appear in print in this report for the observation of prospective buyers.

It is often necessary for dealers to obtain new sacks from the manufacturer for the purpose of resacking stocks of fertilizer in the warehouse. Dealers should be cautioned to transfer the registration tags on the old sacks to the new sacks when this is done in order that they may be legally sold.

Suggestions to Dealers:—Place no order for fertilizer with any manufacturer, jobber, or supply house whose registration does not appear in Table 7 of this bulletin, without consulting the Missouri Agricultural Experiment Station, Columbia, for information.

Accept no shipment of fertilizer from any manufacturer, jobber, or other source unless each sack carries the registration tag of the Missouri Agricultural Experiment Station. The legal tags for sales made in 1928 are yellow and read as follows:

101 to 200 lbs.
Missouri Agricultural Experiment Station
Columbia, Missouri

Registered	F. B. Mumford
1928	Director

The above tags are used on sacks weighing more than 100 pounds. When fertilizer is shipped in bags weighing 100 pounds and less the legend at the top will read "1 to 100 lbs."

When fertilizer in the warehouse has to be placed in new sacks before selling, the registration tags on the old sacks must be transferred to the new sacks. New sacks labelled identically the same as the old sacks can be obtained for this purpose from the manufacturer.

Accept no shipment of fertilizer from any manufacturer, jobber or other supply house which does not carry complete labels showing brand name, guaranteed analysis and name and address of the manufacturer. These labels may be printed on the sack or on a tag attached to the sack.

Dealers who handle fertilizer in retail packages should read carefully the paragraph "Package Fertilizer," below.

Suggestions to Farmers and Other Buyers:—Give your order for fertilizer to some company whose registration appears in Table 7 of this bulletin. Do not buy from other companies without consulting the Agricultural Experiment Station, Columbia, Missouri.

Accept no shipment of fertilizer from a manufacturer or any fertilizer from any dealer's warehouse which does not carry registration tags as described above. This applies to fertilizer which has been resacked as well as to new stock.

Accept no fertilizer from any manufacturer or dealer which does not carry labels showing brand name, guaranteed analysis, and the name and address of the manufacturer. It is not safe to risk a year's crop by spreading material on your land of unknown value.

Fertilizer which has been kept in stock for a number of months has lost none of its value if it has been kept dry. In purchasing same, be sure that it carries labels and tags so that you may know how much plant food you are getting and that the goods are reliable.

Information about registration, labels and tags will be furnished to manufacturers, purchasers and users on request by the Experiment Station.

PACKAGE FERTILIZER

Fertilizer sold in small packages for home use is also subject to the requirements of the Missouri Fertilizer Law, namely, registration, labelling, and the affixing of registration labels. Dealers and other buyers should obtain their supply of package fertilizer from manufacturers who are registered according to the law. The following companies offering fertilizer for sale in small packages have complied with this requirement for 1928:

Armour Fertilizer Works, Chicago, Ill.

Earp-Thomas Cultures Corporation, Long Island City, N. Y.

Excell Laboratories, Chicago, Ill.

Fertilispray Company, Los Angeles, Calif.

Grasselli Chemical Company, Cleveland, Ohio.
 Nitragin Company, Milwaukee, Wis.
 Oyama Products Company, Newburgh, N. Y.
 Pulverized Manure Company, National Stock Yards, Ill.
 S. & S. Plant Food Company, Evansville, Ind.
 Smith Agricultural Chemical Company, Columbus, Ohio
 Swift & Co. (Fertilizer Works), National Stock Yards, Ill.
 Synthetic Nitrogen Products Company, New York City, N. Y.
 Tennessee Copper & Chemical Corporation, Cincinnati, Ohio
 Virginia-Carolina Chemical Corporation, Memphis, Tenn.

Package fertilizer bearing the name of any other manufacturer should not be offered for sale in Missouri by any dealer without first consulting the Missouri Agricultural Experiment Station.

After the dealer has purchased his stock from one of the above companies he should examine same to see that

- (1) Every package carries labels giving brand name, guaranteed analysis, and the name and address of manufacturer,
- (2) Every package carries the registration label illustrated below. Package fertilizer purchased in 1928 will carry a yellow label.

Registered
Missouri Agricultural Experiment Station
Columbia, Mo. F. B. Mumford Director

If these requirements have been met, the packages may be placed on the shelves ready for sale. If not, they must not be offered to customers until labels are provided as the sale without these labels is a violation of the Missouri Fertilizer Law.

COMPARATIVE VALUATIONS

By assigning a unit value for each of the plant food constituents,—nitrogen, phosphoric acid, and potash,—in fertilizers it is possible to compare the fertilizer value of any mixture or material as guaranteed and as found by analysis. We may define this unit value as the average delivered cost of one per cent of the plant food in question contained on the average in one ton of the ordinary

simple carriers of this constituent when sold in the state in carload lots.

Beginning with the fertilizer samples collected in the fall of 1927, the following unit values have been used in calculating the guaranteed and found values per ton reported in this bulletin:

Total nitrogen	\$4.25 per unit
Total phosphoric acid from bone	1.00 " "
Insoluble phosphoric acid from bone (when so guaranteed in the registration.)	0.80 " "
Available phosphoric acid (all sources)	1.40 " "
Potash (water soluble)	1.05 " "

For the values used in calculating the guaranteed and found values per ton for the spring samples see Station Bulletin 257.

Calculating and Comparing Fertilizer Values

Referring to Table 5, there will be found the guaranteed and found values per ton of each fertilizer sample analyzed using the above unit values. We would illustrate the use of these unit values as follows:

Total nitrogen, \$4.25 per unit means that one ton of fertilizer containing one per cent of nitrogen has a value of \$4.25 because of the nitrogen it contains. If it contained 2 per cent nitrogen, it would have a value of \$8.50. If, in addition, it contained phosphoric acid and potash, we must add these values, \$1.40 and \$1.05, to that for nitrogen, after multiplying by the percentage of these constituents in per cent. For example, take sample 10-145 found on page 21, Table 5. The guaranteed value for this 2-12-4 fertilizer is found as follows:

1.65 times	\$4.25	equals	\$ 7.01
12 times	1.40	equals	16.80
4 times	1.05	equals	4.20

Total guaranteed value equals \$28.01

By using the percentages of nitrogen, available phosphoric acid, and potash found in this sample on analysis, the found value of this fertilizer can be calculated as follows:

1.73 times	\$4.25	equals	\$ 7.35
12.93 times	1.40	equals	18.10
4.39 times	1.05	equals	4.61

Total found value equals \$30.06

Since this fertilizer shows a somewhat higher percentage of plant food present than was guaranteed, we observe that its found value per ton is greater than its guaranteed value, in this case being \$2.05 per ton in excess.

Following the above plan, the guaranteed and found values of all the samples analyzed have been calculated and the results will be found in the two columns at the right, Table 5. The values are

TABLE 2.—VARIATIONS IN VALUE FROM MANUFACTURER'S GUARANTEE

Manufacturer	Number of samples analyzed	Below Guarantee		Average Loss* per ton (deficient samples)	Average Gain † or loss per ton (all samples)
		Number	Per cent		
American Agricultural Chemical Company.....	93	3	3.2	\$1.26	\$0.94
Arkansas Fertilizer Company.....	4	3	75.0	1.38	-0.99
Armour Fertilizer Works.....	40	5	12.5	1.11	0.86
Blood and Bone Fertilizer Company.....	7	3	42.8	0.98	-0.24
Calumet Fertilizer Corporation.....	4	1	25.0	0.29	5.59
Crocker Packing Co.....	16	7	43.7	1.57	0.78
Cudahy Packing Company.....	18	5	27.8	1.72	0.62
Darling & Co.....	31	4	12.9	0.55	0.56
Empire Guano Company.....	3	0	0.0	0.00	2.68
Federal Chemical Company.....	11	2	18.1	0.49	2.07
Floyd Plant Food Company F. P. F. Brands.....	5	2	40.0	0.85	0.33
Floyd Plant Food Company M. F. A. Brands.....	95	27	28.4	1.31	0.67
Merchants & Planters Plant Food Company.....	2	0	0.0	0.00	2.04
Pulverized Manure Company.....	8	2	25.0	1.20	0.64
Read Phosphate Company.....	18	3	16.7	1.49	1.06
Smith Agricultural Chemical Company.....	3	0	0.0	0.00	1.60
Swift & Company (Fertilizer Works).....	92	5	6.5	1.85	1.45
Virginia-Carolina Chemical Corporation.....	13	1	7.7	0.94	1.81
Totals.....	463	73	15.8	\$1.32	\$1.01

*This average is only for those samples 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.

summarized in Table 2, showing the per cent of the total number of samples analyzed which were below the guarantee in value, and also the value in dollars and cents which the samples for each company total up per ton on the average.

The percentage of deficiencies this year show an improvement in conditions as compared with the last three years, as the following summary for the last five years indicates:

Year	Below guarantee in value
1923.....	15.6 per cent.
1924.....	23.4 per cent.
1925.....	21.8 per cent.
1926.....	25.5 per cent.
1927.....	15.8 per cent.

The value per ton this year in excess of the guaranteed value for all samples of all the companies has risen from \$0.61 to \$1.01. That is, the excess value in fertilizers sold in Missouri in 1927 amounts to \$1.01 per ton on the average for all companies.

CHEMICAL ANALYSIS OF FERTILIZER SAMPLES

Table 5 gives the detailed results obtained by analysis of the samples obtained in the work of inspection in the fall season of 1927. For the results on the samples of the spring season of 1927, Bulletin 257 should be consulted. Each company is listed alphabetically in the table and the samples from each are in approximate alphabetical arrangement. The guaranteed value is given and, side by side with this, will be found the percentage of the same constituent as found by analysis. When this value is less than the guaranteed value it is printed in bold faced type merely as a method of calling attention to the discrepancy. The amount of the discrepancy should be taken into consideration in passing judgment on the value of the sample, since the amount of the discrepancy in some cases is too small to be significant.

Buyers of fertilizer sometimes desire to send samples of the goods which they have purchased to the Experiment Station for analysis. Such a sample is usually obtained by taking a handful from one or more sacks, and therefore does not always prove to be representative. The official samples drawn by the regular inspectors using instruments and methods which insure an average sample are the only samples which can be relied upon to always give a true average result. When samples are sent in by buyers, they should be accompanied by the following information: name

and address of manufacturer; name and address of dealer or person to whom the manufacturer sold the fertilizer; and the brand name and guaranteed analysis as it is printed on the sack or package. Samples sent by purchasers during 1927 will be found at the end of Table 5, listed as "Miscellaneous Samples."

QUALITY OF NITROGEN USED IN MISSOURI FERTILIZER

There are a variety of nitrogen-containing substances which may be used in fertilizers, but these may vary considerably in quality depending upon the readiness with which the plant can absorb the nitrogen from the material when placed in the soil. This quality of the nitrogen is termed its "availability." The less available the nitrogen, the more material that must be applied in order to fertilize the crop. In concentrated mixed fertilizers, with which this report deals, that are applied at the rate of 100 to 200 pounds per acre, it is evident that the nitrogen must be highly available in order to produce fertilizing effects. Chemists have devised methods for testing the quality of the nitrogen in fertilizer which are called activity methods. The amount of active nitrogen found chemically serves as an index of the availability of the nitrogen when used as a fertilizer.

To understand the rules for judging activity as given below the following explanation will be helpful.

- (1) Nitrogen which is soluble in water is considered active.
- (2) Nitrogen insoluble in water but rendered soluble by a neutral solution of potassium permanganate is considered active.
- (3) Nitrogen insoluble in water but rendered volatile by an alkaline solution of potassium permanganate is considered active.

The rules for judging the activity of nitrogen as adopted by the Association of Official Agricultural Chemists are stated as follows:

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

(b) The water-insoluble nitrogen in mixed fertilizers, showing activity below 80% by the neutral permanganate method and below 50% by the alkaline permanganate method, shall be classed as inferior; water-insoluble nitrogen activity 80% or above by the neutral permanganate method and 50% or above by the alkaline permanganate method shall be passed without adverse criticism.

Following these rules, the procedure followed by the chemist is first to test all the fertilizer samples which carry nitrogen for the amount of water soluble nitrogen they contain. The per cent of water soluble nitrogen divided by the per cent of total nitrogen expressed in per cent is found in Table 5, in the third column under the heading "Nitrogen." According to the rules stated above when this value is 66.67 or above, the nitrogen is considered satisfactory. When the value falls below this figure, the sample is tested first by the neutral permanganate and finally by the alkaline permanganate method.

On the basis of the tests for nitrogen activity, the following samples of fertilizer, collected in the fall of 1927 and reported in this bulletin, were found to contain inferior nitrogen: 10-263, 10-264, 10-265, 10-315, 10-316, 10-317, 10-318, 10-319, 10-321, 10-386, 10-390, 10-392, 10-393, 10-395, 10-396, 10-398, 10-399, 10-412, 10-503, 10-508, 10-583, 10-586.

In addition to the above, all fertilizer samples, whose water-insoluble nitrogen is derived wholly from manure, test out as inferior nitrogen as manure is not a concentrated nitrogen carrier.

The summary of all these tests on nitrogen activity for the different companies is given in Table 3. The study of this data is interesting in the light of the rules given above. Most of the mixed fertilizers show satisfactory nitrogen because of the high proportion of water-soluble nitrogen. The water-insoluble portion of the nitrogen in the mixed fertilizer is generally of inferior quality unless its source is bone. The bone fertilizers which do not carry high proportions of water soluble nitrogen should show satisfactory activity by the permanganate methods. It will be observed that these points vary for the different companies, thus forming a basis for judging the quality of the nitrogen put out by each manufacturer.

LIMESTONE FOR SOIL ACIDITY

The correction of the acid condition in soils is agriculturally as important as the application of fertilizer. Large quantities are used annually in Missouri in connection with the seeding of fields to legumes. This crushed limestone is furnished by a number of commercial quarries within and without the borders of our state. Also much of this limestone is obtainable from ledges on the farms where it may be crushed by the farmers themselves, thus saving transpor-

tation costs. For the best results, it is essential that the limestone be of good quality and this is best determined by a laboratory test. The Experiment Station Laboratories have been testing samples of stone which are to be used agriculturally. Such samples should always be accompanied with the following information which will indicate its natural location: range, township number, section and quarter; also distance and direction from the nearest town (with the name of the town.)

This report gives the results of testing, during the year 1927, of 1329 samples of limestone and similar materials for their values in correcting soil acidity. The results, expressed as "calcium carbonate equivalent" mean that both the calcium carbonate and magnesium carbonate present in the limestone samples are calculated as if it were all calcium carbonate. Since 84.3 parts of magnesium carbonate neutralizes as much acid as 100 parts of calcium carbonate the reason will be seen why some of the samples show values over 100 per cent.

The results on the limestone tests are reported showing the total number tested, and the highest, lowest and average test from each county. Further information on the sources of suitable limestone for agricultural purposes are available to users from the records of the Experiment Station.

FERTILIZER TONNAGE FOR MISSOURI, 1927

Through the cooperation of the fertilizer manufacturers supplying Missouri, statistics on the kinds of fertilizer, the tonnage sold, and the point of shipment of each kind are made available to the Experiment Station. This information is assembled for the various companies and reported in Tables 8 and 9 in this bulletin. This is given as approximate data, as the completeness of the information given has not been verified. Most of the companies state that they are making complete reports.

The classification divisions in these tables may be explained thus: Bone includes the brands called "Raw Bone" and "Steamed Bone" only. Acid Phosphate includes 16, 18 and 20 per cent acid phosphate. High Grade mixed fertilizers include the brands, the sum of whose plant food units, as guaranteed, add up to 14 or more. The brand, Half and Half, being a mixture of acid phosphate and bone, is listed with the High Grade mixed fertilizers. Medium Grade mixed fertilizers include all mixtures containing less than 14 but more than 10 units. Low Grade mixed fertilizers include

all mixtures containing 10 units or less. Under Miscellaneous are grouped all of the simple fertilizer materials such as nitrate of soda, ammonium sulphate, dried blood, potash salts, dried manure (bone and acid phosphate excepted).

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

Manufacturer	Mixed Fertilizer						Bone Fertilizer					
	Water Sol. N.		Neutral Perman.		Alkaline Perman.		Water Sol. N.		Neutral Perman.		Alkaline Perman.	
	No. Tested	Average Activity	No. Tested	Average Activity	No. Tested	Average Activity	No. Tested	Average Activity	No. Tested	Average Activity	No. Tested	Average Activity
American Agric. Chemical Company	40	90.17	--	-----	--	-----	14	42.49	14	85.33	2	59.29
Arkansas Fertilizer Company.....	2	73.41	--	-----	--	-----	--	-----	--	-----	--	-----
Armour Fertilizer Works.....	21	95.58	--	-----	--	-----	3	21.79	3	89.11	--	-----
Blood & Bone Fertilizer Company.....	3	74.84	1	48.84	1	69.77	--	-----	--	-----	--	-----
Calumet Fertilizer Corp.....	3	80.80	--	-----	--	-----	--	-----	--	-----	--	-----
Crocker Packing Co.....	6	28.37	6	76.65	3	36.25	5	23.67	5	92.62	--	-----
Cudahy Packing Company.....	3	42.10	2	89.67	--	-----	5	20.50	5	93.33	--	-----
Darling & Company.....	7	84.46	--	-----	--	-----	10	23.97	10	87.91	--	-----
Empire Guano Company.....	3	64.93	1	60.00	1	48.50	--	-----	--	-----	--	-----
Federal Chemical Company.....	8	53.05	8	61.42	8	43.64	1	25.30	1	91.94	--	-----
Fernola Fertilizing Works.....	1	72.41	--	-----	--	-----	--	-----	--	-----	--	-----
Floyd Plant Food Company, F. P. F. Brands.....	3	52.48	1	57.58	1	40.91	--	-----	--	-----	--	-----
Floyd Plant Food Company, M. F. A. Brands.....	27	67.72	11	63.88	11	44.30	17	25.82	17	85.69	4	54.58
Grasselli Chemical Co.....	1	98.54	--	-----	--	-----	--	-----	--	-----	--	-----
Merchants & Planters PlantFood Co.	1	77.51	--	-----	--	-----	--	-----	--	-----	--	-----
Pulverized Manure Company.....	9	22.23	9	52.21	9	24.25	--	-----	--	-----	--	-----
Read Phosphate Company.....	8	76.54	1	71.62	1	66.22	--	-----	--	-----	--	-----
Smith Agric. Chemical Company.....	3	91.43	--	-----	--	-----	--	-----	--	-----	--	-----
Swift & Co. Fertilizer Works.....	37	79.92	2	41.52	2	44.34	21	23.86	21	81.63	8	63.93
Virginia-Carolina Chemical Corp.....	4	80.11	--	-----	--	-----	--	-----	--	-----	--	-----
Total and Averages of all companies	190	75.44	42	62.48	37	39.93	76	27.58	77	84.85	14	60.60

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

(Page 18)

Manufacturer	Nitrogen			Total Phosphoric Acid			Available Phosphoric Acid			Potash			All Analyses		
	Total		Deficient	Total		Deficient	Total		Deficient	Total		Deficient	Total		Deficient
	No.	No.		No.	No.		No.	No.		No.	No.		No.	No.	
American Agricultural Chemical Company-----	54	16	29.6	8	0	0.0	85	10	11.7	43	2	4.4	190	28	14.7
Arkansas Fertilizer Company-----	2	0	0.0	0	0	---	4	3	75.0	2	0	0.0	8	3	37.5
Armour Fertilizer Works-----	24	5	20.8	3	2	66.6	37	4	10.7	22	0	0.0	86	11	12.8
Blood & Bone Fertilizer Company-----	3	0	0.0	0	0	---	7	5	71.4	4	2	50.0	14	7	50.0
Calumet Fertilizer Corporation-----	3	0	0.0	0	0	---	4	2	50.0	3	0	0.0	10	2	20.0
Crocker Packing Co.-----	11	3	27.3	3	0	0.0	13	7	53.9	7	2	28.6	34	12	35.3
Cudahy Packing Company-----	9	5	55.6	3	0	0.0	15	5	33.3	3	0	0.0	30	10	33.3
Darling & Co.-----	16	5	31.3	6	0	0.0	25	5	20.0	6	0	0.0	53	10	18.9
Empire Guano Company-----	3	0	0.0	0	0	---	3	0	0.0	3	1	33.3	9	1	11.1
Federal Chemical Company-----	9	1	11.1	0	0	---	10	2	20.0	6	0	0.0	25	3	12.0
Fernalda Fertilizing Works-----	1	0	0.0	0	0	---	1	0	0.0	1	1	100.0	3	1	33.3
Floyd Plant Food Company F. P. F. Brands-----	1	1	100.0	0	0	---	5	1	20.0	3	2	66.7	9	4	44.4
Floyd Plant Food Company M. F. A. Brands-----	45	25	55.6	13	5	38.4	82	22	26.8	30	11	36.7	170	63	37.0
Ford Motor Company-----	2	0	0.0	0	0	---	0	0	---	0	0	---	2	0	0.0
Grasselli Chemical Company-----	1	0	0.0	0	0	---	1	0	0.0	1	1	100.0	3	1	33.3
Merchants and Planters Plant Food Company-----	1	0	0.0	0	0	---	2	0	0.0	1	0	0.0	4	0	0.0
Phosphated Manure Company-----	1	1	100.0	0	0	---	1	1	100.0	1	0	0.0	3	2	66.7
Pulverized Manure Company-----	8	4	50.0	0	0	---	8	4	50.0	8	1	12.5	24	9	37.5
Read Phosphate Company-----	8	3	37.5	0	0	---	18	2	11.1	8	2	25.0	34	7	20.6
Smith Agricultural Chemical Company	3	0	0.0	0	0	---	3	0	0.0	3	0	0.0	9	0	0.0
Swift & Co. Fertilizer Works-----	60	11	18.3	18	2	11.1	75	5	6.7	41	0	0.0	194	18	9.3
Virginia-Carolina Chemical Corp.-----	4	0	0.0	0	0	---	13	1	7.1	7	1	14.3	24	2	8.3
Total-----	269	80	29.7	54	9	16.6	412	79	19.2	203	26	12.8	938	194	20.7

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES; 1927

(Page 20)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	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	Per Cent
10-102	American Agricultural Chemical Company St. Louis, Missouri A. A. Brands	Producers Exchange Assn., Rich- land.....					18.14	0.50	1.96	16.00	16.18			22.40	22.65
10-104		Farmers Elevator Company, Salis- bury.....					18.30	0.50	2.12	16.00	16.18			22.40	22.65
10-105		Farmers Coop. Company, Carroll- ton.....					18.69	0.50	2.55	16.00	16.14			22.40	22.60
10-106		C. O. White, Mendon.....					18.00	0.50	1.96	16.00	16.04			22.40	22.46
10-107		O. N. Hamacker, Richmond.....					18.55	0.50	2.06	16.00	16.49			22.40	23.09
10-109		Polo Elev Company, Polo.....					18.68	0.50	2.53	16.00	16.15			22.40	22.61
10-111		Farmers Produce & Grain Com- pany, Hamilton.....					18.47	0.50	2.30	16.00	16.17			22.40	22.64
10-112		Farmers Produce & Grain Com- pany, Chillicothe.....					18.58	0.50	2.04	16.00	16.54			22.40	23.16
10-114		A. R. Clements, Brookfield.....					18.53	0.50	1.70	16.00	16.83			22.40	23.56
10-115		Laclede Farmers Exchange, La- clede.....					18.24	0.50	1.86	16.00	16.38			22.40	22.93
10-116		Farmers Produce Company, Mead- ville.....					18.39	0.50	1.89	16.00	16.50			22.40	23.10
10-118	Troy Mills, Troy.....					18.37	0.50	1.27	16.00	17.10			22.40	23.94	
10-119	Eddlemon & Phipps, Eldorado Springs.....					18.80	0.50	2.57	16.00	16.23			22.40	22.72	

10-120	16 per cent Acid Phosphate	Produce & Grain Company, Eldorado Springs					18.09	0.50	1.85	16.00	16.24			22.40	22.74
10-121	16 per cent Acid Phosphate	Kemple & Wesselschmidt, Gerald					17.90	0.50	1.70	16.00	16.20			22.40	22.68
10-122	16 per cent Acid Phosphate	Louis Ritterbusch, Bland					18.13	0.50	1.99	16.00	16.14			22.40	22.60
10-124	16 per cent Acid Phosphate	R. D. Liles, Aurora					18.68	0.50	2.03	16.00	16.65			22.40	23.31
10-125	16 per cent Acid Phosphate	Farmers Exchange, Mt. Vernon					18.99	0.50	2.42	16.00	16.57			22.40	23.20
10-126	18 per cent Acid Phosphate	W. A. Robison, Perry					21.09	0.50	2.40	18.00	18.69			25.20	26.17
10-128	20 per cent Acid Phosphate	Byrd & Co., Hunnewell					22.57	0.50	1.79	20.00	20.78			28.00	29.09
10-129	20 per cent Acid Phosphate	A. W. Rouner, Brashear					22.90	0.50	1.74	20.00	21.16			28.00	29.62
10-130	20 per cent Acid Phosphate	Farmers Mill & Grain Company, Schell City					22.94	0.50	2.00	20.00	20.94			28.00	29.32
10-131	20 per cent Acid Phosphate	Farmers Elev. Company, Salisbury					22.17	0.50	1.38	20.00	20.79			28.00	29.11
10-133	20 per cent Acid Phosphate	Farmers Exchange, Hardin					22.33	0.50	1.66	20.00	20.67			28.00	28.94
10-134	20 per cent Acid Phosphate	Farmers Produce & Grain Company, Hamilton					22.74	0.50	1.05	20.00	21.69			28.00	30.37
10-135	20 per cent Acid Phosphate	Farmers Produce & Grain Company, Chillicothe					22.90	0.50	1.37	20.00	21.53			28.00	30.14
10-136	20 per cent Acid Phosphate	Milbank & Scampton Mllg. Company, Moberly					22.46	0.50	1.07	20.00	21.39			28.00	29.95
10-137	20 per cent Acid Phosphate	Leader Mill & Elev. Company, Wellsville					21.82	0.50	1.70	20.00	20.12			28.00	28.17
10-138	20 per cent Acid Phosphate	Kemple & Wesselschmidt, Gerald					22.11	0.50	1.84	20.00	20.27			28.00	28.38
10-139	20 per cent Acid Phosphate	Produce Exchange, Vienna					22.39	0.50	1.27	20.00	21.12			28.00	29.57
10-140	20 per cent Acid Phosphate	Farmers Coop. Company, Windsor					22.14	0.50	1.28	20.00	20.86			28.00	29.20
10-141	20 per cent Acid Phosphate	D. A. Neuenschwander, Deepwater					21.77	0.50	1.25	20.00	20.52			28.00	28.73
10-144	20 per cent Acid Phosphate	Farmers Exchange, Mt. Vernon					21.31	0.50	1.11	20.00	20.20			28.00	28.28
10-145	Agrico Fertilizer for Grain	Farmers Supply Company, Lebanon	1.65	1.73	92.49		14.54	0.50	1.61	12.00	12.93	4.00	4.39	28.01	30.06
10-146	Agrico Fertilizer for Grain	Farmers Exchange, Cabool	1.65	1.63	93.25		13.77	0.50	1.49	12.00	12.28	4.00	4.10	28.01	28.43
10-147	Agrico Fertilizer for Grain	Farmers Elevator Co., Salisbury	1.65	1.65	90.91		13.34	0.50	1.41	12.00	11.93	4.00	4.12	28.01	28.04
10-148	Agrico Fertilizer for Grain	O. N. Hamacker, Richmond	1.65	1.63	90.80		14.06	0.50	1.43	12.00	12.63	4.00	4.16	28.01	28.98
10-149	Agrico Fertilizer for Grain	Farmers Exchange, Hardin	1.65	1.76	91.48		13.73	0.50	1.40	12.00	12.33	4.00	4.64	28.01	29.61
10-150	Agrico Fertilizer for Grain	Farmers Elevator Company, Brayer	1.65	1.66	85.54		14.05	0.50	1.34	12.00	12.71	4.00	4.77	28.01	29.86
10-151	Agrico Fertilizer for Grain	Farmers Mercantile Company, Wheeling	1.65	1.75	89.14		13.62	0.50	1.47	12.00	12.15	4.00	4.43	28.01	29.10

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

(Page 22)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
10-152	Agrico Fertilizer for Grain.....	Silex Grain Company, Silex.....	1.65	1.73	86.13	13.32	0.50	1.30	12.00	12.02	4.00	4.52	28.01	28.93	
10-154	Agrico Fertilizer for Grain.....	Louis Baum, Marionville.....	1.65	1.73	88.44	13.17	0.50	1.20	12.00	11.97	4.00	4.18	28.01	28.50	
10-155	Antler Fertilizer.....	Buenemann Bros., Troy.....	1.65	1.56	92.57	12.78	0.50	0.60	12.00	12.18	6.00	6.14	30.11	30.13	
10-156	Atlas Mixture.....	Farmers Supply Company, Lebanon.....				13.16	0.50	1.10	12.00	12.06	6.00	6.19	23.10	23.38	
10-157	Atlas Mixture.....	Silex Grain Company, Silex.....				13.72	0.50	1.44	12.00	12.28	6.00	6.78	23.10	24.31	
10-158	Atlas Mixture.....	Louis Baum, Marionville.....				13.11	0.50	1.23	12.00	11.88	6.00	6.15	23.10	23.09	
10-160	Gilt Edge Fertilizer.....	A. W. Rauner, Brashear.....	1.65	1.63	93.87	18.50	0.50	1.29	16.00	17.21	2.00	2.22	31.51	33.35	
10-161	Gilt Edge Fertilizer.....	Farmers Elevator Company, Salisbury.....	1.65	1.51	95.80	17.04	0.50	0.84	16.00	16.20	2.00	2.01	31.51	31.21	
10-163	Gilt Edge Fertilizer.....	Buenemann Bros., Troy.....	1.65	1.61	94.84	16.83	0.50	0.85	16.00	15.98	2.00	2.36	31.51	31.69	
10-164	Gilt Edge Fertilizer.....	Louis Ritterbusch, Bland.....	1.65	1.64	93.90	16.76	0.50	0.77	16.00	15.99	2.00	2.30	31.51	31.78	
10-165	Half & Half Bone & Phosphate.....	A. W. Rauner, Brashear.....	0.82	1.06	56.60	21.76	8.00	10.52	12.00	11.54			26.69	27.06	
10-166	Half & Half Bone & Phosphate.....	Farmers Union Mercantile Company, Norborne.....	0.82	1.05	51.43	21.74	8.00	8.58	12.00	13.16			26.69	29.28	
10-167	Half & Half Bone & Phosphate.....	Farmers Exchange, Hardin.....	0.82	1.05	55.24	21.10	8.00	8.34	12.00	12.76			26.69	28.73	
10-168	Half & Half Bone & Phosphate.....	Eddlemon & Phipps, Eldorado Springs.....	0.82	1.17	62.39	21.02	8.00	8.70	12.00	12.32			26.69	28.62	
10-169	Half & Half Bone & Phosphate.....	Charles H. Honold, Beaufort.....	0.82	1.00	66.00	20.95	8.00	12.56	12.00	8.97			26.69	23.21	
10-170	Paramount Fertilizer.....	Farmers Supply Company, Lebanon.....	2.47	2.38	92.86	9.06	0.50	1.28	8.00	7.78	6.00	6.73	28.00	28.08	
10-171	Paramount Fertilizer.....	John T. Milbank, Chillicothe.....	2.47	2.53	90.91	8.73	0.50	0.94	8.00	7.79	6.00	6.12	28.00	28.09	
10-172	Red Dog Fertilizer.....	Al Boston, Bowling Green.....	1.65	1.62	88.27	9.12	0.50	0.91	8.00	8.21	5.00	5.60	23.46	24.26	
10-173	Red Dog Fertilizer.....	Wm. F. Knehans, Owensville.....	1.65	1.67	89.22	9.21	0.50	0.95	8.00	8.26	5.00	5.54	23.46	24.48	
10-174	Red Dragon Fertilizer.....	Producers Exchange Assn., Richland.....	1.65	1.73	87.86	14.03	0.50	1.86	12.00	12.17	2.00	2.14	25.91	26.64	
10-176	Red Dragon Fertilizer.....	A. W. Rauner, Brashear.....	1.65	1.84	90.76	13.98	0.50	1.20	12.00	12.78	2.00	2.18	25.91	28.00	

10-177	Red Dragon Fertilizer	Farmers Elevator Company, Salisbury	1.65	1.57	92.47	13.29	0.50	1.09	12.00	12.20	2.00	2.17	25.91	26.03
10-178	Red Dragon Fertilizer	C. O. White, Mendon	1.65	1.66	92.77	13.92	0.50	1.82	12.00	12.10	2.00	1.85	25.91	25.94
10-179	Red Dragon Fertilizer	Farmers Produce & Grain Company, Hamilton	1.65	1.70	93.53	13.42	0.50	1.24	12.00	12.18	2.00	2.20	25.91	26.59
10-180	Red Dragon Fertilizer	Farmers Feed & Produce Company, Linneus	1.65	1.48	89.19	14.36	0.50	1.28	12.00	13.08	2.00	2.04	25.91	26.74
10-181	Red Dragon Fertilizer	Milbank & Scampton Millg. Company, Moberly	1.65	1.77	90.96	14.21	0.50	1.85	12.00	12.36	2.00	2.37	25.91	27.30
10-184	Red Dragon Fertilizer	Chas. H. Honold, Beaufort	1.65	1.66	90.36	14.08	0.50	2.00	12.00	12.08	2.00	2.23	25.91	26.31
10-186	Red Dragon Fertilizer	Farmers Exchange, Freeburg	1.65	1.65	89.09	13.96	0.50	1.95	12.00	12.01	2.00	2.15	25.91	26.08
10-187	Red Dragon Fertilizer	Produce Exchange, Vienna	1.65	1.76	88.64	14.21	0.50	1.20	12.00	13.01	2.00	2.15	25.91	27.95
10-188	Red Dragon Fertilizer	S. J. Bard, Collins	1.65	1.70	89.41	14.42	0.50	1.66	12.00	12.76	2.00	1.98	25.91	27.17
10-189	Red Dragon Fertilizer	R. D. Liles, Aurora	1.65	1.61	85.71	13.32	0.50	1.30	12.00	12.02	2.00	2.27	25.91	26.05
10-190	Pure Raw Bone	Silex Grain Company, Silex	3.29	3.39	15.04	20.00	20.64						33.98	35.05
10-191	Steam Bone Meal	Byrd & Co., Hunnewell	1.02	0.92	31.52	29.00	33.36						33.34	37.27
10-192	Steam Bone Meal	Huntsville Elevator Company, Huntsville	1.02	1.22	34.43	29.00	31.51						33.34	36.70
10-193	Steam Bone Meal	Farmers Elevator Company, Braymer	1.02	0.94	38.30	29.00	32.89						33.34	36.89
10-195	Steam Bone Meal	Louis Ritterbusch, Bland	1.02	1.24	35.48	29.00	32.44						33.34	37.71
10-196	Steam Bone Meal	Farmers Coop. Assn., Windsor	1.02	1.29	41.09	29.00	31.99						33.34	37.47
10-197	Steam Bone Meal	Robert Schoen Freistatt	1.02	1.04	32.69	29.00	29.54						33.34	33.96
10-198	Squirrel Brand Fertilizer	Farmers Elevator Company, Salisbury	1.65	1.64	87.80	9.23	0.50	1.07	8.00	8.16	2.00	2.23	20.31	20.73
10-199	Squirrel Brand Fertilizer	Leader Mill & Elevator Company, Wellsville	1.65	1.61	88.20	9.14	0.50	1.06	8.00	8.08	2.00	2.33	20.31	20.60
10-200	Top Notch Fertilizer	John T. Milbank, Chillicothe	7.40	7.57	86.39	8.32	0.50	1.22	7.00	7.10	3.00	3.44	44.40	45.72
	Arkansas Fertilizer Company, Little Rock, Arkansas White Diamond Brands													
10-248	Acid Phosphate	Barada & Page, Kansas City				17.00		0.88	16.00	16.12			22.40	22.57
10-249	Eclipse Acid Phosphate	A. G. Mosher, Schell City				20.07		0.82	20.00	19.25			28.00	26.95
10-250	Prize Wheat Grower	A. G. Mosher, Schell City	1.65	1.80	71.67	15.72		1.05	16.00	14.67	2.00	2.15	31.51	30.45
10-251	Prize Wheat Grower	A. J. Buckingham, Oronogo	1.65	1.65	75.75	15.49		0.96	16.00	14.53	2.00	2.02	31.51	29.47

(1) Fertilizer resacked by dealer.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	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
	Armour Fertilizer Works. Chicago, Illinois Armour Brands														
10-220	1-12-1 Fertilizer.....	Roy Carter, Elev. Co., Jasper	0.82	0.96	87.50	17.71	0.50	4.16	12.00	13.55	1.00	1.57	21.34	24.70	
10-221	Grain Grower.....	Gastler Bros., Wellsville.....	1.65	1.58	93.67	8.96	0.50	0.36	8.00	8.60	2.00	2.29	20.31	21.16	
	Big Crop Brands														
10-201	16 per cent Acid Phosphate.....	Star Milling Company, Mt. Grove				20.15	0.50	3.99	16.00	16.16			22.40	22.62	
10-202	16 per cent Acid Phosphate.....	Ozark Flour & Feed Company, Seymour.....				21.44	0.50	3.98	16.00	17.46			22.40	24.44	
10-203	16 per cent Acid Phosphate.....	Canton Co-op Elevator Company, Canton.....				17.02	0.50	0.99	16.00	16.03			22.40	22.44	
10-204	16 per cent Acid Phosphate.....	People's Elevator Company, Metz.....				21.05	0.50	3.86	16.00	17.19			22.40	24.07	
10-206	16 per cent Acid Phosphate.....	Gastler Bros., Wellsville.....				17.35	0.50	0.93	16.00	16.42			22.40	22.99	
10-207	16 per cent Acid Phosphate.....	Farmers Elevator Company, Silex.....				17.66	0.50	1.16	16.00	16.50			22.40	23.10	
10-208	16 per cent Acid Phosphate.....	Wm. F. Knehans, Owensville.....				21.13	0.50	3.84	16.00	17.29			22.40	24.21	
10-209	16 per cent Acid Phosphate.....	T. A. Miller Lumber Company, Aurora.....				17.63	0.50	0.84	16.00	16.79			22.40	23.51	
10-210	Superphosphate.....	Farmers Elevator Company, Pal- myra.....				20.06	0.50	0.21	20.00	19.85			28.00	27.79	
10-211	Superphosphate.....	People's Elevator Company, Metz.....				22.27	0.50	1.27	20.00	21.00			28.00	29.40	
10-212	Superphosphate.....	Raymond Brown, South Troy.....				20.39	0.50	0.25	20.00	20.14			28.00	28.20	
10-213	Superphosphate.....	J. A. Anderson, Center.....				20.53	0.50	0.26	20.00	20.27			28.00	28.38	
10-214	Superphosphate.....	F. M. Shoffner Hardware Com- pany, Bolivar.....				21.99	0.50	1.64	20.00	20.35			28.00	28.49	
10-215	Superphosphate.....	T. A. Miller Lumber Company, Aurora.....				20.45	0.50	0.35	20.00	20.10			28.00	28.14	
10-216	Superphosphate.....	F. H. Schlomann, Hoberg.....				19.65	0.50	0.21	20.00	19.44			28.00	27.22	

10-219	0-14-4 Fertilizer	Gastler Bros., Wellsville						15.00	0.50	0.90	14.00	14.10	4.00	4.57	23.80	24.54
10-223	2-12-2 Fertilizer	Star Milling Company, Mt. Grove	1.65	1.79	94.97			16.51	0.50	3.97	12.00	12.54	2.00	2.06	25.91	27.33
10-225	2-12-2 Fertilizer	Ozark Flour & Feed Company, Ozark	1.65	1.67	95.81			16.64	0.50	3.59	12.00	13.05	2.00	2.13	25.91	27.61
10-226	2-12-2 Fertilizer	Gastler Bros., Wellsville	1.65	1.72	95.35			13.01	0.50	0.92	12.00	12.09	2.00	2.10	25.91	26.45
10-227	2-12-2 Fertilizer	Farmers Elevator Company, Silx	1.65	1.76	94.89			12.94	0.50	0.81	12.00	12.13	2.00	2.23	25.91	26.80
10-228	2-12-2 Fertilizer	Frankford Elevator Company, Frankford	1.65	1.92	96.35			12.86	0.50	0.73	12.00	12.13	2.00	2.09	25.91	27.33
10-229	2-12-2 Fertilizer	Shoffner Hardware Company, Bolivar	1.65	1.82	95.05			16.18	0.50	3.71	12.00	12.47	2.00	2.51	25.91	27.84
10-231	2-12-2 Fertilizer	F. O. Wendler, Freistatt	1.65	1.68	90.48			16.25	0.50	3.65	12.00	12.60	2.00	2.05	25.91	26.93
10-232	2-12-6 Fertilizer	Shoffner Hardware Company, Bolivar	1.65	1.70	96.47			16.02	0.50	3.51	12.00	12.51	6.00	6.47	30.11	31.53
10-233	2-16-2 Fertilizer	Roy Carter Elevator Company, Jasper	1.65	1.66	95.78			18.12	0.50	2.05	16.00	16.07	2.00	2.55	31.51	32.24
10-234	2-16-2 Fertilizer	Wm. F. Knehans, Owensville	1.65	1.54	93.01			17.56	0.50	1.31	16.00	16.25	2.00	2.37	31.51	31.79
10-235	2-16-2 Fertilizer	F. O. Wendler, Freistatt	1.65	1.78	90.45			18.12	0.50	1.97	16.00	16.15	2.00	2.43	31.51	32.73
10-236	2-16-8 Fertilizer	Buenemann Bros., Troy	1.65	1.66	98.19			16.84	0.50	0.24	16.00	16.60	8.00	8.84	37.81	39.58
10-237	2-16-8 Fertilizer	Raymond Brown, South Troy	1.65	1.72	99.42			16.99	0.50	0.42	16.00	16.57	8.00	8.27	37.81	39.19
10-238	4-16-4 Fertilizer	Star Milling Company, Mt. Grove	3.30	4.14	98.31			12.48	0.50	2.07	16.00	10.41	4.00	4.50	40.63	36.89
10-239	4-16-4 Fertilizer	Peoples Elevator Company, Metz	3.30	3.36	99.11			16.89	0.50	0.33	16.00	16.56	4.00	4.06	40.63	41.72
10-242	4-16-4 Fertilizer	F. O. Wendler, Freistatt	3.30	3.31	96.39			17.48	0.50	1.03	16.00	16.45	4.00	4.31	40.63	41.63
10-566	4-16-4 Fertilizer	G. D. Thomasson, Versailles	3.30	3.38	99.41			16.51	0.50	0.36	16.00	16.15	4.00	4.64	40.63	41.85
10-243	4-16-8 Fertilizer ²	Raymond Brown, South Troy	3.30	3.20	98.13			15.82	0.50	0.65	16.00	15.17	8.00	8.35	44.83	43.61
10-244	Raw Bone Meal	Raymond Brown, South Troy	3.70	4.44	13.29	22.00	20.41								37.73	39.28
10-246	3-24 Bone Meal	F. H. Schlomann, Hoberg	2.47	3.16	26.58	24.00	25.71								34.50	39.14
10-247	2½-30 Bone Meal	T. A. Miller Lumber Company, Aurora	1.85	1.48	25.52	30.00	28.96								37.86	35.25
		Blood & Bone Fertilizer Company, St. Louis, Missouri Steer Head Brands														
10-252	Wheat Grower (High Grade)	John H. Otte, Gerald	1.03	1.22	64.75			9.98	1.00	1.13	10.00	8.85	3.00	2.89	21.53	20.61
10-567	Special Fertilizer	Lohman Produce Exchange, Lohman	1.65	1.81	73.48			12.45		1.05	12.00	11.40	2.00	2.37	25.91	26.14

(2) Not registered.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

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Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	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	Per Cent
10-568	Soluble Bone Phos. 16 per cent	Lohman Produce Exchange, Lohman					16.54		1.21	16.00	15.33			22.40	21.46
10-569	Soluble Bone Phos. 20 per cent	E. E. Norfleet, Eugene					21.47		1.39	20.00	20.08			28.00	28.11
10-253	Soluble Bone Phos. 20 per cent	H. E. Yeager, Flemington					21.12		0.78	20.00	20.34			28.00	28.48
10-270	Twelve-Four Fertilizer	Lohman Produce Exchange, Lohman					12.54		1.50	12.00	11.04	4.00	4.24	21.00	19.91
10-272	2-16-2	E. E. Norfleet, Eugene	1.65	1.97	23.03		17.10		1.69	16.00	15.41	2.00	1.92	31.51	31.96
	Calumet Fertilizer Corporation, New Albany, Indiana Calumet Brands														
10-254	Acid Phosphate 16 per cent	H. T. Deters, Bowling Green					16.79	1.00	1.00	16.00	15.79			22.40	22.11
10-255	Crop Grower	H. T. Deters, Bowling Green	0.82	1.45	82.76		14.49	1.00	1.85	8.00	12.64	1.00	3.76	16.54	28.61
10-256	Onion & Tobacco Grower	H. T. Deters, Bowling Green	0.82	1.43	79.02		13.68	1.00	1.94	8.00	11.74	3.00	5.33	18.64	28.92
10-257	Two-Eight-Two	H. T. Deters, Bowling Green	1.65	1.65	80.61		9.54	1.00	1.93	8.00	7.61	2.00	2.81	21.11	21.41
	Crocker Packing Company, Joplin, Missouri Interstate Brands														
10-258	Acid Phosphate 16 per cent	Lipscomb Grain & Seed Company, Liberal					16.71		0.90	16.00	15.81			22.40	22.13
10-259	Acid Phosphate 16 per cent ³	A. W. Poundstone, Oronogo					16.41		0.94	16.00	15.47			22.40	21.66
10-260	Acid Phosphate 16 per cent	Charles Kerr, Asbury					15.54		0.88	16.00	14.66			22.40	20.52
10-261	Super Phosphate 20 per cent	Lipscomb Grain & Seed Company, Liberal					18.92		1.08	20.00	17.84			28.00	24.98
10-262	Super Phosphate 20 per cent	J. E. Weaver, Oronogo					18.60		1.05	20.00	17.55			28.00	24.57
10-263	½-15-2	White & Hayzlett, Jasper	0.41	0.65	15.38		15.85	1.50	0.35	15.00	15.50	2.00	1.91	24.84	26.47

10-264	1-12-1	White & Hayzlett, Jasper	0.82	0.80	21.25		13.96	1.25	0.76	12.00	13.20	1.00	1.10	21.34	23.04
10-265	1-12-1	Factory, Joplin	0.82	0.92	20.65		13.51	1.25	0.89	12.00	12.62	1.00	0.85	21.34	22.47
10-267	"Special" 2-12-2	M. J. Richter, Lamar	1.65	1.69	31.95		12.88	1.50	0.72	12.00	12.16	2.00	2.82	25.91	27.16
10-268	"Special" 2-12-2	Claude Fleener, Asbury	1.65	1.57	38.85		12.02	1.50	0.80	12.00	11.22	2.00	2.25	25.91	24.74
10-269	"Special" 2-12-2	G. C. Lacey, Racine	1.65	1.78	42.13		12.35	1.50	1.17	12.00	11.18	2.00	2.07	25.91	25.39
10-270	Steam Bone (Sheep Manure & Potash)	M. J. Richter, Lamar	1.65	1.76	27.84		14.11	8.00	2.84	6.00	11.27	2.00	2.33	23.91	27.98
10-271	Steam Bone & Phosphate	Factory, Joplin	1.23	1.51	31.13		19.55	8.00	6.04	12.00	13.51			28.43	30.16
10-272	Raw Bone Meal 4 1/4-22	Lipscomb Grain & Seed Company, Liberal	3.30	3.04	23.03	22.00	24.37							36.03	37.29
10-273	Steam Bone 3-24	Factory, Joplin	2.46	2.99	15.72	24.00	26.73							34.46	39.44
10-274	Steam Bone 3-24	Lipscomb Grain & Seed Company, Liberal	2.46	3.73	20.64	24.00	24.37							34.46	40.22
		Cudahy Packing Company, Chicago, Illinois													
		Big Win Brands													
10-275	High Grade 16 per cent Acid Phosphate	Boone County Millg. & Elevator Company, Columbia					20.34		3.09	16.00	17.25			22.40	24.15
10-277	High Grade 16 per cent Acid Phosphate	S. W. McCracken, Flemington					20.00		2.87	16.00	17.13			22.40	23.98
10-573	High Grade 16 per cent Acid Phosphate	Ed. Stonner, Levasy					19.88		2.34	16.00	17.54			22.40	24.56
10-278	High Grade 18 per cent Acid Phosphate	S. W. McCracken, Flemington					20.77		2.59	18.00	18.18			25.20	25.45
10-279	High Grade 20 per cent Acid Phosphate	Green-Tooley Mill & Elevator Company, Pattonsburg					21.02		0.68	20.00	20.34			28.00	28.48
10-280	High Grade 20 per cent Acid Phosphate	Farmers Exchange, Gallatin					20.93		0.53	20.00	20.40			28.00	28.56
10-281	High Grade 20 per cent Acid Phosphate	Farmers Exchange, Lockwood					22.23		1.53	20.00	20.70			28.00	28.98
10-282	High Grade 20 per cent Acid Phosphate	Jacob Deschner, Hoberg					22.17		1.55	20.00	20.62			28.00	28.87
10-574	High Grade 20 per cent Acid Phosphate	F. A. Botts, Grandview					22.33		1.11	20.00	21.22			28.00	29.71

(1) Fertilizer resacked by dealer.

(3) Without registration tags.

(4) Bore Kansas State labels.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

(Page 28)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
10-283	High Grade Fertilizer 2-12-2	W. D. Wigginton Feed Store, Hardin	1.65	1.51	49.65	17.90		6.28	12.00	11.62		2.00	2.13	25.91	24.93
10-284	High Grade Fertilizer 2-12-2	Ross De Ford, Altamont	1.65	1.22	68.03	18.00		4.83	12.00	13.17		2.00	2.24	25.91	25.98
10-286	High Grade Fertilizer 2-12-2	S. W. McCracken, Flemington	1.65	2.08	28.85	19.21		9.13	12.00	10.08		2.00	2.73	25.91	25.82
10-287	Half and Half 1½ and 13	Farmers Exchange, Lockwood	1.23	1.13	16.81	23.06		7.00	11.72	13.00		11.34		29.03	26.28
10-288	Half and Half 1½ and 13	S. W. McCracken, Flemington	1.23	1.20	19.17	22.49		7.00	11.02	13.00		11.47		29.03	26.76
10-575	Half and Half 1½ and 13	May Grain Company, Independence	1.23	1.36	29.41	22.62		7.00	11.82	13.00		10.80		29.03	26.50
10-289	Steam Bone Meal	Omer Webb, Jasper	2.47	2.72	23.16	24.00		26.28						34.50	37.84
10-290	Steamed Bone Meal	Isherwood Floral Company, Chillicothe	2.47	2.59	19.31	24.00		26.54						34.50	37.55
10-291	Steamed Bone Meal	Ross De Ford, Altamont	2.47	2.37	24.05	24.00		27.37						34.50	37.44
	Darling & Co., Chicago, Illinois Darling's Brands														
10-292	16 per cent Acid Phosphate	Farmers Exchange, Milo				17.15		1.09	16.00	16.06				22.40	22.48
10-293	16 per cent Acid Phosphate	W. A. Robinson, Perry				17.43		1.32	16.00	16.11				22.40	22.55
10-295	16 per cent Acid Phosphate	W. G. Schmidt, Gerald				17.30		1.16	16.00	16.14				22.40	22.60
10-576	16 per cent Acid Phosphate	P. O. Forestell, Forestell				17.73		1.33	16.00	16.40				22.40	22.96
10-577	16 per cent Acid Phosphate	St. F. Company P. & S. Assn., Bismarck						0.94	16.00	17.14				22.40	24.00
10-578	16 per cent Acid Phosphate	Chas. Drew, Caledonia						0.89	16.00	16.77				22.40	23.48
10-579	18 per cent Acid Phosphate	St. F. Company P. & S. Assn., Bismarck						0.99	18.00	18.28				25.20	25.59
10-580	18 per cent Acid Phosphate	Chas. Drew, Caledonia						0.95	18.00	18.67				25.20	26.14
10-296	20 per cent Acid Phosphate	Roy Carter Elev. Co., Jasper						1.53	20.00	20.29				28.00	28.41

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

(Page 30)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	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	
	Federal Chemical Company, Louisville, Kentucky														
10-315	Daybreak Favorite ⁶ -----	Geo. Whiteside, Bowling Green	0.82	1.00	52.00	15.44	3.50	11.00	11.94	3.00	3.02	22.04	24.14		
10-316	Daybreak Favorite ⁶ -----	C. O. Stemmons, Jasper	0.82	1.14	56.14	15.59	3.40	11.00	12.19	3.00	3.17	22.04	25.25		
10-317	Daybreak Half & Half Meal Mixture ⁶ -----	C. O. Stemmons, Jasper	1.65	1.76	48.30	20.80	10.00	11.44	10.00	9.36		21.01	20.58		
10-318	Daybreak Half & Half Meal Mixture ⁶ -----	Al Boston, Bowling Green	1.65	1.79	51.96	20.42	10.00	11.24	10.00	9.18		21.01	20.46		
10-585	Daybreak Half & Half Meal Mixture ⁶ -----	Lohman Roller Mills, Lohman	1.65	1.79	48.60	20.38	10.00	9.07	10.00	11.31		21.01	23.44		
10-319	Daybreak Royal Wheat & Grain Special ⁶ -----	H. T. Deters, Bowling Green	0.82	1.71	57.89	16.18	2.90	12.00	13.28	1.00	2.14	21.34	28.11		
10-320	Federal Fine Bone ⁶ -----	M. J. Richter, Lamar	3.29	1.66	25.30	30.24	20.00					33.98	37.30		
10-321	Federal Loam Land Fertilizer ⁶ -----	Al Boston, Bowling Green	1.65	1.66	51.20	14.82	2.76	12.00	12.06	2.00	2.29	25.91	26.34		
10-586	Federal Loam Land Fertilizer ⁶ -----	Lohman Roller Mills, Lohman	1.65	1.92	58.33	14.53	2.32	12.00	12.21	2.00	2.11	25.91	27.47		
10-323	Federal Official Formula 0-12-6	M. J. Richter, Lamar				15.87	3.50	12.00	12.37	6.00	7.34	23.10	25.03		
10-324	Globe 16 per cent Acid Phosphate	Al Boston, Bowling Green				19.82	2.38	16.00	17.44			22.40	24.42		
	Fernola Fertilizing Works, Minneapolis, Minnesota														
10-325	Fernola ^{2 3} -----	Thieman Floral Company, Moberly	8.00	8.01	72.41	9.95	6.00	4.28	4.00	5.67	2.00	1.96	41.70	44.04	
	Floyd Plant Food Company, St. Louis, Missouri F. P. F. Brands														
10-326	20 per cent Acid Phosphate	Farmers Exchange, Freeburg				20.61	0.10	0.42	20.00	20.19			28.00	28.27	
10-327	10-15-5 Goods	Farmers Exchange, Cabool				15.56	0.25	0.84	15.00	14.72	5.00	4.97	26.25	25.83	

10-328	4-8-6 Goods	Farmers Exchange, Brookfield	3.28	3.07	70.61	8.98	0.10	0.86	8.00	8.12	6.00	5.48	31.44	30.17
10-329	Muriate of Potash	Farm Club & Exchange, Owensville									50.00	51.73		
M. F. A. Brands														
10-330	16 per cent Acid Phosphate	Farmers Exchange, Bourbon				18.40	0.25	0.63	16.00	17.77			22.40	24.88
10-331	16 per cent Acid Phosphate	Farmers Exchange, St. Clair				19.19	0.25	0.50	16.00	18.69			22.40	26.17
10-332	16 per cent Acid Phosphate	Farmers Exchange, Lebanon				19.85	0.25	1.16	16.00	18.69			22.40	26.17
10-334	16 per cent Acid Phosphate	Producers Exchange Assn., Richland				20.26	0.25	2.15	16.00	18.11			22.40	25.35
10-335	16 per cent Acid Phosphate	Farmers Coop. No. 1, Willow Springs				17.22	0.25	0.73	16.00	16.49			22.40	23.09
10-336	16 per cent Acid Phosphate	Farmers Exchange, Mt. Grove				19.37	0.25	2.35	16.00	17.02			22.40	23.83
10-337	16 per cent Acid Phosphate	Farmers Exchange, Cabool				18.96	0.25	0.50	16.00	18.46			22.40	25.84
10-339	16 per cent Acid Phosphate	Farmers Exchange, Mansfield				17.45	0.25	0.92	16.00	16.53			22.40	23.14
10-340	16 per cent Acid Phosphate	Farmers Exchange, New Cambria				19.52	0.25	2.40	16.00	17.12			22.40	23.97
10-341	16 per cent Acid Phosphate	Farmers Exchange, Callao				18.73	0.25	0.78	16.00	17.95			22.40	25.13
10-342	16 per cent Acid Phosphate	LaGrange Elevator Company, LaGrange				19.60	0.25	1.62	16.00	17.98			22.40	25.17
10-343	16 per cent Acid Phosphate	Farmers Exchange, Lewistown				19.50	0.25	0.91	16.00	18.59			22.40	26.03
10-345	16 per cent Acid Phosphate	Barton County Farmers Assn., Lamar				19.17	0.25	0.98	16.00	18.19			22.40	25.47
10-346	16 per cent Acid Phosphate	Farmers Coop. Assn. Brunswick				19.29	0.25	0.81	16.00	18.48			22.40	25.87
10-347	16 per cent Acid Phosphate	Produce Exchange No. 233, Bucklin				18.98	0.25	2.58	16.00	16.40			22.40	22.96
10-348	16 per cent Acid Phosphate	Browning Farm Club, Browning				17.68	0.25	0.63	16.00	17.05			22.40	23.87
10-349	16 per cent Acid Phosphate	Produce & Grain Company, Eldorado Springs				19.62	0.25	2.85	16.00	16.77			22.40	23.48
10-350	16 per cent Acid Phosphate	Farmers Elevator Assn., Washington				19.70	0.25	0.75	16.00	18.95			22.40	26.53
10-351	16 per cent Acid Phosphate	Hermann Produce Exchange, Hermann				18.17	0.25	0.74	16.00	17.43			22.40	24.40
10-355	16 per cent Acid Phosphate	Produce Exchange, Vienna				17.49	0.25	0.69	16.00	16.80			22.40	23.52
10-356	16 per cent Acid Phosphate	W. L. Pinkston, Clinton				19.75	0.25	0.80	16.00	16.95			22.40	23.73
10-357	16 per cent Acid Phosphate	Claud Wheeler, Gerster				17.58	0.25	0.49	16.00	17.09			22.40	23.93
10-358	16 per cent Acid Phosphate	E. G. Ellis, Aurora				17.94	0.25	0.96	16.00	16.98			22.40	23.77

(6) Incomplete labels.

(2) Not registered.

(3) Without registration tags.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

(Page 32)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						G'td	F'nd	G'td	F'nd	G'td	F'nd				
10-359	16 per cent Acid Phosphate.....	E. K. Thornberry, Neosho.....				Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
						18.04	0.25	0.48	16.00	17.56				22.40	24.58
10-587	16 per cent Acid Phosphate.....	Farmers Shipping Assn., Russellville.....													
						19.32	0.25	3.05	16.00	16.27				22.40	22.78
10-360	18 per cent Acid Phosphate.....	Farmers Exchange, St. Clair.....													
						19.27	0.25	0.46	18.00	18.81				25.20	26.33
10-361	18 per cent Acid Phosphate.....	Produce Exchange Assn., Richland.....													
						20.03	0.25	0.69	18.00	19.34				25.20	27.08
10-362	18 per cent Acid Phosphate.....	Farmers Exchange, Jamesport.....													
						19.46	0.25	0.70	18.00	18.76				25.20	26.26
10-363	18 per cent Acid Phosphate.....	Farm Club Exchange, Owensville.....													
						18.63	0.25	0.43	18.00	18.20				25.20	25.48
10-364	18 per cent Acid Phosphate.....	Farmers Exchange, Belle.....													
						19.75	0.25	0.58	18.00	19.17				25.20	26.84
10-365	18 per cent Acid Phosphate.....	Verona Farmers Sales Assn., Verona.....													
						18.28	0.25	0.28	18.00	18.00				25.20	25.20
10-588	18 per cent Acid Phosphate.....	Lohman Produce Exchange, Lohman.....													
						19.11	0.25	0.63	18.00	18.48				25.20	25.87
10-589	18 per cent Acid Phosphate.....	Farmers Shipping Assn., Russellville.....													
						18.71	0.25	1.27	18.00	17.44				25.20	24.42
10-367	20 per cent Acid Phosphate.....	Farmers Exchange No. 245, Bourbon.....													
						21.05	0.10	0.93	20.00	20.12				28.00	28.17
10-368	20 per cent Acid Phosphate.....	Farmers Exchange, St. Clair.....													
						20.26	0.10	0.53	20.00	19.73				28.00	27.62
10-370	20 per cent Acid Phosphate.....	LaGrange Elevator Company, LaGrange.....													
						21.56	0.10	1.46	20.00	20.10				28.00	28.14
10-371	20 per cent Acid Phosphate.....	Barton County Farmers Assn., Lamar.....													
						21.69	0.10	1.59	20.00	20.10				28.00	28.14
10-372	20 per cent Acid Phosphate ¹	Farmers Produce & Grain Company, Chillicothe.....													
						20.45	0.10	0.30	20.00	20.15				28.00	28.21
10-373	20 per cent Acid Phosphate.....	Farmers Elevator Assn., Washington.....													
						21.15	0.10	1.02	20.00	20.13				28.00	28.18
10-374	20 per cent Acid Phosphate.....	Produce Exchange, Vienna.....													
						20.58	0.10	0.37	20.00	20.21				28.00	28.29

10-375	20 per cent Acid Phosphate.....	W. L. Pinkston, Clinton.....							20.64	0.10	0.78	20.00	19.86			28.00	27.80
10-376	20 per cent Acid Phosphate.....	Verona Farmers Sales Assn., Verona.....							20.35	0.10	0.69	20.00	19.66			28.00	27.52
10-377	0-10-10 Goods.....	Farmers Exchange, No. 245, Bourbon.....							10.44	0.25	0.64	10.00	9.80	10.00	9.15	24.50	23.33
10-378	0-12-4 Goods.....	Farmers Exchange, No. 245, Bourbon.....							13.34	0.25	1.24	12.00	12.10	4.00	3.28	21.00	20.38
10-379	0-12-4 Goods.....	Farmers Store, St. Clair.....							12.86	0.25	0.66	12.00	12.20	4.00	4.03	21.00	21.31
10-380	0-12-4 Goods.....	Farmers Exchange, Callao.....							12.38	0.25	1.06	12.00	11.32	4.00	4.15	21.00	20.21
10-381	0-12-4 Goods.....	Verona Farmers Sales Assn., Verona.....							12.12	0.25	0.71	12.00	11.41	4.00	4.16	21.00	20.34
10-382	2-8-2 Goods.....	Farmers Exchange, Lebanon.....	1.67	1.35	67.94				7.81	0.25	0.81	8.00	7.00	2.00	2.10	20.40	17.75
10-383	2-8-2 Goods.....	Farmers Exchange, Lebanon.....	1.67	1.51	72.19				7.83	0.25	0.81	8.00	7.02	2.00	1.87	20.40	18.29
10-384	2-8-2 Goods.....	New Haven Coop. Assn., New Haven.....	1.67	1.33	69.17				11.08	0.25	0.98	8.00	10.12	2.00	2.05	20.40	21.94
10-385	2-12-0 Goods.....	Farmers Coop. Assn., Brunswick.....	1.67	1.54	66.67				12.12	0.25	0.88	12.00	11.24			23.90	22.29
10-386	2-12-0 Goods.....	Farmers Coop. Assn., Union.....	1.67	1.54	65.58				13.96	0.25	1.14	12.00	12.82			23.90	24.50
10-390	2-12-2 Goods.....	Farmers Exchange, Mt. Grove.....	1.67	1.75	41.14				13.89	0.25	1.91	12.00	11.98	2.00	2.39	26.00	26.72
10-392	2-12-2 Goods.....	Farmers Exchange, Seymour.....	1.67	1.37	53.33				15.26	0.25	2.42	12.00	12.84	2.00	2.06	26.00	25.96
10-393	2-12-2 Goods.....	Farmers Exchange, Mansfield.....	1.67	1.52	63.70				11.86	0.25	1.02	12.00	10.84	2.00	1.98	26.00	23.72
10-394	2-12-2 Goods.....	Farmers Exchange, New Cambria.....	1.67	1.67	65.27				12.72	0.25	0.68	12.00	12.04	2.00	1.70	26.00	25.01
10-395	2-12-2 Goods.....	LaGrange Elevator Company, LaGrange.....	1.67	1.63	63.80				13.45	0.25	1.17	12.00	12.28	2.00	2.02	26.00	26.24
10-396	2-12-2 Goods.....	Farmers Coop., Kirksville.....	1.67	1.67	65.87				13.62	0.25	0.85	12.00	12.77	2.00	2.01	26.00	27.09
10-397	2-12-2 Goods.....	Purdin Farm Club, Purdin.....	1.67	1.65	70.30				13.12	0.25	0.98	12.00	12.14	2.00	2.01	26.00	26.12
10-398	2-12-2 Goods.....	Browning Farm Club, Browning.....	1.67	1.49	60.00				13.62	0.25	0.94	12.00	12.68	2.00	1.89	26.00	26.06
10-399	2-12-2 Goods.....	Farmers Exchange, Brookfield.....	1.67	1.63	60.38				12.07	0.25	0.93	12.00	11.14	2.00	1.66	26.00	24.27
10-400	2-12-2 Goods.....	Farmers Coop. Assn., Union.....	1.67	1.70	68.24				13.12	0.25	1.27	12.00	11.85	2.00	1.79	26.00	25.70
10-401	2-12-2 Goods.....	Farm Club Exchange, Owensville.....	1.67	1.62	65.38				12.32	0.25	0.88	12.00	11.44	2.00	2.00	26.00	24.75
10-402	2-12-2 Goods.....	Farmers Exchange, Belle.....	1.67	1.71	68.42				13.25	0.25	1.05	12.00	12.20	2.00	2.17	26.00	26.63
10-403	2-12-2 Goods.....	W. L. Pinkston, Clinton.....	1.67	1.64	69.14				12.35	0.25	1.30	12.00	11.05	2.00	2.09	26.00	24.63
10-405	2-12-2 Goods.....	Claud Weaver, Gerster.....	1.67	1.58	63.92				11.25	0.25	0.80	12.00	10.45	2.00	1.57	26.00	23.00
10-407	2-12-4 Goods.....	Farmers Exchange, Jamesport.....	1.67	1.56	68.59				13.93	0.25	1.00	12.00	12.93	4.00	3.02	28.10	27.90
10-408	2-16-2 Goods ¹	Farmers Exchange, Lewistown.....	1.67	1.56	71.15				17.50	0.25	1.76	16.00	15.74	2.00	2.60	31.60	31.40

(1) Fertilizer resacked by dealer.

(7) Labeled wrong.

(9) 1926 goods.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

(Page 34)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						G'td	F'nd	G'td	F'nd	G'td	F'nd				
10-409	2-16-2 Goods.....	New Haven Coop. Assn., New Haven.....	1.67	1.89	80.42	16.43	0.25	0.91	16.00	15.52	2.00	2.03	31.60	31.89	
10-410	2-16-6 Goods.....	Farmers Exchange, Jasper.....	1.67	1.82	78.02	17.86	0.25	1.29	16.00	16.57	6.00	6.40	35.80	37.66	
10-411	Bone & Phosphate Mixture.....	Farmers Exchange, St. Clair.....	1.25	1.17	30.77	20.03	6.00	6.61	12.00	13.42	-----	-----	26.91	28.56	
10-412	Bone & Phosphate Mixture.....	Barton County Farmers Assn., Lamar.....	1.25	1.44	35.41	20.26	6.00	6.72	12.00	13.54	-----	-----	26.91	29.88	
10-413	Bone & Phosphate Mixture.....	Farmers Exchange, Belle.....	1.25	1.43	40.56	21.37	6.00	7.62	12.00	13.75	-----	-----	26.91	30.13	
10-414	Bone & Phosphate Mixture.....	E. K. Thornberry, Neosho.....	1.25	1.15	29.57	20.62	6.00	9.60	12.00	11.02	-----	-----	26.91	25.12	
10-591	Bone & Phosphate Mixture ⁷	Lohman Produce Exchange, Lohman.....	1.25	1.19	31.09	20.57	6.00	8.24	12.00	12.33	-----	-----	26.91	27.12	
10-415	Ground Raw Bone.....	Farmers Exchange, Brookfield.....	3.28	3.85	10.39	20.00	16.43	-----	-----	-----	-----	-----	33.94	32.79	
10-416	Ground Raw Bone.....	Farmers Exchange, Monett.....	3.28	3.83	12.53	20.00	17.96	-----	-----	-----	-----	-----	33.94	34.24	
10-417	Steamed Bone Meal.....	Farmers Exchange, Cabool.....	2.51	3.35	26.87	24.00	24.85	-----	-----	-----	-----	-----	34.67	39.09	
10-418	Steamed Bone Meal.....	Farmers Exchange, Shelbina.....	2.51	3.73	23.59	24.00	23.76	-----	-----	-----	-----	-----	34.67	39.61	
10-419	Steamed Bone Meal.....	Canton Coop. Elev. Co., Canton.....	2.51	3.36	23.51	24.00	24.75	-----	-----	-----	-----	-----	34.67	29.03	
10-420	Steamed Bone Meal.....	Farmers Exchange, Brookfield.....	2.51	1.43	21.68	24.00	29.03	-----	-----	-----	-----	-----	34.67	35.11	
10-421	Steamed Bone Meal.....	Farmers Exchange, Belle.....	2.51	3.63	23.42	24.00	23.76	-----	-----	-----	-----	-----	34.67	39.19	
10-422	Ground Steam Bone ²	LaGrange Elevator Company, LaGrange.....	1.67	1.60	30.00	27.00	27.78	-----	-----	-----	-----	-----	34.10	34.58	
10-423	Ground Steam Bone ²	Farmers Coop. Assn., Union.....	1.67	1.60	29.38	27.00	27.46	-----	-----	-----	-----	-----	34.10	34.26	
10-425	Ground Steam Bone ²	Verona Farmers Sales Assn., Verona.....	1.67	1.69	19.53	27.00	27.37	-----	-----	-----	-----	-----	34.10	34.55	
10-426	Ground Steam Bone ²	Farmers Exchange, Monett.....	1.67	1.73	32.37	27.00	27.30	-----	-----	-----	-----	-----	34.10	34.65	
10-427	Ground Steam Bone ² ⁸	Center Elevator & Mercantile Company, Center.....	1.67	2.57	18.29	27.00	26.94	-----	-----	-----	-----	-----	34.10	37.86	
10-590	Ground Steam Bone ²	Produce Exchange, Versailles.....	1.67	1.64	29.27	27.00	27.43	-----	-----	-----	-----	-----	34.10	34.40	

10-457	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Green-Tooley Mill & Elevator Company, Pattonsburg.....	17.10	0.71	16.00	16.39	22.40	22.95
10-458	Red Steer 16 per cent Acid Phosphate Fertilizer.....	J. T. Henry, Troy.....	17.94	0.81	16.00	17.13	22.40	23.98
10-459	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Coil Bros., Perry.....	17.20	0.85	16.00	16.35	22.40	22.89
10-461	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Farmers Grain & Elevator Company, Owensville.....	17.63	0.79	16.00	16.84	22.40	23.58
10-462	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Frank Dickneite, Freeburg.....	17.35	1.17	16.00	16.18	22.40	22.65
10-463	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Clinton Grain & Elevator Company, Clinton.....	17.63	0.80	16.00	16.83	22.40	23.56
10-464	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Elder & Duvall, Osceola.....	17.35	0.72	16.00	16.63	22.40	23.28
10-465	Red Steer 16 per cent Acid Phosphate Fertilizer.....	E. A. Duvork, Bolivar.....	17.71	0.78	16.00	16.93	22.40	23.70
10-466	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Farmers Exchange, Humansville.....	17.33	0.77	16.00	16.61	22.40	23.25
10-467	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Crew & Baker, Fairplay.....	16.94	0.64	16.00	16.30	22.40	22.82
10-469	Red Steer 16 per cent Acid Phosphate Fertilizer.....	Neosho Seed Company, Neosho.....	17.56	0.70	16.00	16.86	22.40	23.60
10-470	Red Steer 20 per cent Acid Phosphate Fertilizer.....	Graves, Pettigrew Hardware Company, Cabool.....	21.98	0.92	20.00	21.06	28.00	29.48
10-471	Red Steer 20 per cent Acid Phosphate Fertilizer.....	Pete Erdel, Jr., Rush Hill.....	21.50	0.34	20.00	21.16	28.00	29.62
10-473	Red Steer 20 per cent Acid Phosphate Fertilizer.....	Edina Roller Mills Company, Edina.....	20.91	0.71	20.00	20.20	28.00	28.28
10-474	Red Steer 20 per cent Acid Phosphate Fertilizer.....	Farmers Mllg. & Grain Company, Schell City.....	21.47	0.67	20.00	20.80	28.00	29.12

(1) Fertilizer resacked by dealer.

10-492	Red Steer 2-12-2	Mansfield Produce Company, Mansfield	1.65	1.69	69.82	12.71	1.00	0.54	12.00	12.17	2.00	2.09	25.91	26.41
10-493	Red Steer 2-12-2	Pete Erdel, Jr., Rush Hill	1.65	1.74	76.44	13.09	1.00	0.72	12.00	12.37	2.00	2.22	25.91	27.05
10-494	Red Steer 2-12-2	Clarence Grain Company, Clarence	1.65	1.69	75.15	12.94	1.00	0.58	12.00	12.36	2.00	2.21	25.91	26.80
10-495	Red Steer 2-12-2	Farmers Elevator Company, Shelbyville	1.65	1.67	70.06	13.29	1.00	0.81	12.00	12.48	2.00	2.15	25.91	26.83
10-497	Red Steer 2-12-2	McCorkle Elevator Company, Clifton Hill	1.65	1.63	76.07	13.12	1.00	0.78	12.00	12.34	2.00	2.03	25.91	26.34
10-500	Red Steer 2-12-2	Farmers Exchange, Nevada	1.65	1.55	71.61	12.81	1.00	0.76	12.00	12.05	2.00	2.07	25.91	25.63
10-501	Red Steer 2-12-2	Laverne Woody, Golden City	1.65	1.69	72.78	12.99	1.00	0.60	12.00	12.39	2.00	2.17	25.91	26.81
10-503	Red Steer 2-12-2	Oscar Granemann, New Haven	1.65	1.57	66.24	12.76	1.00	0.35	12.00	12.41	2.00	2.07	25.91	26.21
10-504	Red Steer 2-12-2	Farmers Grain & Elevator Company, Owensville	1.65	1.64	79.88	12.86	1.00	0.62	12.00	12.24	2.00	2.22	25.91	26.44
10-505	Red Steer 2-12-2	Farmers Produce Exchange, Lowry City	1.65	1.70	79.41	12.55	1.00	0.55	12.00	12.00	2.00	2.15	25.91	26.20
10-506	Red Steer 2-12-2	Firestone Hardware Company, Collins	1.65	1.79	75.42	12.58	1.00	0.41	12.00	12.17	2.00	2.26	25.91	27.02
10-508	Red Steer 2-12-2	Farmers Exchange, Humansville	1.65	1.55	65.81	12.38	1.00	0.44	12.00	11.94	2.00	2.20	25.91	25.62
10-510	Red Steer 2-12-2	Neosho Seed Company, Neosho	1.65	1.57	78.98	12.60	1.00	0.44	12.00	12.16	2.00	2.19	25.91	25.99
10-511	Red Steer 2-12-2	Zeron Lawson, Seneca	1.65	1.77	74.01	12.73	1.00	0.42	12.00	12.31	2.00	2.33	25.91	27.20
10-512	Red Steer 2-12-2	Mt. Vernon Mllg. & Elevator Company, Mt. Vernon	1.65	1.68	79.76	12.81	1.00	0.45	12.00	12.36	2.00	2.39	25.91	26.95
10-596	Red Steer 2-12-2	Soell & Plockberger, Lohman	1.65	1.69	75.15	12.99	1.00	0.58	12.00	12.41	2.00	2.28	25.91	26.94
10-513	Red Steer 2-16-2	Farmers Elevator Company, Shelbyville	1.65	1.68	95.24	16.99	1.00	0.99	16.00	16.00	2.00	2.30	31.51	31.96
10-514	Red Steer 2-16-2	Farmers Mllg. & Grain Company, Schell City	1.65	1.77	94.92	17.17	1.00	0.83	16.00	16.34	2.00	2.36	31.51	32.88
10-515	Red Steer 2-16-2	Eolia Elevator Company, Eolia	1.65	1.69	95.86	17.32	1.00	0.83	16.00	16.49	2.00	2.28	31.51	32.66
10-516	Red Steer 2-16-2	J. T. Henry, Troy	1.65	1.78	94.94	17.20	1.00	0.97	16.00	16.23	2.00	2.21	31.51	32.61
10-517	Red Steer 2-16-2	Mt. Vernon Mllg & Elevator Company, Mt. Vernon	1.65	1.67	95.21	16.95	1.00	1.19	16.00	15.76	2.00	2.50	31.51	31.79
10-518	Red Steer 3-8-6	Protiva-Horak Hardware Company, Willow Springs	2.47	2.50	83.60	8.06	1.00	0.53	8.00	7.53	6.00	6.64	28.00	28.14
10-519	Red Steer 3-8-6	Crew & Baker, Fairplay	2.47	2.54	82.68	8.11	1.00	0.32	8.00	7.79	6.00	6.69	28.00	28.73

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

(Page 40)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
10-521	Bone Meal & Phosphate Fertilizer ⁷ -----	McCorkle Elevator Company, Clifton Hill-----	0.82	0.85	36.47	20.61	5.00	3.80	15.00	16.81	-----	-----	28.49	30.18	
10-522	Bone Meal & Phosphate Fertilizer ⁷ -----	Peer Bros., Lockwood-----	0.82	0.97	43.30	20.67	5.00	4.03	15.00	16.64	-----	-----	28.49	30.64	
10-523	Bone Meal & Phosphate Fertilizer ⁷ -----	Frank Dickneite, Freeburg-----	0.82	1.01	34.65	20.42	5.00	3.81	15.00	16.61	-----	-----	28.49	30.59	
10-524	Raw Bone Meal Fertilizer 4 1/2-23	J. J. Bremer, Bourbon-----	3.70	4.28	10.98	23.00	23.00	-----	-----	-----	-----	-----	38.73	41.19	
10-525	Raw Bone Meal Fertilizer 4 1/2-23	Farmers Exchange, Springfield	3.70	3.87	13.44	23.00	19.05	-----	-----	-----	-----	-----	38.73	35.50	
10-526	Raw Bone Meal Fertilizer 4 1/2-23	Omer Webb, Jasper-----	3.70	4.09	17.85	23.00	25.04	-----	-----	-----	-----	-----	38.73	42.42	
10-527	Raw Bone Meal Fertilizer 4 1/2-23	Neosho Seed Company, Neosho	3.70	3.72	13.17	23.00	17.58	-----	-----	-----	-----	-----	38.73	33.39	
10-520	Bone Meal Fertilizer 1 1/4-29	Farmers Millg. & Grain Company, Schell City-----	1.03	2.05	29.27	29.00	29.27	-----	-----	-----	-----	-----	33.38	37.98	
10-529	Bone Meal Fertilizer 1 1/4-29	Graves-Pettigrew Hardware Company, Cabool-----	1.03	1.79	19.55	29.00	29.09	-----	-----	-----	-----	-----	33.38	36.70	
10-530	Bone Meal Fertilizer 1 1/4-29	Farmers Elevator Company, Shelbyville-----	1.03	1.49	28.19	29.00	32.41	-----	-----	-----	-----	-----	33.38	38.74	
10-533	Bone Meal Fertilizer 1 1/4-29	Lipscomb Grain & Seed Company, Liberal-----	1.03	1.09	6.42	29.00	32.06	-----	-----	-----	-----	-----	33.38	36.69	
10-534	Bone Meal Fertilizer 1 1/4-29	Laverne Woody, Golden City	1.03	1.11	26.13	29.00	33.56	-----	-----	-----	-----	-----	33.38	38.28	
10-535	Bone Meal Fertilizer 1 1/4-29	Peer Bros., Lockwood-----	1.03	1.50	22.67	29.00	31.96	-----	-----	-----	-----	-----	33.38	38.34	
10-537	Bone Meal Fertilizer 1 1/4-29	E. C. Duvork, Bolivar-----	1.03	1.90	24.21	29.00	29.15	-----	-----	-----	-----	-----	33.38	37.27	
10-538	Bone Meal Fertilizer 1 1/4-29	Crew & Baker, Fairplay-----	1.03	1.35	34.07	29.00	32.09	-----	-----	-----	-----	-----	33.38	37.83	
10-539	Bone Meal Fertilizer 1 1/4-29	Whitlock-Lines, Monett-----	1.03	1.33	23.31	29.00	32.15	-----	-----	-----	-----	-----	33.38	37.80	
10-540	Bone Meal Fertilizer 1 1/4-29	Neosho Seed Company, Neosho	1.03	1.47	19.73	29.00	32.12	-----	-----	-----	-----	-----	33.38	38.37	
10-541	Bone Meal Fertilizer 1 1/4-29	Zeron Lawson, Seneca-----	1.03	1.53	22.22	29.00	31.23	-----	-----	-----	-----	-----	33.38	37.73	
10-542	VIGORO-----	Macon Green House, Macon-----	3.29	3.27	90.21	12.90	-----	0.57	12.00	12.33	4.00	4.41	34.98	35.79	

10-543	VIGORO	Fleichman Seed Company, Hannibal	3.29	3.26	91.41	13.62	0.56	12.00	13.06	4.00	4.42	34.98	36.78	
10-544	VIGORO	Grubbs & Parker, Moberly	3.29	3.24	92.59	14.08	0.44	12.00	13.64	4.00	4.47	34.98	37.56	
10-545	VIGORO	Newmans Hardware Company, Moberly	3.29	3.33	92.19	13.27	0.44	12.00	12.83	4.00	4.61	34.98	36.95	
	Virginia-Carolina Chemical Company, Memphis, Tennessee													
10-548	V-C 16 per cent Superphosphate	Graves-Pettigrew Hardware Company, Cabool				18.65	1.00	16.00	17.35			22.40	24.71	
10-550	V-C 16 per cent Superphosphate	Produce & Grain Company, Eldorado Springs				17.76	0.86	16.00	16.90			22.40	23.66	
10-552	V-C 16 per cent Superphosphate	F. O. Wendler, Freistatt				18.19	0.86	16.00	17.35			22.40	24.29	
10-553	V-C 20 per cent Superphosphate	L. T. Tucker, Frankford				20.35	1.00	20.00	19.35			28.00	27.06	
10-554	V-C 20 per cent Superphosphate	N. Johannes & Son, Lamar				20.86	0.26	20.00	20.60			28.00	28.84	
10-556	V-C 20 per cent Superphosphate	Clinton Grain & Elevator Company, Clinton				20.83	0.54	20.00	20.29			28.00	28.41	
10-557	V-C Champion Phosphate and Potash	Omer Webb, Jasper				16.38	1.01	15.00	15.37	7.50	8.96	28.88	30.93	
10-558	V-C Champion Phosphate and Potash	N. Johannes & Son, Lamar				18.24	0.97	15.00	17.27	7.50	7.22	28.88	31.76	
10-559	Victor Bone & Potash Compound	Omer Webb, Jasper				16.28	0.65	15.00	15.63	3.00	3.57	24.15	25.63	
10-560	V-C Plow Brand Fertilizer	L. T. Tucker, Frankford	1.65	1.95	70.77	13.65	1.57	12.00	12.08	2.00	2.51	25.91	27.84	
10-561	V-C Plow Brand Fertilizer	N. Johannes & Son, Lamar	1.65	1.75	89.14	14.14	1.62	12.00	12.52	2.00	6.20	25.91	31.48	
10-563	V-C Plow Brand Fertilizer	N. Johannes & Son, Lamar	1.65	1.83	73.22	14.03	1.67	12.00	12.36	2.00	2.35	25.91	27.55	
10-564	V-C Double Strength Money Saver	N. Johannes & Son, Lamar	1.65	1.97	87.31	17.86	1.67	16.00	16.19	2.00	2.64	31.51	33.81	
	Miscellaneous Samples													
2-94	Half & Half (1½-13) Cudahy Packing Company	Factory, Kansas City, Kansas	1.23	1.55		23.75	7.00	10.66	13.00	13.09		29.03	30.51	
2-95	Half & Half (1½-13) Cudahy Packing Company	Factory, Kansas City, Kansas	1.23	1.42		23.42	7.00	10.59	13.00	12.83		29.03	29.60	
10-652	A. A. Red Dragon Fertilizer, American Agricultural Chemical Company	Thomas Hanky, Dixon	1.65	0.97		15.50	0.50	1.55	12.00	13.95	2.00	2.00	25.91	25.75

(7) Labelled wrong.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1927 (Continued)

(Page 42)

Lab. No.	Manufacturer and Brands	Sample obtained from	Nitrogen			Phosphoric Acid P ₂ O ₅						Water Soluble Potash K ₂ O		Value per Ton	
			Total G'td	Total F'nd	Water Soluble to Total	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
						G'td	F'nd	G'td	F'nd	G'td	F'nd				
10-654	A. A. Red Dragon Fertilizer, American Agricultural Chemical Company	Farm Supply Company, Lebanon	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
10-655	Pure Raw Bone Meal, Read Phosphate Company	John Munsil, St. James	1.65	1.67	-----	14.36	0.50	1.69	12.00	12.67	2.00	2.08	25.91	27.02	
11-120	Big Crop 4-16-4, Armour Fertilizer Works	G. Schantz, Dexter	3.70	3.97	-----	20.00	22.52	-----	-----	-----	-----	-----	35.73	39.39	
11-144	Ground Bone (3-24) No. 1 Floyd Plant Food Company	H. C. Freiburger, Union	3.30	3.26	-----	16.78	0.50	0.71	16.00	16.07	4.00	4.43	40.63	41.00	
11-145	Ground Bone (3-24) No. 2 Floyd Plant Food Company	H. C. Freiburger, Union	2.51	3.67	-----	24.00	23.99	-----	-----	-----	-----	-----	34.67	39.59	
11-146	Interstate Steam Bone (3-24), Crocker Packing Co.	O. E. Boucher, Pierce City	2.51	1.47	-----	24.00	19.74	-----	-----	-----	-----	-----	34.67	25.99	
11-147	Interstate, 2-12-2, Crocker Packing Co.	O. E. Boucher, Pierce City	2.46	3.24	-----	24.00	25.57	-----	-----	-----	-----	-----	34.46	39.34	
			1.65	1.80	-----	-----	12.76	1.50	0.76	12.00	12.00	2.00	2.02	25.91	26.57

TABLE 6.—LIMESTONES AND OTHER MATERIALS TESTED FOR ACID
NEUTRALIZING POWER
(Expressed in Percentage of Calcium Carbonate)

County	Material	Number of samples tested	Calcium carbonate equivalent		
			Highest	Lowest	Average
Adair	Limestone	1	-----	-----	92.00
	Rock	1	-----	-----	70.66
Andrew	Limestone	3	85.92	83.90	85.14
	Rock	1	-----	-----	69.36
Audrain	Limestone	8	97.76	81.16	95.03
Barry	Limestone	9	98.73	85.88	95.46
Bates	Limestone	87	99.85	82.53	95*32
	Rock	2	71.69	4.10	-----
	Soil material	1	-----	-----	86.78
Benton	Limestone	17	102.62	87.28	97.33
Bollinger	Limestone	16	104.85	75.25	92.76
Boone	Limestone	17	99.67	88.25	94.68
Buchanan	Limestone	4	83.36	79.55	81.18
	Sediment from water tank	1	-----	-----	95.52
Butler	Limestone	1	-----	-----	99.68
Callaway	Limestone	10	100.12	94.62	97.27
Camden	Limestone	4	100.68	97.16	98.85
Cape Girardeau	Limestone	33	106.34	76.40	95.38
	Rock	5	70.35	0.18	44.24
Carroll	Limestone	5	96.31	77.03	88.62
Cass	Limestone	2	87.93	84.56	86.25
Chariton	Limestone	3	99.12	80.59	90.55
Christian	Limestone	1	-----	-----	97.72
Clark	Limestone	11	96.86	83.04	96.76
	Rock	2	39.04	11.08	25.06
	Waste carbonate	1	-----	-----	88.07
Clay	Limestone	18	97.14	81.65	97.49
Clinton	Limestone	2	81.96	81.59	81.78
Cole	Limestone	11	105.46	85.37	98.15
Cooper	Limestone	33	101.08	81.59	96.82
	Ag Shell	1	-----	-----	99.83
Crawford	Limestone	2	103.72	99.59	101.65
Dade	Limestone	4	99.04	97.24	98.02
Dallas	Limestone	5	103.79	91.32	96.58
Daviss	Limestone	5	95.15	91.47	93.42
	Soil material	1	-----	-----	22.47
De Kalb	Soil material	3	75.53	11.31	32.90
Dent	Limestone	3	101.36	93.54	98.32
	Rock	1	-----	-----	0.47
Douglas	Limestone	62	102.60	82.47	95.05
	Rock	2	72.00	20.16	46.08
Franklin	Limestone	103	107.85	76.79	94.78
	Rock	2	69.43	69.17	69.30
Gasconade	Limestone	23	103.15	81.91	94.08
Greene	Limestone	3	111.50	92.37	100.68
	Lime	2	116.16	107.13	111.65
	Lime-kiln waste	1	-----	-----	105.64
Grundy	Limestone	4	93.97	91.68	93.62
Harrison	Limestone	16	97.60	81.51	91.03
	Rock	2	63.91	13.35	38.63
Henry	Limestone	3	94.71	85.52	89.78
Hickory	Limestone	2	87.81	85.76	86.79
Holt	Limestone	1	-----	-----	89.46
Howard	Limestone	13	103.42	76.71	93.58

TABLE 6.—LIMESTONES AND OTHER MATERIALS TESTED FOR ACID
NEUTRALIZING POWER (Continued)
(Expressed in Percentage of Calcium Carbonate)

County	Material	Number of samples tested	Calcium carbonate equivalent		
			Highest	Lowest	Average
Howell	Limestone	12	103.06	79.68	95.13
Iron	Limestone	8	104.85	81.13	98.49
Jackson	Limestone	27	96.75	77.19	88.25
	Waste lime	1	-----	-----	95.65
Jasper	Limestone	2	96.30	96.25	96.28
	Sludge sand	1	-----	-----	52.72
Jefferson	Limestone	18	103.61	80.19	93.32
	Rock	1	-----	-----	71.76
Johnson	Limestone	30	97.00	80.30	91.15
	Rock	1	-----	-----	70.29
Knox	Limestone	4	98.18	94.86	96.03
Laclede	Limestone	7	101.64	94.03	98.52
Lafayette	Limestone	2	95.31	87.80	91.56
Lawrence	Limestone	10	102.19	97.81	99.18
Lewis	Limestone	13	97.74	78.09	93.18
	Rock	1	-----	-----	41.82
Lincoln	Limestone	20	100.34	87.06	95.15
	Rock	1	-----	-----	58.81
Linn	Limestone	16	98.13	81.14	91.48
	Sand	1	-----	-----	1.47
Livingston	Calcareous soil	6	65.97	30.30	45.22
McDonald	Limestone	3	99.50	95.96	97.47
	Waste lime	1	-----	-----	112.84
Macon	Limestone	1	-----	-----	94.39
Maries	Limestone	6	101.82	95.78	99.20
Marion	Limestone	23	100.32	89.51	97.22
	Lime hydrate tailings	1	-----	-----	107.72
Mercer	Limestone	4	96.31	87.13	91.51
Miller	Limestone	4	104.10	102.38	103.27
Moniteau	Limestone	5	99.09	82.33	92.39
Monroe	Limestone	48	99.93	76.32	93.81
Montgomery	Limestone	7	99.31	82.12	82.98
Morgan	Limestone	12	104.59	80.11	92.80
	Rock	1	-----	-----	1.76
Newton	Limestone	20	104.81	87.91	97.21
	Rock	3	25.90	2.89	11.34
Oregon	Limestone	3	94.90	86.07	91.62
Osage	Limestone	25	103.44	91.61	98.61
	Rock	1	-----	-----	11.03
Ozark	Limestone	15	103.52	82.87	95.26
Perry	Limestone	42	101.77	79.90	91.94
Pettis	Limestone	5	102.20	90.42	95.91
Phelps	Limestone	14	104.53	92.09	96.97
Pike	Limestone	34	100.28	75.80	91.88
	Rock	1	-----	-----	73.85
Platte	Lime	1	-----	-----	102.36
Polk	Limestone	6	99.99	83.98	91.27
Pulaski	Limestone	4	87.05	78.60	82.88
Putnam	Limestone	1	-----	-----	96.02
Ralls	Limestone	5	99.40	88.48	94.81
Randolph	Limestone	8	95.91	79.69	90.62
	Rock	1	-----	-----	64.28
Ripley	Limestone	4	105.79	99.65	102.88
St. Charles	Limestone	37	100.50	78.41	91.60
	Rock	1	-----	-----	73.15

County	Material	Number of samples tested	Calcium carbonate equivalent		
			Highest	Lowest	Average
St. Clair	Limestone	7	97.23	83.23	91.02
	Rock	1	-----	-----	73.44
St. Francois	Limestone	3	89.26	79.00	84.25
	Chats.	36	91.42	73.83	85.31
	Fine material from chat piles (sludge)	6	86.48	66.62	80.81
Ste. Genevieve	Limestone	6	115.44	94.16	103.48
St. Louis	Limestone	30	99.15	80.74	92.39
	Hydrated lime	1	-----	-----	88.14
Saline	Limestone	1	-----	-----	92.20
Stone	Limestone	9	97.05	90.82	93.35
Sullivan	Limestone	11	95.78	84.77	91.39
Taney	Limestone	1	-----	-----	99.93
Texas	Limestone	12	104.59	86.98	94.58
Warren	Limestone	15	100.65	76.33	94.87
	Rock	3	62.43	2.70	35.74
Washington	Limestone	5	106.19	95.91	102.99
Wayne	Limestone	4	117.57	98.10	105.16
Webster	Limestone	5	100.91	94.36	98.26
Worth	Limestone	3	91.62	80.36	87.33
Wright	Limestone	61	107.35	83.95	97.47
Samples outside of Missouri	Limestone	5	96.84	88.96	93.25
	Oyster shell	1	-----	-----	96.76

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928

Fertilizer	Nitro- gen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Abner Hood Chemical Company, Kansas City, Missouri					
Nitrate of Soda.....	14.87	----	----	----	----
Imported from Chile, South America.					
The American Agricultural Chemical Company, St. Louis, Mo.					
16 per cent Superphosphate.....	----	----	16.00	0.50	----
20 per cent Superphosphate.....	----	----	20.00	0.50	----
AA Atlas Mixture.....	----	----	12.00	0.50	6.00
AA Farmers Favorite Fertilizer.....	0.82	----	12.00	0.50	1.00
AA Squirrel Brand Fertilizer.....	1.65	----	8.00	0.50	2.00
AA Red Dog Fertilizer.....	1.65	----	8.00	0.50	5.00
AA Red Dragon Fertilizer.....	1.65	----	12.00	0.50	2.00
Agrico Fertilizer for Grain.....	1.65	----	12.00	0.50	4.00
AA Antler Fertilizer.....	1.65	----	12.00	0.50	6.00
AA Gilt Edge Fertilizer.....	1.65	----	16.00	0.50	2.00
Agrico Fertilizer for Corn.....	2.47	----	10.00	0.50	6.00
Agrico Fertilizer for Potatoes.....	3.29	----	8.00	0.50	6.00
AA Two in One Fertilizer.....	3.29	----	16.00	0.50	4.00
Agrico Fertilizer for Truck.....	4.11	----	10.00	0.50	5.00
AA Half & Half Bone & Phosphate.....	0.82	----	12.00	8.00*	----
AA Steam Bone Meal.....	1.03	29.00	----	----	----
AA Pure Raw Bone.....	3.29	20.00	----	----	----
Ammonium Sulphate.....	20.16	----	----	----	----
Kainit.....	----	----	----	----	12.40
Muriate of Potash.....	----	----	----	----	50.00
Nitrate of Soda.....	15.00	----	----	----	----
AA Double Strength Fertilizer.....	1.65	----	16.00	0.50	8.00
AA Paramount Fertilizer.....	2.47	----	8.00	0.50	6.00
AA Pulverized Sheep Manure.....	1.44	----	0.75	----	2.00
AA Top Notch Fertilizer.....	7.40	----	7.00	0.50	3.00
*From bone.					
American Cyanamid Company, New York, New York					
Ammo-Phos.....	16.00	----	19.00	1.00	----
Anglo-Chilean Nitrate Sales Corp. New York City, New York					
Nitrate of Soda.....	15.50	----	----	----	----
Arkansas Fertilizer Company, Little Rock, Arkansas					
White Diamond Brands					
Crop Getter.....	4.00	----	12.00	----	4.00
Gro-Fast.....	4.00	----	12.00	----	----
Southern King.....	2.00	----	12.00	----	2.00
12-1.65-6.....	1.65	----	12.00	----	6.00
Kali-Superphosphate.....	----	----	12.00	----	4.00
Prize Winner.....	6.00	----	10.00	----	4.00
Economy.....	5.00	----	10.00	----	3.00
Farmer's Choice.....	4.00	----	10.00	----	4.00
Moore's Special Mixture.....	4.00	----	10.00	----	2.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Available	Insoluble	
Early Boll.....	3.00	----	10.00	----	2.00
10-3-2.....	3.00	----	10.00	----	2.00
Southern Special.....	3.00	----	9.00	----	3.00
Jack Rabbit.....	4.00	----	8.00	----	6.00
Old Reliable.....	4.00	----	8.00	----	4.00
Eclipse Acid Phosphate.....	----	----	20.00	----	----
Bove-All Acid Phosphate.....	----	----	18.00	----	----
Acid Phosphate.....	----	----	16.00	----	----
Blood and Bone.....	2.00	----	10.00	----	2.00
Southern Queen.....	1.65	----	10.00	----	2.00
Arkansas Standard.....	1.65	----	10.00	----	1.00
20th Century.....	1.65	----	9.00	----	2.00
Pure Raw Bone Meal.....	3.70	23.00	----	----	----
Prize Wheat Grower.....	1.65	----	16.00	----	2.00
Early Harvest.....	1.65	----	12.00	----	2.00
Number 39.....	0.82	----	10.00	----	1.00
South West Wheat Grower.....	0.82	----	15.00	----	1.00
Muriate of Potash.....	----	----	----	----	50.00
Sulphate of Potash.....	----	----	----	----	48.00
Kainit.....	----	----	----	----	14.00
Nitrate of Soda.....	15.00	----	----	----	----
Sulphate of Ammonia.....	20.50	----	----	----	----
Extra Dry Sulphate of Ammonia.....	20.50	----	----	----	----
Cotton Seed Meal Fertilizer.....	6.58	----	----	----	----
Armour Fertilizer Works,					
Chicago, Illinois					
Armour Brands					
Nitrate of Soda.....	14.85	----	----	----	----
Lawn and Garden Grower.....	4.95	----	8.00	0.50	6.00
Big Crop Brands					
4-16-8 Fertilizer.....	3.30	----	16.00	0.50	8.00
4-16-4 Fertilizer.....	3.30	----	16.00	0.50	4.00
4-8-6 Fertilizer.....	3.30	----	8.00	0.50	6.00
3-8-6 Fertilizer.....	2.47	----	8.00	0.50	6.00
2-16-8 Fertilizer.....	1.65	----	16.00	0.50	8.00
2-16-2 Fertilizer.....	1.65	----	16.00	0.50	2.00
2-12-6 Fertilizer.....	1.65	----	12.00	0.50	6.00
2-12-2 Fertilizer.....	1.65	----	12.00	0.50	2.00
0-16-8 Fertilizer.....	----	----	16.00	0.50	8.00
20 per cent Superphosphate.....	----	----	20.00	0.50	----
16 per cent Superphosphate.....	----	----	16.00	0.50	----
3-24 Bone Meal.....	2.47	24.00	----	----	----
2-27 Bone Meal.....	1.65	27.00	----	----	----
Raw Bone Meal.....	3.70	22.00	----	----	----
Tuscarora Brands					
4-16-8 Fertilizer.....	3.30	----	16.00	0.50	8.00
4-16-4 Fertilizer.....	3.30	----	16.00	0.50	4.00
4-8-6 Fertilizer.....	3.30	----	8.00	0.50	6.00
3-8-6 Fertilizer.....	2.47	----	8.00	0.50	6.00
2-16-8 Fertilizer.....	1.65	----	16.00	0.50	8.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
2-16-2 Fertilizer.....	1.65	----	16.00	0.50	2.00
2-12-6 Fertilizer.....	1.65	----	12.00	0.50	6.00
2-12-2 Fertilizer.....	1.65	----	12.00	0.50	2.00
0-16-8 Fertilizer.....	----	----	16.00	0.50	8.00
20 per cent Superphosphate.....	----	----	20.00	0.50	----
16 per cent Superphosphate.....	----	----	16.00	0.50	----
3-24 Bone Meal.....	2.47	24.00	----	----	----
2-27 Bone Meal.....	1.65	27.00	----	----	----
Raw Bone Meal.....	3.70	22.00	----	----	----
The Barrett Company,					
New York, N. Y.					
Sulphate of Ammonia.....	20.50	----	----	----	----
Arcadian Sulphate of Ammonia.....	20.75	----	----	----	----
Blood & Bone Fertilizer Company.....					
St. Louis, Missouri					
Special Truck Grower (High Grade).....	3.29	----	8.00	1.00	5.00
Special Truck Grower (Medium Grade).....	1.64	----	8.00	1.00	2.00
Special Wheat Grower (High Grade).....	1.03	----	10.00	1.00	3.00
Special Wheat Grower (Medium Grade).....	1.03	----	8.00	1.00	1.00
Special Crop Grower.....	2.00	----	8.00	1.00	2.00
Ammoniated Bone Phosphate (High Grade).....	1.64	----	12.00	1.00	----
Ammoniated Bone Phosphate (Medium Grade).....	1.03	----	10.00	1.00	----
Missouri Special Fertilizer.....	1.65	----	12.00	----	2.00
Twelve Four Fertilizer.....	----	----	12.00	----	4.00
16 per cent Soluble Bone Phosphate.....	----	----	16.00	----	----
18 per cent Soluble Bone Phosphate.....	----	----	18.00	----	----
20 per cent Soluble Bone Phosphate.....	----	----	20.00	----	----
Two Twelve Six.....	1.65	----	12.00	----	6.00
Two Sixteen Two.....	1.65	----	16.00	----	2.00
Soluble Bone Phosphate & Bone Mixture.....	1.50	----	12.00	8.00*	----
Raw Bone Meal.....	3.30	20.00	----	----	----
St. Louis Bone Meal.....	2.47	24.00	----	----	----
Steam Bone Meal.....	1.23	30.00	----	----	----
The Bone and Potash Fertilizer Company,					
East St. Louis, Illinois					
Shin Bone Brand Special Wheat Grower.....	0.92	----	9.00	1.00	1.25
Shin Bone Brand Corn, Cotton, and Truck Grower.....	0.92	----	9.00	1.00	1.25
Bone Products Company,					
Washington, Missouri					
Raw Bone Meal.....	3.52	26.41	----	----	----
Calumet Fertilizer Corporation,					
New Albany, Indiana					
Calumet Brands					
Four Twenty-four Four.....	3.29	----	24.00	1.00*	4.00
Four Twenty-four Twelve.....	3.29	----	24.00	1.00*	12.00
Two Twelve Two.....	1.65	----	12.00	1.00*	2.00
Two Eight Two.....	1.65	----	8.00	1.00*	2.00
Onion and Tobacco Grower.....	0.82	----	8.00	1.00*	3.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Crop Grower.....	0.82	----	8.00	1.00*	1.00
16 per cent Superphosphate (Acid Phosphate).....	----	----	16.00	1.00	----
20 per cent Superphosphate (Acid Phosphate).....	----	----	20.00	1.00	----
44 per cent Double Superphosphate.....	----	----	44.00	1.00	----
Two Twelve Six.....	1.65	----	12.00	1.00*	6.00
Crocker Packing Company, Joplin, Missouri					
Interstate Brands					
2-10-2.....	1.65	----	10.00	1.50	2.00
2-8-2.....	1.65	----	8.00	1.25	2.00
"Special" 2-12-2.....	1.65	----	12.00	1.50	2.00
1-12-1.....	0.82	----	12.00	1.50	1.00
2-12-4.....	1.65	----	12.00	1.50	4.00
Steam Bone Sheep Manure and Potash.....	1.65	----	6.00	8.00*	2.00
Steam Bone Sheep Manure and Phosphate.....	1.23	----	12.00	8.00*	----
Super Phosphate 20 per cent.....	----	----	20.00	----	----
Steam Bone Meal 3-24.....	2.46	24.00	----	----	----
Acid Phosphate 16 per cent.....	----	----	16.00	----	----
Raw Bone 4 1/4-22.....	3.30	22.00	----	----	----
2-8-5.....	1.65	----	8.00	1.25	5.00
1/2-15-2.....	0.41	----	15.00	1.50	2.00
1-16-1.....	0.82	----	16.00	1.50	1.00
2-16-2.....	1.65	----	16.00	1.50	2.00
Potato Special 2-8-10.....	1.65	----	8.00	1.25	10.00
Cudahy Packing Company, Chicago, Illinois					
Bigwin Brands					
Steamed Bone Meal.....	2.47	24.00	----	----	----
Half & Half 1 1/2 and 13.....	1.23	----	13.00	7.00*	----
High Grade 16 per cent Acid Phosphate.....	----	----	16.00	1.00	----
High Grade 18 per cent Acid Phosphate.....	----	----	18.00	1.00	----
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.....	2.47	----	12.00	----	4.00
High Grade Fertilizer 3-8-6.....	2.47	----	8.00	----	6.00
High Grade 20 per cent Acid Phosphate.....	----	----	20.00	1.00	----
High Grade Fertilizer 2-12-0.....	1.65	----	12.00	----	----
Raw Bone Meal.....	3.70	23.00	----	----	----
Nitrate of Soda.....	15.00	----	----	----	----
Muriate of Potash.....	----	----	----	----	58.00
Sulphate of Ammonia.....	21.00	----	----	----	----
High Grade Fertilizer 5-8-7.....	4.11	----	8.00	----	7.00
Darling & Co., Chicago, Illinois					
Darling's Brands					
Special Lawn Grower.....	4.11	----	8.00	0.50	7.00

*From bone.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Vegetable Grower.....	2.47	----	12.00	0.50	4.00
Farmers Favorite.....	2.47	----	8.00	0.50	6.00
General Crop.....	1.65	----	16.00	0.50	6.00
Tomato Grower.....	1.65	----	12.00	0.50	6.00
Crop King.....	1.65	----	12.00	0.50	6.00
Big Harvest.....	1.65	----	12.00	0.50	2.00
Sure Winner.....	0.82	----	10.00	0.50	4.00
16 per cent Superphosphate.....	----	----	16.00	----	----
20 per cent Superphosphate.....	----	----	20.00	----	----
Pure Ground Bone.....	1.85	28.00	----	----	----
Grain Grower.....	0.82	----	12.00	0.50	1.00
Potato Special.....	4.11	----	8.00	0.50	7.00
Chicago Brand.....	1.65	----	8.00	0.50	2.00
Fourteen Four.....	----	----	14.00	0.50	4.00
Ten Ten.....	----	----	10.00	0.50	10.00
Blood and Bone.....	4.94	12.00	----	----	----
Kemfert Potash.....	----	----	----	----	58.00
Muriate of Potash.....	----	----	----	----	50.00
Bone & Superphosphate Half & Half.....	0.82	----	11.00	12.00*	----
Nitrate of Soda.....	15.50	----	----	----	----
Sheep Manure.....	1.85	----	----	1.00	1.00
Sulphate of Ammonia.....	20.56	----	----	----	----
E. I. Du Pont de Nemours & Company, Wilmington, Delaware					
Nitrate of Soda.....	15.00	----	----	----	----
Earp-Thomas Cultures Corporation, Long Island City, New York					
Stim-U-Plant.....	11.00	----	11.71	0.36	15.00
The Empire Guano Company, Nashville, Tennessee					
Premium 2-16-2.....	1.65	----	16.00	2.00	2.00
Premium Grain Grower 2-12-2.....	1.65	----	12.00	3.00	2.00
Climax Cotton Grower 2-12-2.....	1.65	----	12.00	3.00	2.00
Red Banner Special 2-10-2.....	1.65	----	10.00	2.00	2.00
Wheat Oats and Corn Grower 1-10-1.....	0.82	----	10.00	2.00	1.00
Favorite Manure 1-10-3.....	0.82	----	10.00	2.00	3.00
Red Banner Truck Grower 3-8-6.....	2.47	----	8.00	5.00	6.00
High Grade Potash Mixture 0-10-4.....	----	----	10.00	2.00	4.00
Red Banner 16 per cent Superphosphate.....	----	----	16.00	2.00	----
Red Banner 18 per cent Superphosphate.....	----	----	18.00	1.00	----
Red Banner 20 per cent Superphosphate.....	----	----	20.00	----	----
Missouri Grain Grower 1-12-1.....	0.82	----	12.00	3.00	1.00
Pure Raw Bone Meal.....	3.70	20.00	----	----	----
Half & Half.....	1.85	----	12.00	8.00*	----
Missouri Premium Guano ½-8-4.....	0.41	----	8.00	4.00	4.00
The Excell Laboratories, Chicago, Illinois					
Zenkes New Plant Life (Liquid) (Domestic Strength).....	1.40	----	1.07	0.05	0.54
Zenkes New Plant Life (Liquid) (Full Strength).....	2.80	----	2.14	0.05	1.08

*From bone.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Federal Chemical Company, Inc., Louisville, Kentucky					
Globe Brands					
Globe Wheat and Grain Special.....	0.82	----	12.00	----	1.00
Braden Formula.....	0.82	----	11.00	----	3.00
Eagle Wheat and Corn Grower.....	1.65	----	8.00	----	2.00
Globe Wheat Grower.....	1.65	----	10.00	----	2.00
Globe Double-Value Fertilizer.....	3.29	----	12.00	----	4.00
Globe 16 per cent Superphosphate.....	----	----	16.00	----	----
Globe Half and Half Meal Mixture.....	1.65	----	10.00	10.00	----
Globe Raw Bone.....	3.70	22.00	----	----	----
Daybreak Brands					
Royal Wheat and Grain Special.....	0.82	----	12.00	----	1.00
Daybreak Favorite.....	0.82	----	11.00	----	3.00
Standard Corn and Wheat Grower.....	1.65	----	8.00	----	2.00
Daybreak High Grade Fertilizer.....	1.65	----	10.00	----	2.00
Daybreak Double-Duty Fertilizer.....	3.29	----	12.00	----	4.00
Daybreak 16 per cent Superphosphate.....	----	----	16.00	----	----
Daybreak Half and Half Meal Mixture.....	1.65	----	10.00	10.00	----
Daybreak Raw Bone.....	3.70	22.00	----	----	----
Federal Brands					
Loam Land Fertilizer.....	1.65	----	12.00	----	2.00
Official Formula 2-12-6.....	1.65	----	12.00	----	6.00
Official Formula 3-12-4.....	2.47	----	12.00	----	4.00
Black Land Special.....	----	----	12.00	----	4.00
Official Formula 0-12-6.....	----	----	12.00	----	6.00
20 per cent Superphosphate.....	----	----	20.00	----	----
Fine Bone.....	3.29	20.00	----	----	----
The Fertilispray Company, Los Angeles, California					
Fertilispray Concentrated Fertilizer.....	17.30	----	8.00	1.85	8.00
Fertilispray Concentrated Plant Food.....	17.30	----	8.00	1.85	8.00
Floyd Plant Food Company, St. Louis, Missouri					
Floyd's Money-Maker Brands					
4-8-6 Goods.....	3.28	----	8.00	0.10	6.00
3-10-4 Goods.....	2.51	----	10.00	0.25	4.00
3-8-6 Goods.....	2.51	----	8.00	0.25	6.00
2-16-2 Goods.....	1.67	----	16.00	0.25	2.00
2-12-6 Goods.....	1.67	----	12.00	0.25	6.00
2-12-4 Goods.....	1.67	----	12.00	0.25	4.00
2-12-2 Goods.....	1.67	----	12.00	0.25	2.00
4-6-2 Goods.....	3.28	----	6.00	0.10	2.00
2-8-2 Goods.....	1.67	----	8.00	0.25	2.00
1-12-1 Goods.....	0.83	----	12.00	0.25	1.00
4-16-4 Goods.....	3.28	----	16.00	0.10	4.00
3-12-4 Goods.....	2.51	----	12.00	0.25	4.00
4-12-0 Goods.....	3.28	----	12.00	0.25	----

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
2-12-0 Goods.....	1.67	---	12.00	0.25	---
0-12-6 Goods.....	---	---	12.00	0.25	6.00
0-12-4 Goods.....	---	---	12.00	0.25	4.00
0-10-10 Goods.....	---	---	10.00	0.25	10.00
0-14-14 Goods.....	---	---	14.00	0.25	14.00
0-14-4 Goods.....	---	---	14.00	0.25	4.00
Ground Raw Bone.....	3.28	20.00	---	---	---
Ground Steamed Bone.....	2.51	24.00	---	---	---
Steamed Bone Meal.....	0.83	29.00	---	---	---
20 per cent Super-Phosphate.....	---	---	20.00	0.10	---
18 per cent Super-Phosphate.....	---	---	18.00	0.40	---
16 per cent Super-Phosphate.....	---	---	16.00	0.30	---
Garden Fertilizer (4-4-1).....	3.30	---	4.00	0.10	1.00
Nitrated Gypsum (For Lawns).....	2.51	---	---	---	---
Nitrate of Soda.....	15.00	---	---	---	---
Sulphate of Ammonia.....	20.50	---	---	---	---
Muriate of Potash.....	---	---	---	---	50.00
Sulphate of Potash.....	---	---	---	---	50.00
Kainit.....	---	---	---	---	14.00
Bone & Phosphate Mixture.....	1.25	---	12.00	8.00*	---
Ground Bone (Steamed).....	1.66	27.00	---	---	---
4-8-4 Goods.....	3.28	---	8.00	0.25	4.00
M. F. A. Brands					
16 per cent Super-Phosphate.....	---	---	16.00	0.25	---
18 per cent Super-Phosphate.....	---	---	18.00	0.25	---
20 per cent Super-Phosphate.....	---	---	20.00	0.10	---
2-12-2 Goods.....	1.67	---	12.00	0.25	2.00
2-16-2 Goods.....	1.67	---	16.00	0.25	2.00
2-8-2 Goods.....	1.67	---	8.00	0.25	2.00
3-8-6 Goods.....	2.51	---	8.00	0.25	6.00
2-16-6 Goods.....	1.67	---	16.00	0.25	6.00
3-10-4 Goods.....	2.51	---	10.00	0.25	4.00
2-12-4 Goods.....	1.67	---	12.00	0.25	4.00
4-8-6 Goods.....	3.30	---	8.00	0.15	6.00
4-6-2 Goods.....	3.30	---	6.00	0.15	2.00
1-10-1 Goods.....	0.83	---	10.00	0.25	1.00
3-12-4 Goods.....	2.51	---	12.00	0.25	4.00
1-12-1 Goods.....	0.83	---	12.00	0.25	1.00
3-12-6 Goods.....	2.51	---	12.00	0.25	6.00
2-8-5 Goods.....	1.67	---	8.00	0.25	5.00
2-12-6 Goods.....	1.67	---	12.00	0.25	6.00
3-12-8 Goods.....	2.51	---	12.00	0.25	8.00
1-16-1 Goods.....	0.83	---	16.00	0.25	1.00
8-16-0 Goods.....	6.65	---	16.00	0.25	---
2-12-0 Goods.....	1.67	---	12.00	0.25	---
4-12-0 Goods.....	3.30	---	12.00	0.25	---
0-18-4 Goods.....	---	---	18.00	0.25	4.00
0-15-5 Goods.....	---	---	15.00	0.25	5.00
0-12-4 Goods.....	---	---	12.00	0.25	4.00
0-10-10 Goods.....	---	---	10.00	0.25	10.00
0-12-6 Goods.....	---	---	12.00	0.25	6.00
0-14-4 Goods.....	---	---	14.00	0.25	4.00

*From bone.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
0-16-2 Goods.....	----	----	16.00	0.25	2.00
0-12-2 Goods.....	----	----	12.00	0.25	2.00
Bone and Phosphate Mixture.....	1.25	----	12.00	6.00*	----
Ground Steamed Bone.....	2.51	24.00	----	----	----
Steamed Bone Meal.....	0.83	29.00	----	----	----
Ground Bone (Steamed).....	1.66	27.00	----	----	----
Raw Bone.....	3.28	20.00	----	----	----
Nitrate of Soda.....	15.00	----	----	----	----
Sulphate of Ammonia.....	20.50	----	----	----	----
Muriate of Potash.....	----	----	----	----	50.00
Sulphate of Potash.....	----	----	----	----	50.00
Kainit.....	----	----	----	----	14.00
3-12-6 Goods.....	2.51	----	12.00	0.25	6.00
Ford Motor Company, Detroit, Michigan					
Ford Ammonium Sulphate.....	20.80	----	----	----	----
Gate City Fertilizer Company, Little Rock, Arkansas Red Ball Brands					
12-4-4.....	4.00	----	12.00	----	4.00
12-4-0.....	4.00	----	12.00	----	----
12-2-2.....	2.00	----	12.00	----	2.00
12-1.65-6.....	1.65	----	12.00	----	6.00
12-0-4.....	----	----	12.00	----	4.00
10-6-4.....	6.00	----	10.00	----	4.00
10-5-3.....	5.00	----	10.00	----	3.00
10-4-4.....	4.00	----	10.00	----	4.00
10-4-2.....	4.00	----	10.00	----	2.00
10-3-3.....	3.00	----	10.00	----	3.00
10-3-2.....	3.00	----	10.00	----	2.00
9-3-3.....	3.00	----	9.00	----	3.00
8-4-6.....	4.00	----	8.00	----	6.00
8-4-4.....	4.00	----	8.00	----	4.00
20 per cent Acid Phosphate.....	----	----	20.00	----	----
18 per cent Acid Phosphate.....	----	----	18.00	----	----
16 per cent Acid Phosphate.....	----	----	16.00	----	----
10-2-2.....	2.00	----	10.00	----	2.00
10-1.65-2.....	1.65	----	10.00	----	2.00
9-1.65-2.....	1.65	----	9.00	----	2.00
10-1.65-1.....	1.65	----	10.00	----	1.00
16-1.65-2.....	1.65	----	16.00	----	2.00
12-1.65-2.....	1.65	----	12.00	----	2.00
10-0.82-1.....	0.82	----	10.00	----	1.00
15-0.82-1.....	0.82	----	15.00	----	1.00
Pure Raw Bone Meal.....	3.70	23.00	----	----	----
Muriate of Potash.....	----	----	----	----	50.00
Sulphate of Potash.....	----	----	----	----	48.00
Kainit.....	----	----	----	----	14.00
Nitrate of Soda.....	15.00	----	----	----	----
Sulphate of Ammonia.....	20.50	----	----	----	----
Extra Dry Sulphate of Ammonia.....	20.50	----	----	----	----

*From bone.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Cotton Seed Meal Fertilizer.....	6.58	----	----	----	----
Grasselli Chemical Company, Cleveland, Ohio					
Grasselli Odorless Plant Food.....	4.12	----	13.00	2.00	4.00
Leonard Haeefele, St. Louis, Missouri					
Star Brand Ground Steamed Bone.....	3.10	17.70	----	----	----
Merchants and Planters Plant Food Company, North Little Rock, Arkansas M. and P. Brands					
16 per cent.....	----	----	16.00	----	----
18 per cent.....	----	----	18.00	----	----
2-12-6.....	1.65	----	12.00	----	6.00
3-8-6.....	2.47	----	8.00	----	6.00
2-12-2.....	1.65	----	12.00	----	2.00
1-12-1.....	0.82	----	12.00	----	1.00
3-12-4.....	2.47	----	12.00	----	4.00
Natural Guano Company, Aurora, Illinois					
"Sheep's Head" Pulverized Sheep Manure.....	2.25	----	1.00	0.25	2.00
The Nitragin Company, Milwaukee, Wisconsin					
Feedem.....	14.00	----	10.00	----	12.00
Nitrate Agencies Company, New Orleans, Louisiana					
Nitrate of Soda.....	15.00	----	----	----	----
Nitrate of Soda and Potash.....	15.00	----	----	----	12.40
Oyama Products Company, Newburg, New York					
Oyama Plant Food.....	17.00	----	17.35	----	24.52
The Phosphated Manure Company, Chicago, Illinois Wizard Brand					
Phosphated Manure.....	0.82	----	9.00	----	1.00
The Pulverized Manure Company, Chicago, Illinois Wizard Brands					
Cattle Manure.....	1.80	----	1.00	----	1.00
Sheep Manure.....	2.00	----	1.25	----	2.00
Read Phosphate Company, Nashville, Tennessee					
Red Diamond 2-16-2.....	1.65	----	16.00	2.00	2.00
Premium Grain Grower 2-12-2.....	1.65	----	12.00	3.00	2.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Quick Cotton Grower 2-12-2.....	1.65	---	12.00	3.00	2.00
Blood and Bone No. 1 2-10-2.....	1.65	---	10.00	2.00	2.00
Favorite Cotton Grower 2-10-2.....	1.65	---	10.00	2.00	2.00
Corn, Wheat & Oat Grower 1-10-1.....	0.82	---	10.00	2.00	1.00
No. 6 Truck Grower 3-8-6.....	2.47	---	8.00	5.00	6.00
High Grade Potash Mixture 0-10-4.....	---	---	10.00	2.00	4.00
Red Diamond 16 per cent Superphosphate.....	---	---	16.00	2.00	---
Red Diamond 18 per cent Superphosphate.....	---	---	18.00	1.00	---
Red Diamond 20 per cent Superphosphate.....	---	---	20.00	---	---
Missouri Grain Special 1-12-1.....	0.82	---	12.00	3.00	1.00
Pure Raw Bone Meal.....	3.70	20.00	---	---	---
Missouri Special 1/2-8-4.....	0.41	---	8.00	4.00	4.00
High Grade Potash Acid 0-12-2.....	---	---	12.00	3.00	2.00
Red Diamond Standard 2-8-2.....	1.65	---	8.00	4.00	2.00
Half & Half.....	1.85	---	12.00	8.00*	---
Farmers Special Manure 1-10-3.....	0.82	---	10.00	2.00	3.00
S. and S. Plant Food Company, Evansville, Indiana					
Reliable Lawn & Floral Food.....	2.00	---	4.00	---	3.00
The S. & S. Famous Plant Vigor.....	12.00	---	9.50	---	9.50
The S. & S. Tobacco Dust.....	1.00	---	1.00	---	1.50
Sewerage Commission of the City of Milwaukee, Milwaukee, Wisconsin					
Milorganite.....	5.00	---	2.00	0.75	---
Smith Agricultural Chemical Company, Columbus, Ohio					
Smith's SACCO Plant Food.....	3.29	---	12.00	0.50	4.00
The Southern Cotton Oil Company, Little Rock, Arkansas					
Progressive Farmer.....	4.00	---	12.00	---	4.00
Gold Seal.....	2.00	---	12.00	---	2.00
Full Moon.....	5.00	---	10.00	---	3.00
Choice.....	4.00	---	10.00	---	4.00
Peerless Mixture.....	4.00	---	10.00	---	2.00
Uncle Remus.....	2.00	---	10.00	---	2.00
Br'er Rabbit.....	1.65	---	10.00	---	2.00
Tar Baby.....	4.00	---	8.00	---	4.00
Truck Boomer.....	4.00	---	8.00	---	6.00
Carolina Special.....	3.00	---	9.00	---	3.00
Quick Step.....	1.65	---	10.00	---	2.00
Cotton Hustler.....	1.65	---	10.00	---	1.00
16 per cent Acid Phosphate.....	---	---	16.00	---	---
18 per cent Acid Phosphate.....	---	---	18.00	---	---
Southern 4-10-4.....	3.30	---	10.00	---	4.00
Southern 4-16-4.....	3.30	---	16.00	---	4.00
Southern 2-16-6.....	1.65	---	16.00	---	6.00
20 per cent Acid Phosphate.....	---	---	20.00	---	---

*From bone.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Swift & Co., (Fertilizer Works), St. Louis, Missouri					
Swift's Brands					
Red Steer 4-16-4.....	3.29	----	16.00	1.00	4.00
Red Steer 4-8-8.....	3.29	----	8.00	1.00	8.00
Red Steer 3-12-4.....	2.47	----	12.00	1.00	4.00
Red Steer 3-8-6.....	2.47	----	8.00	1.00	6.00
Red Steer 2-16-2.....	1.65	----	16.00	1.00	2.00
Red Steer 2-12-6.....	1.65	----	12.00	1.00	6.00
Red Steer 2-12-2.....	1.65	----	12.00	1.00	2.00
Red Steer 2-10-2.....	1.65	----	10.00	1.00	2.00
Red Steer 1-13-4.....	0.82	----	13.00	5.00*	4.00
Red Steer 1-12-4.....	0.82	----	12.00	0.50	4.00
Red Steer 1-12-1.....	0.82	----	12.00	0.50	1.00
Red Steer 4-12-0.....	3.29	----	12.00	1.00	----
Red Steer 2-12-0.....	1.65	----	12.00	1.00	----
Bone Meal & Phosphate Fertilizer.....	0.82	----	15.00	5.00*	----
Red Steer 0-14-4.....	----	----	14.00	----	4.00
Red Steer 0-12-4.....	----	----	12.00	----	4.00
Red Steer 16 per cent Superphosphate (Acid Phos- phate) Fertilizer.....	----	----	16.00	----	----
Red Steer 20 per cent Superphosphate (Acid Phos- phate) Fertilizer.....	----	----	20.00	----	----
Raw Bone Meal Fertilizer 4-½-23.....	3.70	23.00	----	----	----
Bone Meal Fertilizer 3-24.....	2.47	24.00	----	----	----
Bone Meal Fertilizer 3-23.....	2.47	23.00	----	----	----
Bone Meal Fertilizer 2¼-27.....	1.85	27.00	----	----	----
Bone Meal Fertilizer 2-27.....	1.65	27.00	----	----	----
Bone Meal Fertilizer 1-¼-29.....	1.03	29.00	----	----	----
Bone Meal Fertilizer 1-¼-30.....	1.03	30.00	----	----	----
Sulphate of Ammonia.....	20.75	----	----	----	----
Nitrate of Soda.....	14.76	----	----	----	----
Kemfert Potash Salts.....	----	----	----	----	58.00
Pulverized Manure.....	1.65	----	1.00	1.00	2.00
Vigoro.....	3.29	----	12.00	----	4.00
Synthetic Nitrogen Products Corporation, New York City, New York					
UREA B. A. S. F. (Floranid).....	46.00	----	----	----	----
Leunaspeter.....	26.00	----	----	----	----
Calcium Nitrate B. A. S. F.....	15.00	----	----	----	----
Nitrophoska.....	15.00	----	30.00	----	15.00
Tennessee Chemical Company Chicago, Illinois					
Ox Brands					
4-16-8 Fertilizer.....	3.30	----	16.00	0.50	8.00
4-16-4 Fertilizer.....	3.30	----	16.00	0.50	4.00
4-8-6 Fertilizer.....	3.30	----	8.00	0.50	6.00
3-8-6 Fertilizer.....	2.47	----	8.00	0.50	6.00
2-16-8 Fertilizer.....	1.65	----	16.00	0.50	8.00
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; 1928 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
2-12-2 Fertilizer.....	Per cent 1.65	Per cent ----	Per cent 12.00	Per cent 0.50	Per cent 2.00
0-16-8 Fertilizer.....	----	----	16.00	0.50	8.00
20 per cent Superphosphate.....	----	----	20.00	0.50	----
16 per cent Superphosphate.....	----	----	16.00	0.50	----
3-24 Bone Meal.....	2.47	24.00	----	----	----
2-27 Bone Meal.....	1.65	27.00	----	----	----
Raw Bone Meal.....	3.70	22.00	----	----	----
The Tennessee Copper and Chemical Corp., Lockland, Cincinnati, Ohio					
Loma.....	4.93	----	10.00	0.65	4.00
The United States Gypsum Company, Chicago, Illinois					
Ben Franklin Agricultural Gypsum (Land Plaster): This product consists of gypsum, which contains the following:					
CaSO ₄ 2H ₂ O	93 per cent				
CaCO ₃	2 per cent				
MgCO ₃	trace				
Powdered Crystalline Calcium Sulphate.....93 per cent					
Calcium Carbonate.....2 per cent					
Magnesium Carbonate..... trace					
Virginia-Carolina Chemical Corporation, Memphis, Tennessee					
Good as Gold Standard Guano.....	0.82	----	12.00	----	1.00
V-C Fertilizer 2-8-2.....	1.65	----	8.00	----	2.00
V-C Champion Ammoniated Superphosphate.....	3.30	----	12.00	----	----
Crescent Wheat Grower.....	1.65	----	12.00	----	----
V-C Champion Phosphate & Potash.....	----	----	15.00	----	7.50
V-C Prolific Grain Grower.....	----	----	15.00	----	3.00
Victor Bone & Potash Compound.....	----	----	15.00	----	3.00
V-C Special Phosphate and Potash.....	----	----	14.00	----	4.00
Monarch Grain Grower.....	----	----	15.00	----	2.00
V-C Phosphate and Potash.....	----	----	10.00	----	4.00
V-C Indian Brand Grain Grower.....	----	----	12.00	----	2.00
V-C Grain Grower.....	----	----	12.00	----	2.00
V-C 20 per cent Superphosphate.....	----	----	20.00	----	----
V-C 18 per cent Superphosphate.....	----	----	18.00	----	----
V-C Good Luck Fertilizer.....	3.30	----	8.00	----	4.00
V-C Early Trucker.....	3.30	----	8.00	----	4.00
V-C Special Vegetable Grower.....	2.47	----	12.00	----	4.00
V-C Truck Fertilizer.....	2.47	----	8.00	----	6.00
Eureka High Grade Guano.....	2.47	----	9.00	----	3.00
V-C Owl Brand Fertilizer.....	2.47	----	8.00	----	3.00
V-C Champion Grain Grower.....	1.65	----	16.00	----	6.00
V-C Star Brand Fertilizer.....	1.65	----	16.00	----	2.00
V-C Double Strength Money Saver.....	1.65	----	16.00	----	2.00
V-C Progressive Farmer Fertilizer.....	1.65	----	14.00	----	2.00
V-C Grain Special.....	1.65	----	12.00	----	6.00
V-C Plow Brand Fertilizer.....	1.65	----	12.00	----	2.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1928 (Continued)

V-C Royal Tomato Fertilizer.....	1.65	----	12.00	----	2.00
V-C 1-12-4 Fertilizer.....	0.82	----	12.00	----	4.00
V-C 16 per cent Superphosphate.....	----	----	16.00	----	----
Victor 16 per cent Superphosphate.....	----	----	16.00	----	----
Muriate of Potash.....	----	----	----	----	48.00
Genuine Imported Kainit.....	----	----	----	----	12.40
V-C Nitrate of Soda.....	14.81	----	----	----	----
Sulphate of Ammonia.....	20.50	----	----	----	----
V-C Half & Half Bone & Phosphate.....	1.23	----	11.00	9.00*	----
Wessel, Duval & Co.,					
 New York City					
Nitrate of Soda	14.87	----	----	----	----
Wilson & Co., Inc.,					
 Kansas City, Kansas					
 Red "W" Brands					
Two Twelve Six.....	1.65	----	12.00	1.00	6.00
Two Twelve Two.....	1.65	----	12.00	1.00	2.00
Two In One.....	1.65	----	16.00	1.00	2.00
Fourteen Four.....	----	----	14.00	1.00	4.00
16 Per Cent Acid Phosphate.....	----	----	16.00	1.00	----
20 Per Cent Acid Phosphate.....	----	----	20.00	1.00	----
Special Bone Meal.....	0.82	30.00	----	----	----
Bone Meal & Acid Phosphate.....	0.82	----	12.50	10.50*	----

*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 1927			Fertilizer classified for 1927					
	Spring	Fall	Total	Bone	Acid phosphate	High grade	Med. grade	Low grade	Misc.
Adair.....	104	96	200	7	91	102	---	---	---
Andrew.....	---	17	17	---	17	---	---	---	---
Atchison.....	---	---	---	---	---	---	---	---	---
Audrain.....	140	481	621	42	306	267	6	---	---
Barry.....	319	661	980	159	284	496	18	18	5
Barton.....	182	1542	1724	218	678	805	---	---	23
Bates.....	15	759	774	27	479	268	---	---	---
Benton.....	45	272	317	23	118	141	5	---	30
Bollinger.....	191	277	468	16	242	210	---	---	---
Boone.....	22	377	399	5	355	38	---	---	1
Buchanan.....	120	157	277	4	121	151	---	---	1
Butler.....	1	15	16	1	11	4	---	---	---
Caldwell.....	50	167	217	10	197	10	---	---	---
Callaway.....	30	229	259	17	135	104	3	---	---
Camden.....	20	65	85	20	12	53	---	---	---
Cape Girardeau.....	30	179	209	1	116	87	2	---	3
Carroll.....	15	225	240	19	171	50	---	---	---
Carter.....	15	15	30	---	---	30	---	---	---
Cass.....	128	732	860	29	534	296	---	---	1
Cedar.....	140	537	677	42	553	81	---	---	1
Chariton.....	8	233	241	---	166	66	5	---	4
Christian.....	220	547	767	27	493	247	---	---	---
Clark.....	30	65	95	8	62	23	---	1	1
Clay.....	57	36	93	---	78	15	---	---	---
Clinton.....	16	45	61	6	54	1	---	---	---
Cole.....	30	671	701	16	448	214	22	---	1
Cooper.....	15	386	401	16	229	156	---	---	---
Crawford.....	27	211	238	25	139	70	---	---	4
Dade.....	40	860	900	98	409	389	---	---	4
Dallas.....	5	53	58	2	45	11	---	---	---
Daviess.....	39	59	98	3	79	16	---	---	---
De Kalb.....	66	37	103	1	101	---	---	---	1
Dent.....	65	130	195	4	104	87	---	---	---
Douglas.....	56	65	121	6	66	49	---	---	---
Dunklin.....	42	1	43	---	1	41	---	---	1
Franklin.....	29	1159	1188	77	650	457	4	---	---
Gasconade.....	4	494	498	25	295	170	8	---	---
Gentry.....	13	56	69	---	51	6	---	---	12
Greene.....	603	1225	1828	63	897	817	---	---	51
Grundy.....	17	72	89	---	72	14	---	---	3
Harrison.....	60	177	237	---	228	9	---	---	---
Henry.....	72	487	559	14	372	163	9	---	1
Hickory.....	47	280	327	---	237	90	---	---	---
Holt.....	---	15	15	---	15	---	---	---	---
Howard.....	26	54	80	---	54	26	---	---	---
Howell.....	323	152	475	---	289	186	---	---	---
Iron.....	34	119	153	4	75	74	---	---	---
Jackson.....	222	418	640	124	297	138	1	---	80
Jasper.....	138	2696	2834	221	968	1569	47	4	25
Jefferson.....	19	165	184	3	129	42	7	2	1
Johnson.....	130	573	703	17	444	205	33	---	4
Knox.....	17	121	138	35	81	21	---	---	1
Laclede.....	306	379	685	5	323	206	51	---	---

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 1927			Fertilizer classified for 1927					
	Spring	Fall	Total	Bone	Acid phosphate	High grade	Med. grade	Low grade	Misc.
Lafayette.....	17	273	290	32	196	62	---	---	---
Lawrence.....	375	1168	1543	163	901	463	16	---	---
Lewis.....	---	290	290	39	182	66	2	1	---
Lincoln.....	222	1478	1700	77	552	958	113	---	---
Linn.....	271	193	464	6	397	48	3	---	10
Livingston.....	21	52	73	3	53	16	---	---	1
McDonald.....	40	15	55	---	16	39	---	---	---
Macon.....	1	235	236	33	72	129	2	---	---
Madison.....	91	166	257	12	125	120	---	---	---
Maries.....	---	72	72	9	41	22	---	---	---
Marion.....	19	398	417	5	273	126	12	---	1
Mercer.....	12	49	61	4	40	17	---	---	---
Miller.....	17	512	529	37	211	271	10	---	---
Mississippi.....	15	---	15	---	---	15	---	---	---
Moniteau.....	4	689	693	19	382	281	11	---	---
Monroe.....	63	415	478	52	288	109	29	---	---
Montgomery.....	82	453	535	38	155	251	89	---	2
Morgan.....	1	753	754	38	393	317	5	---	1
New Madrid.....	---	---	---	---	---	---	---	---	---
Newton.....	257	1099	1356	40	880	430	5	---	1
Nodaway.....	30	111	141	1	126	11	---	---	3
Oregon.....	20	46	66	---	26	40	---	---	---
Osage.....	39	416	455	1	295	159	---	---	---
Ozark.....	---	---	---	---	---	---	---	---	---
Pemiscot.....	56	---	56	---	1	55	---	---	---
Perry.....	31	173	204	3	113	85	3	---	---
Pettis.....	33	421	454	18	345	85	5	---	1
Phelps.....	128	413	541	47	354	139	1	---	---
Pike.....	224	667	891	18	390	421	31	22	9
Platte.....	43	30	73	---	48	20	3	---	2
Polk.....	269	1125	1394	60	1056	272	6	---	---
Pulaski.....	104	254	358	7	129	221	---	---	1
Putnam.....	211	7	218	---	48	170	---	---	---
Ralls.....	2	357	359	19	246	94	---	---	---
Randolph.....	37	166	203	4	99	100	---	---	---
Ray.....	46	138	184	---	120	64	---	---	---
Reynolds.....	22	21	43	6	14	23	---	---	---
Ripley.....	117	38	155	---	94	60	---	---	---
St. Charles.....	34	839	873	46	486	317	24	---	---
St. Clair.....	85	329	414	10	175	229	---	---	---
St. Francois.....	60	599	659	28	306	305	20	---	---
Ste. Genevieve.....	2	57	59	---	46	13	---	---	---
St. Louis.....	463	271	734	111	108	175	---	---	340
Saline.....	30	147	177	1	173	3	---	---	---
Schuyler.....	52	83	135	4	65	59	---	1	6
Scotland.....	4	14	18	1	10	7	---	---	---
Scott.....	1	---	1	1	---	---	---	---	---
Shannon.....	35	15	50	---	30	20	---	---	---
Shelby.....	32	274	306	38	140	128	---	---	---
Stoddard.....	1	24	25	---	25	---	---	---	---
Stone.....	107	---	107	---	3	104	---	---	---
Sullivan.....	40	89	129	2	67	60	---	---	---
Taney.....	1	---	1	---	---	1	---	---	---

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 1927			Fertilizer classified for 1927					
	Spring	Fall	Total	Bone	Acid phosphate	High grade	Med. grade	Low grade	Misc.
Texas.....	359	457	816	35	469	312	----	----	----
Vernon.....	97	785	882	21	586	255	----	20	----
Warren.....	17	453	470	28	223	211	7	----	1
Washington.....	35	252	287	54	116	117	----	----	----
Wayne.....	31	48	79	----	63	17	----	----	----
Webster.....	665	373	1038	34	370	624	9	----	1
Worth.....	30	22	52	1	39	12	----	----	----
Wright.....	149	81	230	16	120	86	----	----	8
Totals for spring.....	9593	-----	-----	275	4334	4432	127	25	244
Totals for fall.....	---	36749	---	2387	20317	13253	500	44	404
Totals for 1927.....	-----	-----	46342	2662	24651	17685	627	69	648
Percentage of totals.....	20.70	79.30	100.00	5.75	53.19	38.16	1.35	0.15	1.40

TABLE 9.—TONNAGE OF THE PLANT FOOD CONSTITUENTS SOLD IN MISSOURI (1927) (APPROXIMATE)

Kind of fertilizer	Fertilizer tonnage	Plant Food Tonnage				
		Nitrogen	Phosphoric acid from bone	Available phosphoric acid	Insoluble phosphoric acid	Potash
	Tons	Tons	Tons	Tons	Tons	Tons
Bone.....	2667.61	53.21	700.36	-----	-----	-----
Half and Half.....	1181.21	12.78	146.05	96.66	-----	-----
Acid Phosphate.....	24699.37	-----	-----	4338.69	-----	-----
High Grade.....	16499.24	259.10	-----	2017.99	-----	432.85
Medium Grade.....	587.06	8.56	-----	47.84	-----	12.10
Low Grade.....	69.44	0.62	-----	5.28	-----	0.70
Sodium Nitrate and Ammonium Sulphate.....	167.80	30.86	-----	-----	-----	-----
Dried Blood.....	0.80	0.11	-----	-----	-----	-----
Dried Manure.....	311.68	6.22	-----	3.88	-----	6.18
Ground Rock Phosphate.....	0.01	-----	-----	-----	0.01	-----
Humus.....	1.00	0.02	-----	-----	-----	-----
Potash Salts.....	155.93	-----	-----	-----	-----	24.96
Totals.....	46341.15	371.48	846.41	6510.34	0.01	476.79

FINANCIAL STATEMENT

Fertilizer Control Fund of the Missouri Agricultural Experiment Station For the year ending December 31, 1927

Receipts

Balance January 1, 1927.....	\$13,844.15
Receipts from sale of tags, 1927.....	25,425.50
	\$40,269.65

Expenditures

Salaries.....	\$12,660.98
Labor.....	3,207.15
Stationery and office supplies.....	481.49
Scientific supplies consumable.....	885.53
Feeding stuffs.....	355.09
Sundry supplies.....	2,407.90
Fertilizers.....	12.00
Postage, telegraph and telephone.....	529.28
Travel expenses.....	632.80
Freight, express and dray.....	339.91
Publications.....	6,742.38
Heat, light, water and power.....	332.94
Furniture and fixtures.....	215.24
Library.....	34.19
Scientific equipment.....	307.32
Tools, machinery and appliances.....	311.62
Buildings and land.....	493.59
Contingent expenses.....	2,515.65
	\$32,465.06
Balance, cash on hand, December 31, 1927....	\$ 7,804.59