

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
BULLETIN 200

TESTING FERTILIZERS FOR MISSOURI FARMERS: 1922



Effect of fertilizers on wheat at the Missouri Agricultural Experiment Station field, Columbia. Lot on left, no treatment; lot on right, 165 pounds of high grade fertilizer per acre.

COLUMBIA, MISSOURI

FEBRUARY, 1923

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Inspection of Fertilizers

F. B. MUMFORD

Director of the Experiment Station

It has been the constant aim of the Agricultural Experiment Station to guide the users of fertilizers, and to protect them not only from fraud but to warn them against a wrong use of fertilizers. It is gratifying to note, therefore, that there is evidence that Missouri farmers are becoming more intelligent in the use and application of fertilizers than formerly. They are judging fertilizers on the basis of the amount of available plant food in the fertilizer and not on the gross weight.

Our inspectors have found that there is an increasing demand for higher grade fertilizers, which means that farmers have come to appreciate the fact that the richer the fertilizer in the essential elements of nitrogen, phosphorus and potassium the more valuable is the fertilizer and the less is the cost of application.

In the efforts of the Agricultural Experiment Station to develop suitable formulas which can be recommended to Missouri farmers, we have had the cooperation of the fertilizer manufacturers. There was recently held a conference between the officials of the fertilizer companies and the officials of the Agricultural Experiment Stations for the purpose of agreeing upon a set of formulas which could be recommended as a basis for the manufacture and sale of brands of fertilizers. As a result of this conference the following formulas have been approved and recommended for Missouri:

	For Diversified Farming		For Truck Crops.
Acid phosphate	2-12-2	3-12-4	3-8-6
Bone meal	2-12-6		
2-16-2	4-12-0		
2-14-2	0-14-4		

The first figure in the group of three is the per cent of total ammonia, the second figure is the per cent of available phosphoric acid, and the third figure is the per cent of available potash. These are all high grade mixtures and are to be recommended in preference to lower grades, since they contain greater amounts of actual plant food per ton than lower grade fertilizers. A card poster indicating the soils and the crops to which each of these fertilizers is best adapted is being placed in the hands of all fertilizer dealers and salesmen in Missouri.

The results of many investigations on a large number of soils in Missouri have very clearly demonstrated that the intelligent application of fertilizers on the soils that have been long in cultivation is one of the first and essential steps in a system of permanent soil improvement. The application of fertilizers, however, must be made with a full knowledge of the varying requirements of soils and of the composition of the fertilizers used. Information regarding the best formulas for various soil types and various crops can be secured by writing to the College of Agriculture, Columbia, Missouri.

The following pages contain the report of the chemist, including chemical composition of the fertilizers and the estimated valuations.

Report of the Chemist

L. D. HAIGH

INSPECTION

Users of commercial fertilizers will find the tabulated results of the analyses of fertilizers a valuable aid in deciding on the brands to buy. Farmers should not buy fertilizers that do not have attached to each bag a registration tag bearing the signature of the Director of the Experiment Station. In addition each package of fertilizer should have a guaranteed chemical composition printed on the bag.

Buyers of fertilizers are urged to study this report carefully before making purchases as the aim has been to assist the consumer in judging the quality of the goods on the market. Further information may be obtained by addressing a letter of inquiry to the Director of the Experiment Station or to the Chemist.

During the season of 1922 there were collected 344 samples of commercial fertilizer representing 148 different brands offered for sale in Missouri. In collecting these samples the inspectors visited 29 counties.

An idea of the sales of fertilizer in the state in 1922 may be gained by a study of Table 8 in this bulletin. This gives the approximate tonnage sold in each county in the state based upon shipments as reported by the fertilizer companies. A part of the tonnage indicated in the "spring" column was not sold during the spring season but was carried over and sold for use in the fall. It will be observed that the total tonnage is slightly less than last year, which amounted to 44,694 tons. Also that the tonnage of acid phosphate and high grade mixed fertilizer has increased with a corresponding decrease in amount of medium and low grade mixed fertilizer, which fact is very gratifying.

To explain the classification in this table: High Grade Mixed Fertilizer means 14 units or more of total plant food; Medium Grade, more than 10 but less than 14 units; Low Grade, 10 units or less. Simple fertilizer materials, such as nitrate of soda, potash salts, dried manure, etc., are listed under "Miscellaneous" (bone and acid phosphate excepted).

1. Violations in Respect to Registration .

A shipment of A. A. C. 4-8-2 Fertilizer from the American Agricultural Chemical Co., was found at the warehouse of the Farmers' Exchange, Exeter. This brand had not been registered for sale by the manufacturer.

Tuscarora 20% Phosphate, manufactured by Armour Fertilizer Works, was found at the Eolia Elevator Co., Eolia. No registration of this fertilizer had been filed by the Armour Company, under this name.

F. P. F. 0-10-4 goods shipped to J. T. Taylor, Foley, Mo., by the Floyd Plant Food Co., manufacturer, had not been previously registered for sale in the state by said manufacturer for the year 1922.

Interstate Bone and Sheep Manure Mixture manufactured by the Interstate Fertilizer Co., Webb City, Mo., was found on sale at the Farmers' Exchange, Exeter. No such brand name has been registered for sale in

Missouri for 1922 by the manufacturer. Also Interstate Phosphate and Potash 0-12-2, sold to A. J. Buckingham, Oronogo, had not been registered by the manufacturer as required by law.

1-12-4 fertilizer sold by Swift & Co., to Omer Webb, Jasper, had not been registered for sale in the state by the manufacturer, for 1922 at the time the sale was made.

2. Violations in the Failure to Affix Registration Tags, or in the Use of the Wrong Registration Tags.

A shipment of 16% Acid Phosphate to J. E. Weaver, Oronogo, from the Arkansas Fertilizer Co., bore no registration tags as required by law.

Shipments of Steamed Bone Meal, and Half and Half from Cudahy Packing Company were found at the Farmers' Produce Exchange, St. James. Part of the sacks were provided with 1921 instead of 1922 Registration Tags.

A shipment of two brands of fertilizer from the Douglass Fertilizer Co., Little Rock, Arkansas, to the Grove Springs Farmers' Exchange, Niangua, did not have the registration tags attached to the sacks but the tags were sent separately. This violation was brought to the attention of the dealer in order that he might correct same before making sales.

A whole or part of shipments of different brands of Interstate fertilizers from the Interstate Fertilizer Co., Webb City, Mo., made in the spring of 1922 to the Farmers' Elevator Co., Purdy, the Farmers' Exchange, Exeter, and the Farmers' Exchange, Miller, bore the registration tags of the Missouri Agricultural Experiment Station for 1921 instead of 1922 as required by law.

The following brands of Interstate Fertilizers were found at the Farmers' Exchange, Exeter, put up in 125-lb. bags.

Interstate 16% Acid Phosphate

Interstate Bone and Sheep Manure Mixture 2-14-3

Interstate 2-12-0

These brands bore the small sized registration tag reading 1-100 lbs. instead of the large sized registration tag reading 101-200 lbs. as required by law.

A carload of fertilizer from Morris & Co., Kansas City, Kansas, was shipped to Wm. Shaffer, Salisbury, without the registration tags attached. The tags were sent loose in the car with the fertilizer. The attention of the dealer was called to the fact that the sale of these goods was illegal and therefore prohibited until the tags were attached to the sacks.

Three brands of fertilizer from the Read Phosphate Co., were without registration tags when found at the warehouse of J. M. Gray, St. James. This company on request furnished the Inspection Service of the Experiment Station a full statement of all shipments made into Missouri territory without registration tags.

Swift's Steamed Bone Meal 2¼-29 from Swift and Co., was shipped to Tucker Seed House, Carthage, bearing 1921 Registration Tags. Also a shipment of Swift's High Grade Acid Phosphate to Crump & Humphrey, Centralia, had no registration tags attached to the sacks. The sale of these goods was declared illegal until the tags could be attached thereto.

3. Violations of the Law in Respect to Labeling.

The following brands of fertilizer shipped to J. T. Taylor, Foley, by the Floyd Plant Food Co., bore no statement of the guaranteed analysis as required by law.

F. P. F. 1-16-0 goods
 F. P. F. 0-16-2 goods
 F. P. F. 0-10-4 goods

Interstate Bone and Sheep Manure Mixture 2-14-3 found at the Farmers' Exchange, Exeter, was incorrectly labelled for guaranteed analysis as follows:

Nitrogen	1.65 per cent
Total Phosphoric Acid from Bone	14.00 per cent
Potash	2.00 per cent

There is no statement of the Available Phosphoric Acid and the Potash should read 3.00 per cent instead of 2.00 per cent.

Morris and Company's fertilizer was found at the warehouse of Phil Ratliff, Neosho, with very indistinct labels. The attention of this manufacturer has been called repeatedly to the fact that the law requires that the label shall be "a plainly printed statement".

The label for guaranteed analysis on the Big Two brand of Morris & Co., found at Neosho, was incomplete. The statement for Phosphoric Acid appeared as "Phosphoric Acid", 28.00 per cent.

The statement should read "Total Phosphoric Acid".

Wizard Brand Phosphated Manure registered by Phosphated Manure Co., was found at the store of B. F. Julian, Marshfield, labelled: "Manufactured by the Pulverized Manure Co." The name "Phosphated Manure Co.", should have been given as the manufacturer.

Shipments of Swift & Company's Champion Wheat and Corn Grower 2-12-2 were found on hand at the Farmers' Produce Exchange, Cassville, the Green County Farmers' Sales Association, Springfield, and the Missouri Farmers' Association of Brookline, bearing the label for potash, 1.00 per cent instead of 2.00 per cent.

A shipment of fertilizer supposed to be Steamed Bone Meal from the Tupelo Fertilizer Factory, Tupelo, Mississippi, was found at the Farmers Exchange, Seymour, without labels of any kind.

REGISTRATION

Manufacturers of fertilizers must file with the Agricultural Experiment Station each year before sales are made, a registration covering all brands and their guaranteed analyses which will be offered for sale in the state during that year. In 1922, 51 companies registered a total of 580 brands. Some companies register but one brand but other companies register 25 to 35 brands covering every variety of mixture for every purpose. A large number of these brands find little or no sale in the state.

Most of the companies have already registered the brands which they will offer for sale in 1923. These brands together with their guaranteed analyses are listed in Table 7.

ADVICE TO DEALERS AND FARMERS

Buyers of fertilizer may protect themselves by observing the following precautions when making purchases:

1. Do not purchase any brand of fertilizer which you do not find listed in Table 7 of this bulletin. Information about the registration of other brands not found in this table will be furnished upon inquiry addressed to the Agricultural Experiment Station, Columbia.

2. See that the reading of the labels on the sacks corresponds with the reading as it appears in the registrations listed in Table 7. In this report under "Violations" the reader will note the discrepancies in respect to labeling found by the inspectors. Failure of labels to agree with registration should warn the purchaser of possible deviation from the guaranteed quality.

3. Do not accept a shipment of fertilizer which has not the registration tag of the Missouri Agricultural Experiment Station attached to every sack. The practice of sending the registration tags unattached to the sacks is bad from the dealer's standpoint as it puts upon him the work of attaching these tags to the sacks. The law is very definite in stating that these tags must be attached to the sacks before they are sold. For his own protection the dealer or farmer purchasing the fertilizer should insist that these tags be attached to the sacks when received by him.

The registration tags are in the form of a shipping tag and bear the information as indicated below:

101 to 200 lbs.	
Missouri Agricultural Experiment Station	
Columbia, Missouri	
Registered	F. B. Mumford
1923	Director

These tags are of two sizes. The smaller size to be used on sacks weighing 100 lbs. or less bears the following printed legend: "1 to 100 lbs." The larger size bears the following legend: "101 to 200 lbs."

The purchaser should also observe the date on this registration tag. Goods received from the manufacturer during 1923 should bear a tag reading "Registered 1923". Any other year indicated thereon will bar the goods from sale until proper tags are furnished.

Package fertilizers for use in gardens and for flowers, ferns, etc., are sold occasionally by florists, retail seedsmen and others. All such dealers should take notice that these goods must conform to the regulations of the Missouri fertilizer law in respect to registration, labeling, and affixing of the registration tag or label. Each individual package of fertilizer regardless of size must be provided with the small registration label before it can be sold to the consumer. Retailers should take notice of this regulation and as protection to themselves should not accept goods from the wholesaler or manufacturer when each individual package is not provided with these tags.

COMPARATIVE VALUATIONS

It is customary for this Station to select each year unit values for the plant food constituents contained in fertilizer; total nitrogen, total phosphoric acid in bone goods, available phosphoric acid in all other simple goods or mixtures of any kind, and water soluble potash. These unit values are selected mainly for the purpose of comparing the plant food value as guaranteed, with the plant food value as found on analysis. They aim to show the average delivered cost of one per cent of this constituent contained in one ton of high grade material when sold in carload lots. The values in this report are based upon the prices which have prevailed during the year of 1922 and therefore cannot be considered to be a reliable guide for purchases made in 1923 unless prices remain much the same as for 1922.

These unit valuations could not be selected to apply equally well to both simple and mixed fertilizers and therefore the value in unmixed materials has been chosen. The discrepancy between the calculated guaranteed value and the selling price when using these units may be considered to be the added cost to the purchaser for buying his goods in ready mixed form. This discrepancy has been apparent in the price of mixed fertilizer in the last two years. It is explained by the fertilizer companies as the result of production difficulties arising since 1918 as an outcome of the war period.

The value of nitrogen varies so widely in different nitrogen carriers that only an average value could be selected. The value for nitrogen in organic sources is higher and that in inorganic sources is lower than this unit. Care should be taken in the use of this value when the source of the nitrogen carrier is known.

It is not possible to select valuations which will indicate to a purchaser just what he should pay for his fertilizer. It is doubtless good economy to select the kind of fertilizer however which has a selling price most closely agreeing with the calculated value, provided this kind agrees with the recommendations of the Experiment Station for the crop and land in question.

The values selected for 1922 are as follows:

Total nitrogen	\$4.50 per unit.
Total phosphoric acid from bone	\$1.00 per unit.
Available phosphoric acid	\$1.20 per unit.
Potash	\$1.10 per unit.

ESTIMATING THE VALUE OF A FERTILIZER

The above assigned value of \$4.50 per unit for nitrogen means that this is the value of the nitrogen contained in a ton of fertilizer which contains one per cent of nitrogen by weight. One per cent of one ton is 20 pounds which at a value of \$4.50 means that the nitrogen is worth 22½ cents a pound. Total phosphoric acid in bone with an assigned value of \$1.00 per unit, that is for 20 pounds, means that this constituent is 5 cents a pound; \$1.20 per unit for Available Phosphoric Acid means a value of 6 cents a pound and \$1.10 per unit for potash means 5½ cents a pound.

It now becomes possible to make a comparison between the guaranteed and found values of a fertilizer by simply multiplying these values per unit by the guaranteed and found values of the percentage of the constituents present and adding these results.

For example taking sample 5-12 in Table 5, page 16, we observe that the nitrogen guaranteed to be present is 3.29 per cent and the percentage found is 3.44 per cent. Multiplying each of these percentages by \$4.50 we obtain the guaranteed value of the nitrogen to be \$14.81 and the found value to be \$15.48.

The available phosphoric acid is guaranteed at 8 per cent and there was found to be present 8.40 per cent. Multiplying by the unit value \$1.20 we obtain the guaranteed value to be \$9.60 and the found value \$10.08.

In like manner for the potash by multiplying the guaranteed amount, 6.00 per cent, by \$1.10 we obtain \$6.60; and the found amount, 6.45 per cent, by \$1.10 we obtain \$7.10.

The guaranteed and found values of the fertilizer may now be found by adding together the guaranteed and found values of the respective constituents. Thus the guaranteed value of this brand amounts to \$31.01 and the found value \$32.66. The fertilizer therefore contains \$1.65 worth of plant food more than is guaranteed for it.

The above results are summarized in Table 1 following:

TABLE 1.—COMPARISON OF GUARANTEED VALUE AND VALUE FOUND BY ANALYSIS IN FERTILIZER SAMPLE 5-12.

Fertilizer Constituents	Guaranteed Value	Found Value
Nitrogen	\$14.81	\$15.48
Available Phosphoric Acid	9.60	10.08
Potash	6.60	7.10
Total	\$31.01	\$32.66

In Table 5 will be found the total guaranteed and found values for each sample analyzed. These values have been summarized for each manufacturer in Table 2, and indicate whether these vary above or below the guarantee when all the samples are considered together. Of the total samples 16.7 per cent, or 55 in all, are below the guarantee in value. This does not reach the record of last year but is much the same as the years preceding. The following table shows the per cent of samples which fell below the manufacturer's guarantee in value in the last five years:

Year	Below guarantee in value
1918	30.6 per cent
1919	16.7 per cent
1920	14.2 per cent
1921	10.6 per cent
1922	16.7 per cent

For all the 329 samples analyzed the average valuation was 97 cents per ton in excess of the guarantee of the manufacturer. Moreover the average value of each manufacturer's samples was in no case less than the guaranteed value. This is a good indication of the reliability of the goods sold by manufacturers doing business in this state.

TABLE 2.—VARIATIONS IN VALUE FROM MANUFACTURERS GUARANTEE.

Manufacturer	Number of samples analyzed	Below Guarantee		Average loss ¹ per ton	Average gain ² per ton
		Number	Per cent		
American Agricultural Chemical Co., A. A. C. Brands	11	3	27.3	\$0.82	\$1.19
American Agricultural Chemical Co., Boar's Head Brands	14	0	0	0.00	1.09
American Agricultural Chemical Co., Bradley Brands	6	0	0	0.00	0.86
American Agricultural Chemical Co., Empire Carbon Works Brands	13	0	0	0.00	0.95
American Agricultural Chemical Co., Horseshoe Brands	20	0	0	0.00	1.15
Arkansas Fertilizer Co.,	4	1	25.0	0.82	0.35
Armour Fertilizer Works, Armour Brands	10	2	20.0	1.22	0.77
Armour Fertilizer Works, Big Crop Brands	44	2	4.5	0.05	1.34
Armour Fertilizer Works, Tuscarora Brands	3	0	0	0.00	1.46
Cudahy Packing Co.,	11	1	9.0	1.41	2.05
Darling & Co.,	16	1	6.3	0.11	1.21
Douglass Fertilizer Co.,	2	0	0	0.00	0.24
Floyd Plant Food Co.,	8	3	37.5	0.87	0.70
Interstate Fertilizer Co.,	12	5	41.7	1.16	0.73
Morris & Co.,	13	4	30.7	1.39	1.07
Phosphated Manure Co.,	2	0	0	0.00	1.91
Read Phosphate Co.,	31	7	22.6	0.39	0.67
Swift & Co., Swift's Brands	88	25	28.4	0.75	0.57
Swift & Co., Pioneer Brands	3	1	33.3	0.72	0.46
Tupelo Fertilizer Factory	2	0	0	0.00	4.22
Virginia-Carolina Chemical Co.,	12	0	0	0.00	1.26
Wilson & Co.,	4	0	0	0.00	1.49
Total	329	55	16.7	0.79	0.97

¹This average is for those samples whose found value per ton is less than the guaranteed value per ton.

²This is the average for all the samples of each company indicated. In the case of every fertilizer company listed the average value per ton was greater than the guaranteed value.

CHEMICAL ANALYSIS

The detailed results of the analysis made on all official samples of fertilizer collected by the inspectors during the year 1922 are tabulated in Table 5. The found percentage results may be compared with the guaranteed percentage figures as they are placed in columns side by side. Percentages found below the guarantee are printed in bold-faced type. Any brand may be found listed alphabetically under the manufacturer's name.

When any purchaser desires a sample of fertilizer analyzed it is essential that the following information accompany the sample: Name and address of the manufacturer, name and address of buyer, the brand name and guar-

anteed analysis as it appears upon the sack or label attached thereto. The report on all samples sent in by purchasers will be found at the close of Table 5 under "Miscellaneous Samples". As these samples are not drawn by official inspectors it cannot be claimed that they represent a true average of the lot so that the results obtained may be misleading as far as representing a true average composition. The official samples listed in Table 5 are better statements of average composition than the miscellaneous samples.

Tables 3 and 4 give a summary of the percentages of plant food found in all the samples listed in Table 5. Table 3 is compiled for the purpose of comparing these results for the last few years.

A study of this table shows that a less amount of the nitrogen determinations ran under the guarantee than in the last three years. The improvement is most marked over last year's samples. However, the determinations of Total Phosphoric Acid, Available Phosphoric Acid and of Potash all showed more deficiencies this year than last. This is especially true of Available Phosphoric Acid which this year exhibits the poorest showing of the last three years.

TABLE 3.—SUMMARY OF PERCENTAGE DEFICIENCIES IN PLANT FOOD.

	Number of determinations in 1921	Determinations deficient				Improvement ¹ 1922		
		1922 per cent	1921 per cent	1920 per cent	1919 per cent	Over 1921 per cent	Over 1920 per cent	Over 1919 per cent
Nitrogen	245	23.7	29.6	25.7	26.0	5.9	2.0	2.3
Total Phosphoric Acid ..	47	14.9	6.5	22.4	39.7	— 8.4	7.5	24.8
Available Phosphoric Acid	288	19.1	14.0	10.5	15.9	— 5.1	—8.6	—3.2
Potash	183	27.9	12.4	32.6	38.7	—15.5	4.7	10.8
Total	763	22.5	18.5	21.2	26.1	— 4.0	—1.3	3.6

¹The sign — in front of the figure indicates the results this year make a poorer showing than in the indicated year by the percentage given.

AVAILABILITY OF NITROGEN

It is a fact well recognized by agronomists and chemists that the value of the nitrogen in a fertilizer does not depend necessarily upon the total amount present, but rather upon the amount of this nitrogen which is available for the plant. This question has been commanding more and more attention in the last few years and at a meeting of fertilizer manufacturers recently held in Chicago a resolution was adopted indorsing the principle that State Reports on Fertilizers shall include a statement of the availability of the nitrogen found in the fertilizer. The Missouri Agricultural Experiment Station heartily approves of this proposed step and will therefore publish in this report, one year hence, figures on the availability of the nitrogen present, in the fertilizer samples analyzed.

TESTING LIMESTONE

Table 6 gives the results of testing 683 samples of limestone which were submitted to the Experiment Station to be tested for their value in correcting soil acidity. The value of limestone in farm practice in Missouri is now widely known and its use is increasing daily. Various materials may be used in correcting soil acidity but crushed limestone is generally the most practical.

The acid neutralizing power of limestone is due to the calcium carbonate and magnesium carbonate it contains and these amounts are subject to considerable variation. The results are reported as calcium carbonate equivalent, that is, the percentage result is given as if the magnesium carbonate were calcium carbonate. If the percentage of magnesium carbonate is high it may cause the percentage to rise above 100 per cent. The value of the rock tested is in direct proportion to the size of the calcium carbonate equivalent figure.

There has been accumulated by the Experiment Station considerable information on the value of limestone in the state for agricultural purposes, and persons desiring to use stone from any locality are requested to write for information about this stone before using same. Do not send samples unless told to do so by some county agent or station worker as this information may already be on hand and no test may be necessary. For all samples tested the location of ledge must be given including range, township, section and quarter, also distance and direction from the nearest town (naming the town).

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

(Page 13)

Manufacturer	Nitrogen			Total Phosphoric Acid			Available Phosphoric Acid			Potash			All Analyses		
	Total	Deficient		Total	Deficient		Total	Deficient		Total	Deficient		Total	Deficient	
	No.	No.	Per Cent	No.	No.	Per Cent	No.	No.	Per Cent	No.	No.	Per Cent	No.	No.	Per Cent
American Agricultural Chemical Co., A. A. C. Brands.....	7	0	0.0	6	1	16.7	5	1	20.0	2	1	50.0	20	3	15.0
American Agricultural Chemical Co., Boar's Head Brands.....	7	0	0.0	0	0	.....	14	0	0.0	7	1	14.3	28	1	3.6
American Agricultural Chemical Co., Bradley Brands.....	5	0	0.0	0	0	.....	6	1	16.7	4	0	0.0	15	1	6.7
American Agricultural Chemical Co., Empire Carbon Works Brands.....	9	0	0.0	0	0	.....	13	0	0.0	8	1	12.5	30	1	3.3
American Agricultural Chemical Co., Horseshoe Brands.....	18	2	11.1	0	0	.....	20	0	0.0	16	3	18.8	54	5	9.3
Arkansas Fertilizer Co., Armour Fertilizer Works, Armour Brands.....	1	0	0.0	0	0	.....	4	1	25.0	1	1	100.0	6	2	33.3
Armour Fertilizer Works, Big Crops Brands.....	10	3	30.0	0	0	.....	10	2	20.0	10	2	20.0	30	7	23.3
Armour Fertilizer Works, Tuscarora Brands.....	34	6	17.6	10	0	0.0	34	3	8.8	16	2	12.5	94	11	11.7
Blood and Bone Fertilizer Co., Cochrane Packing Co.....	1	0	0.0	1	0	0.0	2	0	0.0	0	0	.....	4	0	0.0
Cudahy Packing Co., Darling & Co.....	1	0	0.0	0	0	.....	1	0	0.0	1	1	100.0	3	1	33.3
Douglass Fertilizer Co., Floyd Plant Food Co.....	1	1	100.0	0	0	.....	1	1	100.0	1	0	0.0	3	2	66.7
Interstate Fertilizer Co., Morris & Co.....	10	1	10.0	6	0	0.0	5	4	80.0	1	1	100.0	22	6	27.3
Mt. Pleasant Fertilizer Co., Natural Guano Co.....	12	1	8.3	1	0	0.0	15	5	33.3	8	1	12.5	36	7	19.4
Pulverized Manure Co., Phosphated Manure Co.....	5	0	0.0	0	0	.....	2	1	50.0	1	0	0.0	4	1	25.0
Read Phosphate Co., M. C. Reed & Son.....	5	1	20.0	0	0	.....	8	3	37.5	6	3	50.0	19	7	36.8
Swift & Co., Swift's Brands.....	10	5	50.0	2	0	0.0	10	4	40.0	9	0	0.0	31	9	29.0
Swift & Co., Pioneer Brands.....	11	3	27.3	2	1	50.0	11	4	36.3	8	1	12.5	32	9	28.1
Tennessee Chemical Co., Tupelo Fertilizer Factory.....	0	0	0.0	0	0	.....	1	0	0.0	0	0	.....	1	0	0.0
Virginia-Carolina Chemical Company.....	1	0	0.0	0	0	.....	1	0	0.0	1	0	0.0	3	0	0.0
Wilson & Co., Wilson & Co., Chemical Company.....	1	0	0.0	0	0	.....	1	1	100.0	1	0	0.0	3	1	33.3
	2	0	0.0	0	0	.....	2	1	50.0	2	0	0.0	6	1	16.7
	16	6	37.5	1	0	0.0	30	7	23.3	17	3	17.6	64	16	25.0
	1	0	0.0	0	0	.....	1	0	0.0	1	0	0.0	3	0	0.0
	69	24	34.8	16	5	31.3	72	13	18.1	47	26	55.3	204	68	33.3
	3	3	100.0	0	0	.....	3	1	33.3	3	2	66.7	9	6	66.7
	0	0	.....	0	0	.....	1	0	0.0	0	0	.....	1	0	0.0
	1	0	0.0	1	0	0.0	1	0	0.0	1	0	0.0	4	0	0.0
	4	2	50.0	0	0	.....	11	1	9.1	9	1	11.1	24	4	16.7
	4	0	0.0	1	0	0.0	3	1	33.3	2	1	50.0	10	2	20.0
Total.....	245	58	23.7	47	7	14.9	288	55	19.1	183	51	27.9	763	172	22.5

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922

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Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton	
					Total		Insoluble		Available					
			G'td	F'nd	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		
	American Agricultural Chemical Co., St. Louis, Mo. A. A. C. Brands													
10- 1	20% Phosphate.....	Troy Elevator & Supply Co., Troy.....				19.53	0.50	0.90	20.00	18.63			24.00	22.36
10- 2	20% Phosphate.....	J. W. Hutchinson, Fortuna.....				21.95	0.50	0.98	20.00	20.97			24.00	25.16
10- 3	20% Phosphate.....	Farmers Co-Op. Co., Dixon.....				22.20	0.50	1.30	20.00	20.90			24.00	25.08
5-12	4-8-6 Fertilizer ¹	Farmers Exchange, Exeter.....	3.29	3.44		9.74	0.50	1.34	8.00	8.40	6.00	6.45	31.01	32.66
10- 7	Bone Meal.....	Morgan Co. Elev. Co., Versailles.....	1.65	1.65	27.00	30.42							34.43	37.85
10- 8	Bone Meal.....	H. B. Sutter Impl. Co., Springfield.....	1.65	1.65	27.00	30.65							34.43	38.08
10- 9	Bone Meal.....	Farmers Co-Op. Co., Dixon.....	1.65	1.70	27.00	29.71							34.43	37.36
5-11	Potash Fertilizer.....	H. B. Sutter Impl. Co., Springfield.....				10.85	0.50	0.66	10.00	10.19	10.00	9.36	23.00	22.53
10- 4	Pure Raw Bone.....	Silex Grain Co., Silex.....	3.29	3.36	20.00	19.33							34.81	34.45
10- 5	Pure Raw Bone.....	Troy Elev. & Supply Co., Troy.....	3.29	3.47	20.00	20.34							34.81	35.96
10- 6	Pure Raw Bone.....	Farmers Co-Op. Co., Windsor.....	3.29	3.37	20.00	20.21							34.81	35.38
	Boar's Head Brands													
5-13	16% Phosphate.....	L. F. Driebelbis, Sarcoxie.....				17.71	0.50	1.10	16.00	16.61			19.20	19.93
10-10	16% Phosphate.....	Whitesides & Butts, Bowling Green.....				17.81	0.50	1.35	16.00	16.46			19.20	19.75
10-11	16% Phosphate.....	H. A. Hoffarth, Mountain Grove.....				17.56	0.50	1.14	16.00	16.42			19.20	19.70
10-12	16% Phosphate.....	D. C. Stuckey, Carl Junction.....				18.07	0.50	0.98	16.00	17.09			19.20	20.51
10-13	16% Phosphate.....	Farmers Exchange, Hardin.....				17.46	0.50	1.03	16.00	16.43			19.20	19.72
10-14	16% Phosphate.....	Perry Lee, Salisbury.....				17.66	0.50	0.80	16.00	16.86			19.20	20.23
5-14	Ammoniated Bone and Potash.....	L. F. Driebelbis, Sarcoxie.....	0.82	1.02		11.25	0.50	1.12	10.00	10.13	1.00	1.13	16.79	17.99
10-15	Ammoniated Bone and Potash.....	Morgan County Elev. Co., Versailles.....	0.82	0.94		11.74	0.50	1.25	10.00	10.49	1.00	1.18	16.79	18.12
10-16	Ammoniated Bone and Potash.....	H. A. Hoffarth, Mt. Grove.....	0.82	0.87		12.27	0.50	1.50	10.00	10.77	1.00	1.16	16.79	18.12
10-17	Ammoniated Phosphate.....	Perry Lee, Salisbury.....	1.65	1.75		14.75	0.50	1.82	12.00	12.93			21.83	23.40
10-18	Faultless Grain Grower.....	Farmers Exchange, Hardin.....				14.04	0.50	1.42	12.00	12.62	2.00	1.94	16.60	17.27
5-15	Seeding Down Guano.....	L. E. Dyer, Mt. Vernon.....	0.82	0.99		9.86	0.50	1.13	8.00	8.73	1.00	1.25	14.39	16.32

10-19	Seeding Down Guano.....	E. E. Brown, Curryville...	0.82	0.95	.....	9.43	0.50	1.14	8.00	8.29	1.00	1.18	14.39	15.53
10-21	World of Good Corn and Wheat Grower.....	E. E. Brown, Curryville....	1.65	1.73	.....	13.96	0.50	1.27	12.00	12.69	2.00	2.26	24.03	25.51
Bradley Brands														
5-16	Best Grain Grower.....	Farmer's Exchange, Exeter.	1.65	1.65	.....	13.54	0.50	1.25	12.00	12.29	2.00	2.05	24.03	24.44
5-17	Bradley Special.....	Farmer's Exchange, Exeter.	1.65	1.95	.....	13.93	0.50	1.95	12.00	12.03	.....	.....	21.83	23.22
10-22	B. D. Sea Fowl Guano.....	Pete Erdel Jr., Rush Hill..	1.65	1.70	.....	9.71	0.50	1.03	8.00	8.68	2.00	2.10	19.23	20.38
5-18	Corn and Wheat Phosphate.	Farmer's Exchange, Exeter.	0.82	0.96	.....	9.22	0.50	1.37	8.00	7.85	1.00	1.24	14.39	15.10
10-23	Corn and Wheat Phosphate.	Pete Erdel, Jr., Rush Hill..	0.82	0.92	.....	9.56	0.50	1.02	8.00	8.54	1.00	1.19	14.39	15.70
10-24	High Grade Phosphate.....	Pete Erdel, Jr., Rush Hill..	.....	.....	.....	17.03	0.50	0.88	16.00	16.15	.....	.....	19.20	19.38
Empire Carbon Works Brands														
10-25	16% Phosphate.....	J. K. Butts, Vandalia.....	.....	.....	.....	16.92	0.50	0.79	16.00	16.13	.....	.....	19.20	19.36
10-26	16% Phosphate.....	A. L. Veasman, Dixon.....	.....	.....	.....	19.59	0.50	0.76	16.00	16.83	.....	.....	19.20	20.20
10-27	16% Phosphate.....	Pettis Co. Farm Bureau, Sedalia.....	.....	.....	.....	17.61	0.50	0.96	16.00	16.65	.....	.....	19.20	19.98
10-28	16% Phosphate.....	Farmer's Co-Op. Co., Windsor.....	.....	.....	.....	17.49	0.50	0.86	16.00	16.63	.....	.....	19.20	19.96
10-29	Bone Black Fertilizer.....	Jno. S. Brunnert, Ethlyn..	1.65	1.73	.....	9.80	0.50	1.25	8.00	8.55	2.00	2.17	19.23	20.44
10-30	Crop Grower.....	Jno. S. Brunnert, Ethlyn..	0.82	0.86	.....	10.18	0.50	1.23	8.00	8.95	3.00	2.69	16.59	17.57
10-31	Farmer's Favorite.....	Farmer's Co-Op. Co., Windsor.....	0.82	0.90	.....	11.48	0.50	1.31	10.00	10.17	1.00	1.10	16.79	17.46
10-32	Middle West Grain Grower..	Pettis County Farm Bu- reau, Sedalia.....	1.65	1.68	.....	13.58	0.50	1.26	12.00	12.32	2.00	2.05	24.03	24.60
10-33	Middle West Grain Grower..	A. L. Veasman, Dixon.....	1.65	1.75	.....	14.07	0.50	1.48	12.00	12.59	2.00	2.27	24.03	25.49
10-34	Potato and Tobacco Fertilizer	A. L. Veasman, Dixon.....	1.65	1.79	.....	10.00	0.50	1.30	8.00	8.79	5.00	5.04	22.53	24.04
10-20	Steam Bone Substitute.....	Farmer's Exchange, Hardin	1.65	1.66	.....	11.74	0.50	1.25	10.00	10.49	.....	.....	19.43	20.06
10-35	Wheat and Clover Grower...	Whiteside & Butts, Bowling Green.....	0.82	0.83	.....	9.52	0.50	1.29	8.00	8.23	1.00	1.00	14.39	14.72
10-36	Wheat and Clover Grower...	A. L. Veasman, Dixon.....	0.82	1.00	.....	10.31	0.50	1.35	8.00	8.96	1.00	1.30	14.39	16.68
Horseshoe Brands														
10-37	Acidulated Bone and Potash.	Silex Grain Co., Silex.....	0.82	0.85	.....	13.32	0.50	1.28	10.00	12.04	1.00	1.10	16.79	19.49
10-38	Animal Bone Manure and Potash.....	Troy Elevator & Supply Co., Troy.....	0.82	0.84	.....	9.41	0.50	1.18	8.00	8.23	3.00	2.95	16.59	16.91
10-39	Animal Bone Manure and Potash.....	Noah Watts, Rogersville...	0.82	0.89	.....	9.71	0.50	1.22	8.00	8.49	3.00	2.84	16.59	17.32
5-19	Economy Phosphate.....	B. F. Julian, Marshfield..	.....	.....	.....	17.59	0.50	1.05	16.00	16.54	.....	.....	19.20	19.85
10-40	Economy Phosphate.....	Troy Elev. & Supply Co., Troy.....	.....	.....	.....	17.89	0.50	1.15	16.00	16.74	.....	.....	19.20	20.09
5-20	Horseshoe Fertilizer.....	H. B. Sutter Imp. Co., Springfield.....	1.65	1.73	.....	9.81	0.50	1.57	8.00	8.24	5.00	5.73	22.53	23.98
5-21	Horseshoe Fertilizer.....	B. F. Julian, Marshfield..	1.65	1.82	.....	9.99	0.50	1.18	8.00	8.81	5.00	4.95	22.53	24.21
10-41	Horseshoe Fertilizer.....	Noah Watts, Rogersville..	1.65	1.64	.....	9.86	0.50	1.11	8.00	8.75	5.00	5.05	22.53	23.41
10-42	Horseshoe Fertilizer.....	Farmer's Co-Op. Co., Dixon	1.65	1.65	.....	9.67	0.50	1.05	8.00	8.62	5.00	5.53	22.53	23.85
10-43	National Bone Dust.....	Troy Elev. & Supply Co., Troy.....	1.65	1.67	.....	10.21	0.50	1.19	8.00	9.02	2.00	2.27	19.23	20.84

1 Not previously registered.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922 (Continued)

(Page 16)

Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton	
					Total		Insoluble		Available					
			G'td	F'nd	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		
10-44	National Bone Dust.....	Noah Watts, Rogersville...	1.65	1.58	.....	9.51	0.50	1.28	8.00	8.23	2.00	2.13	19.23	19.33
10-45	National Bone Dust.....	Farmer's Co-Op. Co., Dixon	1.65	1.70	.....	9.89	0.50	1.09	8.00	8.80	2.00	2.17	19.23	20.60
10-46	Pioneer Grain Grower.....	Troy Elev. & Supply Co., Troy	1.65	1.65	.....	13.12	0.50	1.03	12.00	12.09	2.00	2.03	24.03	24.17
10-47	Pioneer Grain Grower.....	Noah Watts, Rogersville...	1.65	1.74	.....	14.24	0.50	1.65	12.00	12.59	2.00	2.09	24.03	25.24
10-52	Pioneer Grain Grower.....	Farmer's Co-Op. Co., Dixon	1.65	1.70	.....	13.45	0.50	1.24	12.00	12.21	2.00	2.12	24.03	24.63
5-22	Reliable Wheat Grower.....	B. F. Julian, Marshfield....	0.82	1.02	.....	9.87	0.50	1.48	8.00	8.39	1.00	1.04	14.39	15.80
10-48	Reliable Wheat Grower.....	Silex Grain Co., Silex.....	0.82	1.02	.....	10.21	0.50	1.21	8.00	9.00	1.00	1.18	14.39	16.69
10-49	Reliable Wheat Grower.....	Troy Elev. & Supply Co., Troy	0.82	0.94	.....	9.95	0.50	1.71	8.00	8.78	1.00	1.14	14.39	16.02
10-50	Soil Builder.....	Silex Grain Co., Silex.....	1.65	1.65	.....	12.33	0.50	1.65	10.00	10.68	.....	.....	19.43	20.25
10-51	War Brand.....	H. B. Sutter Impl. Co., Springfield.....	1.65	1.74	.....	14.17	0.50	1.48	12.00	12.69	.....	.....	21.83	23.06
	Arkansas Fertilizer Co., Little Rock, Arkansas White Diamond Brands													
10-53	Special Acid Phosphate.....	J. E. Weaver, Oronogo.....	.....	.....	.....	16.08	.....	0.76	16.00	15.32	.....	.....	19.20	18.38
10-54	Special Acid Phosphate.....	H. W. Sutton, Asbury.....	.....	.....	.....	17.40	.....	0.63	16.00	16.77	.....	.....	19.20	20.12
10-55	Special Acid Phosphate.....	G. B. Beeney, Sheldon.....	.....	.....	.....	17.64	.....	0.57	16.00	17.07	.....	.....	19.20	20.48
10-248	Blood, Bone and Potash....	Farmers Elev. Co., Hume..	2.00	2.07	.....	12.66	.....	0.61	12.00	12.05	1.50	1.17	25.05	25.07
	Armour Fertilizer Works, Chicago, Illinois Armour Brands													
5-23	Grain Grower.....	D. W. Robertson Lumber Co., Marshfield.....	1.65	1.63	.....	10.83	0.50	1.49	8.00	9.34	2.00	2.09	19.23	20.85
10-56	Grain Grower.....	Producers Exchange, Lin- coln.....	1.65	1.76	.....	10.43	0.50	1.95	8.00	8.48	2.00	2.04	19.23	20.34
10-57	Grain Grower.....	F. M. Shoffner, Boliver....	1.65	1.65	.....	10.16	0.50	1.22	8.00	8.94	2.00	2.00	19.23	20.36
10-58	Grain Grower.....	Moye Feed Co., Phillips- burg.....	1.65	1.66	.....	9.20	0.50	0.95	8.00	8.25	2.00	1.95	19.23	19.52
5-24	Wheat, Corn and Oats Special	D. W. Robertson Lbr. Co., Marshfield.....	0.82	0.81	.....	10.25	0.50	1.57	8.00	8.68	1.00	1.02	14.39	15.19
5-25	Wheat, Corn and Oats Special	Farmers Exchange, Monett	0.82	0.94	.....	9.51	0.50	0.56	8.00	8.95	1.00	1.00	14.39	16.07
10-59	Wheat, Corn and Oats Special	Eolia Elevator Co., Eolia..	0.82	0.85	.....	9.33	0.50	1.57	8.00	7.76	1.00	0.99	14.39	14.23
10-60	Wheat, Corn and Oats Special	Ozark Mill Co., Seymour..	0.82	0.81	.....	6.96	0.50	0.84	8.00	6.12	1.00	1.03	14.39	12.12
10-61	Wheat, Corn and Oats Special	Star Mill Co., Mt. Grove..	0.82	1.18	.....	9.83	0.50	1.37	8.00	8.46	1.00	1.36	14.39	16.96
10-62	Wheat, Corn and Oats Special	Roberts Bros. Hdw. & Impl. Co., Cabool.....	0.82	0.95	.....	8.59	0.50	0.35	8.00	8.24	1.00	1.04	14.39	15.31

5-26	16% Acid Phosphate	U. L. Coleman Hdw. Co., Marionville.					17.52	0.50	0.43	16.00	17.09			19.20	20.51
5-27	16% Acid Phosphate	Aurora Lumber & Mfg. Co., Aurora.					17.75	0.50	0.63	16.00	17.12			19.20	20.54
10-63	16% Acid Phosphate	Vandalia Farmers Elev. & Sup. Co., Vandalia.					19.07	0.50	2.47	16.00	16.60			19.20	19.92
10-64	16% Acid Phosphate	Eolia Elevator Co., Eolia.					16.54	0.50	0.49	16.00	16.05			19.20	19.26
10-65	16% Acid Phosphate	Farmers Elevator Co., Silex					18.83	0.50	2.32	16.00	16.51			19.20	19.81
10-66	16% Acid Phosphate	Roberts Hdw. & Imp. Co., Cabool.					18.91	0.50	1.71	16.00	17.20			19.20	20.64
10-67	16% Acid Phosphate	Farmers Exchange, Car- thage.					17.74	0.50	0.68	16.00	17.06			19.20	20.47
10-68	16% Acid Phosphate	G. B. Beeney & Son, Shel- don.					18.32	0.50	2.00	16.00	16.32			19.20	19.58
10-69	20% Acid Phosphate	Thos. A. Hays, Fortuna					22.46	0.50	1.59	20.00	20.87			24.00	25.04
10-70	20% Acid Phosphate	Barnett Farmers Elev. Co., Barnett.					22.44	0.50	1.51	20.00	20.93			24.00	25.12
5-28	Bone Meal	Aurora Lumber & Mfg. Co., Aurora.	2.47	2.97	24.00	26.27								35.12	39.64
10-71	Bone Meal	Wm. Pollock Gr. & Elev. Co., Mexico.	2.47	2.25	24.00	27.64								35.12	37.77
10-72	Bone Meal	Vandalia Farmers Elev. & Sup. Co., Vandalia.	2.47	3.03	24.00	26.25								35.12	39.89
10-73	Bone Meal	Ozark Mill Co., Seymour	2.47	2.39	24.00	24.33								35.12	35.69
10-74	Bone Meal	F. M. Shoffner, Bolivar	2.47	2.11	24.00	25.83								35.12	35.33
10-75	Bone Meal	Schooler Grain Co. & Farm- er's Exchange, Jasper.	2.47	2.87	24.00	25.60								35.12	38.52
10-79	Bone and Phosphate Mixture	G. B. Beeney & Son, Shel- don.	0.82	0.94	20.00	23.36	9.00	11.48	11.00	11.88				16.89	18.49
5-29	Half Bone Meal and Half Acid Phosphate	Aurora Lumber & Mfg. Co., Aurora.	1.23	1.52	20.00	22.00	9.00	10.94	11.00	11.06				18.74	20.11
10-80	Half Bone Meal and Half Acid Phosphate	Farmer's Exchange, Car- thage.	1.23	1.11	20.00	23.02	9.00	10.59	11.00	12.43				18.74	20.28
5-30	Raw Bone Meal	Farmer's Exchange, Monett	3.71	3.89	22.00	23.22								38.70	40.73
10-76	Raw Bone Meal	Ozark Mill Co., Seymour	3.71	3.84	22.00	23.41								38.70	40.69
10-77	Raw Bone Meal	Star Milling Co., Mt. Grove	3.71	3.77	22.00	24.24								38.70	41.21
10-78	Raw Bone Meal	Farmer's Exchange, Car- thage.	3.71	3.77	22.00	23.78								38.70	40.75
10-81	1-12-1 Fertilizer	Producers Exchange, Lin- coln.	0.82	0.92		12.45	0.50	0.97	12.00	11.48	1.00	1.17		19.19	19.21
10-82	1-12-1 Fertilizer	Farmers Exchange, Car- thage.	0.82	0.98		14.47	0.50	2.43	12.00	12.04	1.00	1.68		19.19	20.71
5-31	2-10-4 Fertilizer	Farmers Elev. Co., Purdy	1.65	1.67		10.18	0.50	0.56	10.00	9.62	4.00	4.27		23.83	23.76
5-32	2-12 Fertilizer	Newton Live Stock & Ware- house Assn., Neosho	1.65	1.73		13.30	0.50	0.76	12.00	12.54				21.83	22.84
5-33	2-12 Fertilizer	Farmers Elev. Co., Purdy	1.65	1.94		13.19	0.50	0.71	12.00	12.48				21.83	23.71
10-83	2-12 Fertilizer	Vandalia Farmers Elev. & Sup. Co., Vandalia.	1.65	1.69		13.42	0.50	0.65	12.00	12.77				21.83	22.93

² Without registration tags.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922 (Continued)

(Page 18)

Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton	
					Total		Insoluble		Available					
			G'td	F'nd	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		
10-84	2-12 Fertilizer.....	Winans Fruit Growers Assn., Diggans.....	1.65	1.67	.....	12.79	0.50	0.63	12.00	12.16	.....	.....	21.83	22.11
10-88	2-12 Fertilizer.....	Roberts Hdw. & Impl. Co., Cabool.....	1.65	1.65	.....	13.61	0.50	0.71	12.00	12.90	.....	.....	21.83	22.91
5-34	2-12-2 Fertilizer.....	Newton Live Stock & Warehouse Assn., Neosho	1.65	1.66	.....	13.06	0.50	0.53	12.00	12.53	2.00	2.41	24.03	25.16
5-35	2-12-2 Fertilizer.....	Farmers Elev. Co., Purdy..	1.65	1.75	.....	13.58	0.50	0.64	12.00	12.94	2.00	2.30	24.03	25.94
10-85	2-12-2 Fertilizer.....	Producers Exchange, Lincoln.....	1.65	1.48	.....	13.20	0.50	0.62	12.00	12.58	2.00	2.07	24.03	24.04
10-86	2-12-2 Fertilizer.....	Winans Fruit Growers Assn., Diggans.....	1.65	1.65	.....	13.37	0.50	0.67	12.00	12.70	2.00	2.08	24.03	24.96
10-87	2-12-2 Fertilizer.....	Roberts Hdw. & Impl. Co., Cabool.....	1.65	1.65	.....	13.45	0.50	0.93	12.00	12.52	2.00	2.10	24.03	24.76
10-89	2-12-2 Fertilizer.....	Keyes Mill & Elev. Co., Clinton.....	1.65	1.56	.....	14.80	0.50	1.08	12.00	13.72	2.00	1.78	24.03	25.44
10-90	2-12-2 Fertilizer.....	Farmers Exchange, Carthage.....	1.65	1.76	.....	12.95	0.50	1.03	12.00	11.92	2.00	1.97	24.03	24.39
10-91	2-12-2 Fertilizer.....	Farmers Co-Op. Exchg., Bourbon.....	1.65	1.66	.....	13.76	0.50	1.18	12.00	12.58	2.00	2.01	24.03	24.78
10-92	2-12-2 Fertilizer.....	Moye Feed Co., Phillipsburg.....	1.65	1.72	.....	13.66	0.50	1.34	12.00	12.32	2.00	2.05	24.03	24.78
5-36	2-16-2 Fertilizer.....	Farmers Exchange Monett	1.65	1.97	.....	17.61	0.50	0.80	16.00	16.81	2.00	2.07	28.83	31.32
10-93	2-16-2 Fertilizer.....	Farmers Exchange, Carthage.....	1.65	1.93	.....	16.92	0.50	0.66	16.00	13.26	2.00	2.21	28.83	30.63
10-94	2-16-2 Fertilizer.....	Farmers Co-Op. Exchange, Bourbon.....	1.65	1.76	.....	16.67	0.50	0.59	16.00	16.08	2.00	2.12	28.83	29.55
10-95	2-16-2 Fertilizer.....	Moye Feed Co., Phillipsburg.....	1.65	1.69	.....	18.10	0.50	1.59	16.00	16.51	2.00	2.42	28.83	30.08
10-96	Tuscarora Brands 16% Acid Phosphate.....	W. H. Tinsley, Bowling Green.....	.....	.....	.....	18.81	0.50	1.84	16.00	16.97	.....	.....	19.20	20.36
10-97	20% Acid Phosphate.....	Eolia Elevator Co., Eolia..	.....	.....	.....	23.53	0.50	2.64	20.00	20.89	.....	.....	24.00	25.07
10-98	Raw Bone Meal.....	Farmers Exchange, Jasper..	3.71	3.87	22.00	23.43	.....	.....	.....	.....	.....	.....	38.70	40.85
10-99	Ash Grove Lime & Portland Cement Co., Kansas City, Missouri Limeash.....	Calhoun & Portland Co., Reeds.....	.....	.....	.....	.....	.....	.....	.....	.....	0.91	2.21	1.00	2.43

	Blood & Bone Fertilizer Co., St. Louis, Missouri Steer Head Brand														
10-249	Special Wheat Grower.....	Henry S. Jones, Frankford.	1.03	1.32	.....	13.78	1.00	3.53	10.00	10.25	3.00	2.87	19.94	21.40
	Cochrane Packing Co., Kansas City, Kansas														
10-100	Pulverized Sheep Manure [†]	Springfield Seed Co., Springfield.	2.00	1.86	.....	1.56	.....	0.49	2.00	1.07	1.00	1.00	12.50	10.75
	Cudahy Packing Co., Chicago, Illinois Blue Ribbon Brands														
10-101	16% Acid Phosphate.....	Farmers Exchange, Sheldon	.....	.....	.....	20.29	.....	1.10	16.00	19.19	.....	.....	19.20	23.03
10-102	1 1/2-20 Half and Half.....	Farmers Exchange, Walnut Grove.	1.23	2.30	20.00	22.90	.....	10.78	13.00	12.12	.....	.....	21.14	24.89
10-103	1 1/2-20 Half and Half.....	Farmers Exchange, Ash Grove.	1.23	1.46	20.00	22.46	.....	9.70	13.00	12.76	.....	.....	21.14	21.88
10-104	1 1/2-20 Half and Half.....	Farmers Prod. Exchg., St. James.	1.23	1.44	20.00	24.17	.....	13.13	13.00	11.04	.....	.....	21.14	19.73
10-105	Steamed Bone Meal.....	Farmers Co-Op. Elev., Fortuna.	2.47	2.76	24.00	24.94	.....	.....	.....	.....	.....	.....	35.12	37.36
10-106	Steamed Bone Meal.....	Farmers Exchange, Walnut Grove.	2.47	2.57	24.00	24.70	.....	.....	.....	.....	.....	.....	35.12	36.27
10-107	Steamed Bone Meal.....	Farmers Exchange, Ash Grove.	2.47	2.83	24.00	24.00	.....	.....	.....	.....	.....	.....	35.12	36.74
10-108	Steamed Bone Meal.....	Bolivar Exchange, Bolivar.	2.47	2.59	24.00	26.39	.....	.....	.....	.....	.....	.....	35.12	38.05
10-109	Steamed Bone Meal.....	Omer Webb, Jasper	2.47	2.34	24.00	27.29	.....	.....	.....	.....	.....	.....	35.12	37.82
10-110	Steamed Bone Meal.....	Farmers Prod. Exchg., St. James.	2.47	2.51	24.00	25.93	.....	.....	.....	.....	.....	.....	35.12	37.23
10-111	2-16-2.....	Farmers Exchange, Sheldon	1.65	2.41	.....	16.35	2.00	0.72	16.00	15.63	2.00	1.98	28.83	31.79
	Darling & Company, Chicago, Illinois Darling's Brands														
10-112	16% Acid Phosphate.....	Wm. Pollock Mill & Elev. Co., Mexico.	.....	.....	.....	19.50	.....	2.63	16.00	16.87	.....	.....	19.20	20.24
10-113	16% Acid Phosphate.....	H. A. Reckamp, Ethlyn.	.....	.....	.....	18.99	.....	1.96	16.00	17.03	.....	.....	19.20	20.44
10-114	16% Acid Phosphate.....	Barnett Farmers Elev. Co., Barnett.	.....	.....	.....	19.63	.....	2.21	16.00	17.42	.....	.....	19.20	20.90
10-115	16% Acid Phosphate.....	Soils Dept., Univ. of Mo., Columbia.	.....	.....	.....	19.09	.....	2.03	16.00	17.06	.....	.....	19.20	20.47
10-116	Big Harvest.....	Farmers' Exchange, Republic.	1.60	1.76	.....	15.41	2.00	3.14	12.00	12.27	2.00	2.31	23.80	25.18
10-117	Big Harvest.....	T. R. Shaffer, Sullivan	1.60	1.76	.....	14.44	2.00	2.53	12.00	11.91	2.00	2.01	23.80	24.42
10-119	Chicago Brand.....	Wm. Pollock Grain & Elev. Co., Mexico.	1.60	1.61	.....	10.02	2.00	1.60	8.00	8.42	2.00	2.98	19.23	20.63
10-120	Chicago Brand.....	H. A. Reckamp, Ethlyn.	1.60	1.74	.....	9.88	2.00	2.20	8.00	7.68	2.00	1.98	19.00	19.23

³ Not previously registered.[†] Name not as registered.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton		
					Total		Insoluble		Available						
			G'td	F'nd	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		
10-121	Farmer's Favorite.....	Farmers Exchange, Republic.	2.40	2.34	.....	10.04	2.00	1.76	8.00	8.28	4.00	4.04	24.80	24.91
10-122	General Crop.....	Silex Grain Co., Silex.....	1.60	2.15	.....	13.88	2.00	2.99	12.00	10.89	.....	.....	21.60	22.75
10-123	Grain Grower.....	Al Self, Laddonia.....	0.80	0.80	.....	11.33	2.00	2.18	9.00	9.15	1.00	1.04	15.50	15.72
10-124	Grain Grower.....	Farmers Elev. Co., Fortuna	0.80	0.91	.....	10.51	2.00	1.66	9.00	8.85	1.00	1.32	15.50	16.17
10-125	Bone and Acid Phosphate, Half and Half.....	Silex Grain Co., Silex.....	0.80	0.95	.....	22.81	11.00	10.61	12.00	12.20	.....	.....	18.00	18.92
10-126	Bone and Acid Phosphate, Half and Half.....	Barnett Farmers Elev. Co., Co., Barnett.....	0.80	0.98	.....	22.54	11.00	11.31	12.00	11.23	.....	.....	18.00	17.89
10-127	Pure Ground Bone.....	C. C. Wonneman & Sons, Mexico.....	1.80	2.53	28.00	28.77	.....	.....	.....	.....	.....	.....	36.10	40.16
10-128	Sure Winner.....	Al Self, Laddonia.....	0.80	0.97	.....	9.47	2.00	1.12	8.00	8.35	3.00	5.19	16.50	20.10
	Douglass Fertilizer Co., Little Rock, Arkansas 4- Brands														
10-129	Acid Phosphate.....	Farmers Exchange, Niangua.....	.....	.....	.....	17.05	.....	0.67	16.00	16.38	.....	.....	19.20	19.66
10-130	Blood, Bone and Potash.....	Grove Springs Farmers Exchange, Niangua.....	2.00	2.07	.....	12.64	.....	0.99	12.00	11.65	1.50	1.61	25.05	25.07
	Floyd Plant Food Co., St. Louis, Missouri F. P. F. Brands														
10-250	1-16-0 Goods ^s	J. T. Taylor, Foley.....	0.83	0.92	16.30	18.21	0.30	2.72	16.00	15.49	.....	.....	22.94	22.73
10-251	0-16-2 Goods ^s	J. T. Taylor, Foley.....	.....	.....	16.30	17.30	0.30	2.33	16.00	14.97	2.00	1.45	21.40	19.56
10-252	0-10-4 Goods ^s	J. T. Taylor, Foley.....	.....	.....	14.93	.....	.....	2.32	10.00	12.61	4.00	2.74	16.40	18.14
10-253	0-16-2 Goods.....	E. J. Nadler, Corso.....	.....	.....	16.30	18.68	0.30	2.98	16.00	15.70	2.00	1.83	21.40	20.85
10-254	2-8-2 Goods.....	E. J. Nadler, Corso.....	1.67	1.65	8.20	12.33	0.20	3.96	8.00	8.37	2.00	2.09	19.32	19.77	
10-255	2-12-0 Goods.....	J. T. Taylor, Foley.....	1.67	1.96	12.25	13.88	0.25	1.31	12.00	12.57	.....	.....	21.92	23.90
10-256	2-12-2 Goods.....	E. J. Nadler, Corso.....	1.67	1.71	12.25	14.75	0.25	2.16	12.00	12.59	2.00	2.58	24.12	25.65	
10-257	2-12-2 Goods.....	J. T. Taylor, Foley.....	1.67	1.78	12.25	14.51	0.25	2.21	12.00	12.30	2.00	3.46	24.12	26.58	
	Interstate Fertilizer Co., Webb City, Missouri Interstate Brands														
5-37	16% Acid Phosphate.....	Farmers Exchange, Exeter.....	.....	.....	.....	16.86	.....	1.77	16.00	15.09	.....	.....	19.20	18.11
5-38	Bone and Sheep Manure ^r	Farmers Exchange, Exeter.....	1.65	1.40	14.00	18.02	.....	.....	.....	.....	2.00	4.42	23.63	29.18
5-39	Steam Bone.....	Farmers Exchange, Miller.....	2.46	2.97	24.00	25.75	.....	.....	.....	.....	.....	.....	35.07	39.12
10-131	Phosphate and Potash ^s	A. J. Buckingham, Oronogo	.....	.....	.....	16.48	0.50	1.42	15.00	15.06	2.00	2.03	20.20	20.30
5-40	Sheep Manure and Phosphate, 1-9-1.....	Farmers Elev. Co., Purdy.....	0.82	0.84	.....	11.51	0.50	1.91	9.00	9.60	1.00	2.24	15.59	17.76

10-258	1-12-1.....	Farmers Exchange, Moundville.....	0.82	0.94	.....	13.45	0.50	0.75	12.00	12.70	1.00	1.10	19.19	20.68
5-41	Jasper County Special 2-8-2.	Farmers Elev. Co., Purdy..	1.65	1.70	.....	10.15	0.50	2.64	8.00	7.61	2.00	2.27	19.23	19.16
5-42	Grain Special, 2-10-2.....	Farmers Elev. Co., Purdy..	1.65	1.55	.....	13.61	0.50	2.67	10.00	10.94	2.00	2.07	21.63	22.39
5-43	2-12-0.....	Farmers Exchange, Exeter.	1.65	0.87	.....	13.27	0.50	1.98	12.00	11.29	.....	.....	21.83	17.47
5-44	2-12-2.....	Farmers Exchange, Exeter.	1.65	1.56	.....	13.82	0.50	2.27	12.00	11.55	2.00	2.72	24.03	23.87
5-45	2-12-2.....	Farmers Exchange, Miller.	1.65	1.68	.....	14.62	0.50	2.38	12.00	12.24	2.00	2.05	24.03	24.51
10-269	2-12-2.....	Farmers Exchange, Moundville.....	1.65	1.53	.....	15.06	0.50	2.72	12.00	12.34	2.00	2.00	24.03	23.92
		Meridian Fertilizer Factory, Shreveport, La.												
10-132	Easy Driller Phosphate.....	F. H. Jarnagin, Aldrich....	.....	.....	.....	17.10	.....	0.67	16.00	16.43	.....	.....	19.20	19.72
		Morris & Co., Chicago, Illinois Morris Brands												
5-46	H. G. Acid Phosphate.....	Phil Ratliff, Neosho.....	.....	.....	.....	17.46	.....	1.63	16.00	15.83	.....	.....	19.20	19.00
10-246	H. G. Acid Phosphate.....	Wm. Shaffer, Salisbury.....	.....	.....	.....	16.95	.....	1.83	16.00	15.12	.....	.....	19.20	18.14
5-47	Big Two 2 1/2-28 ¹	Phil Ratliff, Neosho.....	2.06	2.25	28.00	28.81	.....	.....	.....	.....	.....	.....	37.27	38.94
10-260	Big Two 2 1/2-28.....	J. B. Robinson & Son, Nevada.....	2.06	1.83	28.00	27.23	.....	.....	.....	.....	.....	.....	37.27	35.47
10-261	Big Three 1-9-3.....	J. B. Robinson & Son, Nevada.....	0.82	1.40	.....	13.17	.....	3.97	9.00	9.20	3.00	5.66	17.79	23.57
10-262	Big Four 1-13.....	Peoples Elev. Co., Butler...	0.82	0.73	.....	19.43	4.00	8.18	13.00	11.25	.....	.....	19.29	16.79
10-241	Big Six 2-12-6.....	Wm. Shaffer, Salisbury.....	1.65	1.70	.....	14.64	1.00	2.48	12.00	12.16	6.00	8.07	28.43	31.12
10-244	Big Six 2-12-6.....	Wm. Shaffer, New Cambria	1.65	1.80	.....	14.42	1.00	3.44	12.00	10.98	6.00	6.59	28.43	28.53
5-48	Big Eight 1-8-1.....	Phil Ratliff, Neosho.....	0.82	1.08	.....	10.59	1.00	1.37	8.00	9.22	1.00	1.21	14.39	17.25
10-242	Big Ten 2-8-2.....	Wm. Shaffer, Salisbury.....	1.65	2.12	.....	11.92	1.50	3.89	8.00	8.03	2.00	2.13	19.23	21.52
10-245	Big Ten 2-8-2.....	Wm. Shaffer, New Cambria	1.65	2.02	.....	12.80	1.50	3.96	8.00	8.84	2.00	2.03	19.23	21.93
F5-49	Big Fourteen 2-12-2.....	Phil Ratliff, Neosho.....	1.65	1.43	.....	17.73	1.50	5.36	12.00	12.37	2.00	2.57	24.03	24.11
10-243	Big Fourteen 2-12-2.....	Wm. Shaffer, Salisbury....	1.65	1.77	.....	15.60	1.50	2.79	12.00	12.81	2.00	1.78	24.03	25.30
		Mt. Pleasant Fertilizer Co. Memphis, Tennessee												
10-133	16% Superphosphate.....	Al Self, Laddonia.....	.....	.....	.....	16.87	.....	0.20	16.00	16.67	.....	.....	19.20	20.00
		Natural Guano Co., Aurora, Illinois												
10-136	"Sheep Head" Pulverized Sheep Manure.....	C. C. Wonneman & Sons, Mexico.....	2.25	2.57	.....	1.72	0.25	0.45	1.00	1.27	1.50	1.94	12.98	15.22
		Pulverized Manure Co., Kansas City, Mo. Wizard Brand												
5-50	Phosphated Manure.....	B. F. Julian, Marshfield...	0.82	0.92	.....	9.21	.....	0.54	9.00	8.67	1.00	1.31	15.59	15.98

¹ Not labelled with guaranteed analysis.

² Not registered, also not labelled properly.

³ Not registered under this name.

⁴ Not previously registered.

⁵ Not properly labelled.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton	
			G'td	F'nd	Total		Insoluble		Available		G'td	F'nd	G'td	F'nd
					Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent				
	Phosphated Manure Co., Kansas City, Mo., and National Stock Yards, Ill. Wizard Brands													
10-137	Phosphated Manure.....	Viets & Son, Cole Camp...	0.82	1.02	.....	9.80	.....	0.85	9.00	8.95	1.00	1.23	15.59	16.68
10-264	Phosphated Manure.....	Silex Grain Co., Silex.....	0.82	1.07	.....	10.57	.....	0.42	9.00	10.15	1.00	1.20	15.59	18.32
	Read Phosphate Co., Nashville, Tennessee													
5- 51	Blood and Bone, No. 1.....	Producers Exch., Marshfield.....	1.65	1.41	13.00	13.56	5.00	4.19	8.00	9.37	2.00	2.13	19.23	19.93
10-138	Blood and Bone, No. 1.....	Producers Exch., Versailles.....	1.65	1.67	13.00	10.76	5.00	2.85	8.00	7.91	2.00	2.00	19.23	19.21
10-189	Blood and Bone, No. 1.....	Farmers Prod. Exch., St. James.....	1.65	1.66	13.00	9.37	5.00	1.30	8.00	8.07	2.00	1.94	19.23	19.28
10-140	Blood and Bone, No. 1.....	Phillipsburg Farmers Exchange, Phillipsburg.....	1.65	1.65	13.00	12.02	5.00	3.78	8.00	8.24	2.00	2.29	19.23	19.84
10-141	Corn, Wheat and Oat Grower	J. M. Gray, St. James.....	0.82	0.83	17.00	14.33	10.00	6.58	7.00	7.75	1.00	1.00	13.19	14.14
5- 52	Genuine Potash Phosphate.....	Producers Exchange Co., Marshfield.....	.....	.....	14.00	15.64	1.00	2.58	13.00	13.06	5.00	5.07	21.10	21.25
10-142	Half and Half.....	Farmers Co-Op. Exchange, Sullivan.....	1.85	1.65	20.00	20.26	10.00	9.71	10.00	10.55	.....	.....	20.33	20.09
5- 53	Special High Grade Phosphate.....	Producers Exchange Co., Marshfield.....	.....	.....	18.00	19.59	2.00	2.58	16.00	17.01	.....	.....	19.20	20.41
5- 54	Special High Grade Phosphate.....	M. C. Reed, Reeds.....	.....	.....	18.00	19.36	2.00	2.30	16.00	17.06	.....	.....	19.20	20.47
5- 55	Special High Grade Phosphate.....	Greene Co. Farmers Sales Ass'n., Springfield.....	.....	.....	18.00	18.07	2.00	1.98	16.00	16.09	.....	.....	19.20	19.31
10-152	Special High Grade Phosphate.....	Producers Exch., Versailles.....	.....	.....	18.00	20.16	2.00	3.22	16.00	16.94	.....	.....	19.20	20.33
10-153	Special High Grade Phosphate.....	Cole Camp Producers Exchange, Cole Camp.....	.....	.....	18.00	19.45	2.00	3.14	16.00	16.31	.....	.....	19.20	19.57
10-154	Special High Grade Phosphate.....	Greene Co., Farmers Sales Ass'n., Springfield.....	.....	.....	18.00	20.24	2.00	3.34	16.00	16.90	.....	.....	19.20	20.28
10-155	Special High Grade Phosphate.....	Farmers Elev. Co., Clinton.....	.....	.....	18.00	19.50	2.00	2.4	16.00	16.76	.....	.....	19.20	20.11
10-156	Special High Grade Phosphate.....	Barton Co., Farmers Assn., Lamar.....	.....	.....	18.00	19.70	2.00	3.28	16.00	16.42	.....	.....	19.20	19.70

10-157	Special High Grade Phosphate.	J. M. Gray, St. James.	.....	.....	18.00	19.68	2.00	3.27	16.00	16.41	.....	.....	19.20	19.69
10-158	Special High Grade Phosphate.	Farmers Co-Op. Exchange, Bourbon.	.....	.....	18.00	19.68	2.00	3.44	16.00	16.24	.....	.....	19.20	19.49
10-143	High Grade Bone and Potash	Cole Camp Prod. Exchg., Cole Camp.	.....	.....	14.00	16.98	2.00	4.43	12.00	12.55	2.00	2.74	16.60	18.07
10-146	High Grade Bone and Potash	Farmers Prod. Exchange, St. James.	.....	.....	14.00	17.89	2.00	3.80	12.00	14.09	2.00	2.26	16.60	19.40
10-144	High Grade Potash Mixture.	Farmers Exch., Republic.	.....	.....	16.00	18.61	2.00	4.06	14.00	14.55	2.00	2.43	19.00	20.13
10-145	High Grade Potash Mixture.	Farmers Exch., Cuba.	.....	.....	16.00	18.32	2.00	3.69	14.00	14.63	2.00	2.23	19.00	20.01
5-56	Premium Grain Grower.	Farmers Exchange, Monett.	1.65	1.60	15.00	13.94	3.00	2.32	12.00	11.62	2.00	1.96	24.03	23.30
10-147	Premium Grain Grower.	Producers Exch., Versailles.	1.65	1.61	15.00	13.81	3.00	2.18	12.00	11.63	2.00	1.96	24.03	23.37
10-148	Premium Grain Grower.	Bolivar Exchange, Bolivar.	1.65	1.65	15.00	13.58	3.00	1.89	12.00	11.69	2.00	2.04	24.03	23.70
10-149	Premium Grain Grower.	Farmers Exchange, Cuba.	1.65	1.63	15.00	13.45	3.00	2.11	12.00	11.34	2.00	2.42	24.03	23.61
10-150	Premium Grain Grower.	Farmers Produce Exch., St. James.	1.65	1.64	15.00	13.53	3.00	1.80	12.00	11.73	2.00	2.01	24.03	23.67
10-151	Raw Bone Meal.	Farmers Exch., Seymour.	3.70	3.88	20.00	22.03	.....	.....	.....	.....	.....	.....	36.65	39.49
5-57	Red Diamond Favorite.	Farmers Exchange, Monett.	1.65	1.73	16.00	15.22	4.00	2.50	12.00	12.72	.....	.....	21.83	23.05
5-58	Red Diamond Favorite.	Greene Co. Farmers Sales Assn., Springfield.	1.65	1.87	16.00	15.25	4.00	2.55	12.00	12.70	.....	.....	21.83	23.66
10-159	Wheat and Clover Grower.	Producers Exch., Versailles.	0.82	1.04	15.00	15.00	3.00	3.25	12.00	11.75	2.00	2.01	20.29	20.99
10-160	Wheat and Clover Grower.	J. M. Gray, St. James.	0.82	0.92	15.00	15.44	3.00	3.31	12.00	12.13	2.00	2.13	20.29	21.04
5-59	Reed Tree Fertilizer.	M. C. Reed, Reeds, Mo. Factory, Reeds.	2.00	2.17	.....	3.31	.....	1.66	1.00	1.65	5.00	5.72	15.70	18.04
5-62	Blood and Phosphate.	Swift & Co., National Stock Yards, Chicago, Illinois Swift's Brands E. F. Buckner, Pierce City.	1.65	1.71	13.00	14.50	1.00	2.35	12.00	12.15	.....	.....	21.83	22.28
5-63	Blood and Phosphate.	Farmers Prod. Exchange, Cassville.	1.65	1.68	13.00	14.50	1.00	2.44	12.00	12.06	.....	.....	21.83	22.03
5-64	Blood and Phosphate.	Greene Co. Farmers Sales Assn., Springfield.	1.65	1.67	13.00	13.57	1.00	1.42	12.00	12.15	.....	.....	21.83	22.10
10-161	Blood and Phosphate.	Farmers Elev. Co., Silex.	1.65	1.66	13.00	14.09	1.00	1.93	12.00	12.16	.....	.....	21.83	22.06
10-162	Bone Meal Fertilizer.	Farmers Elev. Co., Silex.	2.47	2.87	24.00	25.65	.....	.....	.....	.....	.....	.....	35.12	38.57
10-163	Bone Meal Fertilizer.	Alexander & Hyde, Niangua.	2.47	3.10	24.00	25.50	.....	.....	.....	.....	.....	.....	35.12	39.45
5-65	2 1/4-29 Bone Meal Fertilizer.	Holland O'Neil Mfg. Co., Mt. Vernon.	1.85	1.82	29.00	30.05	.....	.....	.....	.....	.....	.....	37.33	38.24
5-66	2 1/4-29 Bone Meal Fertilizer.	U. L. Coleman, Marionville.	1.85	2.02	29.00	26.23	.....	.....	.....	.....	.....	.....	37.33	35.32
5-67	2 1/4-29 Bone Meal Fertilizer.	Zeron Lawson, Seneca.	1.85	1.96	29.00	28.42	.....	.....	.....	.....	.....	.....	37.33	37.24
10-164	2 1/4-29 Bone Meal Fertilizer.	Peter Erdel, Jr., Rush Hill.	1.85	1.47	29.00	29.02	.....	.....	.....	.....	.....	.....	37.33	35.64
10-165	2 1/4-29 Bone Meal Fertilizer.	Farmers Equity Elev. Co., Bowling Green.	1.85	1.86	29.00	28.38	.....	.....	.....	.....	.....	.....	37.33	36.75
10-166	2 1/4-29 Bone Meal Fertilizer.	Crowe & Barker, Fair Play.	1.85	2.14	29.00	28.66	.....	.....	.....	.....	.....	.....	37.33	38.29
10-167	2 1/4-29 Bone Meal Fertilizer.	Bolivar Exchange, Bolivar.	1.85	1.64	29.00	29.12	.....	.....	.....	.....	.....	.....	37.33	36.50
10-168	2 1/4-29 Bone Meal Fertilizer.	Tucker Seed Store, Carthage.	1.85	1.61	29.00	29.38	37.33	36.63

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton	
					Total		Insoluble		Available					
			G'td	F'nd	G'td	F'nd	G'td	F'nd	G'td	F'nd	G'td	F'nd	G'td	F'nd
10-169	2 1/4-29 Bone Meal Fertilizer.	Omer Webb, Jasper.....	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent		
10-170	2 1/4-29 Bone Meal Fertilizer.	G. B. Beeney & Son, Sheldon.....	1.85	1.64	29.00	29.38							37.33	36.76
10-175	Bone Meal and Potash Fertilizer.	Omer Webb, Jasper.....	1.85	1.74	29.00	29.60							37.33	37.43
10-176	Bone Meal and Potash Fertilizer.	Thos. Egger, Lamar.....	0.82	0.84	18.00	18.12	5.00	2.91	13.00	15.21	4.00	4.11	23.69	26.55
5- 68	Champion Wheat and Corn Grower.	B. F. Julian, Marshfield...	0.82	0.97	18.00	18.61	5.00	3.93	13.00	14.68	4.00	4.45	23.69	26.89
5- 69	Champion Wheat and Corn Grower.	Holland O'Neill Mfg. Co., Mt. Vernon.....	1.65	1.77	13.00	14.20	1.00	2.18	12.00	12.02	2.00	1.90	24.03	24.48
5- 70	Champion Wheat and Corn Grower.	R. A. Stinson, Wentworth.	1.65	1.72	13.00	14.55	1.00	1.85	12.00	12.70	2.00	1.92	24.03	25.09
5- 71	Champion Wheat and Corn Grower.	Zeron Lawson, Seneca.....	1.65	1.62	13.00	13.75	1.00	1.50	12.00	12.25	2.00	1.83	24.03	24.00
5- 72	Champion Wheat and Corn Grower ¹⁰ .	Farmers Produce Exch., Cassville.....	1.65	1.49	13.00	13.45	1.00	1.48	12.00	11.97	2.00	1.68	24.03	22.92
10-177	Champion Wheat and Corn Grower.	Vandalia Roller Mill Co., Vandalia.....	1.65	1.73	13.00	14.08	1.00	2.40	12.00	11.68	2.00	1.84	24.03	23.83
10-178	Champion Wheat and Corn Grower.	Farmers Equity Elev., Bowling Green.....	1.65	1.74	13.00	14.14	1.00	1.85	12.00	12.29	2.00	2.03	24.03	24.81
10-179	Champion Wheat and Corn Grower.	Farmers Sales Ass'n., Rogersville.....	1.65	1.48	13.00	14.81	1.00	2.22	12.00	12.59	2.00	1.90	24.03	23.86
10-180	Champion Wheat and Corn Grower.	Farmers Exchange, Mt. Grove.....	1.65	1.65	13.00	13.73	1.00	1.40	12.00	12.33	2.00	2.16	24.03	24.16
10-181	Champion Wheat and Corn Grower.	R. J. Horsefield, Moselle...	1.65	1.42	13.00	14.68	1.00	2.11	12.00	12.57	2.00	2.35	24.03	24.06
10-182	Champion Wheat and Corn Grower.	T. R. Shaffer, Sullivan....	1.65	1.64	13.00	13.96	1.00	1.36	12.00	12.60	2.00	1.80	24.03	24.48
10-183	Champion Wheat and Corn Grower.	J. E. Carlson, Swedeborg..	1.65	1.66	13.00	13.71	1.00	1.61	12.00	12.10	2.00	2.20	24.03	24.41
10-184	Champion Wheat and Corn Grower.	Alexander & Hyde, Niangua	1.65	1.66	13.00	14.39	1.00	1.60	12.00	12.79	2.00	1.84	24.03	24.84
10-185	Champion Wheat and Corn Grower.	Salisbury Mfg. Co., Salisbury.....	1.65	1.67	13.00	13.83	1.00	1.53	12.00	12.30	2.00	2.09	24.03	24.58
10-225	Champion Wheat and Corn Grower ¹⁰ .	Greene Co. Farmers Sales Assn., Springfield.....	1.65	1.57	13.00	13.58	1.00	1.35	12.00	12.23	2.00	2.21	24.03	24.18
10-226	Champion Wheat and Corn Grower ¹⁰ .	Missouri Farmer Ass'n., Brookline.....	1.65	1.66	13.00	13.78	1.00	1.80	12.00	11.98	2.00	2.00	24.03	24.05
			1.65	1.60	13.00	14.07	1.00	2.29	12.00	11.78	2.00	2.14	24.03	23.69

5-73	Complete Fertilizer	B. Tartar, Miller	0.82	0.96	8.50	9.15	0.50	1.35	8.00	7.80	1.00	1.06	14.39	14.85
10-186	Complete Fertilizer	J. L. Wilkins, Laddonia	0.82	0.84	8.50	9.80	0.50	1.33	8.00	8.47	1.00	1.07	14.39	15.12
10-187	Complete Fertilizer	Vandalia Roller Mill Co., Vandalia	0.82	0.75	8.50	9.02	0.50	1.07	8.00	7.95	1.00	0.94	14.39	13.95
10-188	Complete Fertilizer	Graves & Pettigrew, Cabool	0.82	0.76	8.50	9.13	0.50	1.11	8.00	8.02	1.00	0.85	14.39	13.98
10-189	Complete Fertilizer	J. J. Bremer, Bourbon	0.82	0.82	8.50	9.62	0.50	1.24	8.00	8.38	1.00	0.85	14.39	14.69
10-190	Complete Fertilizer	Alexander & Hyde, Niangua	0.82	0.78	8.50	8.93	0.50	1.22	8.00	7.71	1.00	0.86	14.39	13.71
5-74	Diamond "B" Fertilizer	U. L. Coleman Hdw. Co., Marionville	2.47	2.47	9.00	9.87	1.00	1.77	8.00	8.10	5.00	3.89	26.22	25.12
10-191	Diamond "B" Fertilizer	Graves & Pettigrew, Cabool	2.47	2.61	9.00	10.33	1.00	2.19	8.00	8.14	5.00	5.32	26.22	27.37
5-75	Diamond "K" Grain Grower	B. Tartar, Miller	0.82	0.85	12.50	12.63	0.50	1.40	12.00	11.23	1.00	1.05	19.19	18.47
5-76	Diamond "K" Grain Grower	U. L. Coleman, Marionville	0.82	0.86	12.50	14.06	0.50	1.78	12.00	12.28	1.00	1.06	19.19	19.78
10-192	Diamond "K" Grain Grower	Farmers Equity Elev. Co., Bowling Green	0.82	0.99	12.50	13.63	0.50	1.42	12.00	12.21	1.00	0.78	19.19	19.97
10-193	Diamond "K" Grain Grower	Producers Exch., Lincoln	0.82	0.86	12.50	13.76	0.50	1.22	12.00	12.54	1.00	0.97	19.19	19.99
10-194	Diamond "K" Grain Grower	Crowe & Barker, Fairplay	0.82	0.87	12.50	14.37	0.50	1.54	12.00	12.83	1.00	0.79	19.19	20.19
10-195	Diamond "K" Grain Grower	Farmer Sales Assn., Rogersville	0.82	0.79	12.50	13.58	0.50	0.91	12.00	12.67	1.00	1.02	19.19	19.88
10-196	Diamond "K" Grain Grower	Graves & Pettigrew, Cabool	0.82	0.75	12.50	13.66	0.50	1.04	12.00	12.62	1.00	0.98	19.19	19.60
10-197	Diamond "K" Grain Grower	Farmers Elev. Co., Lowry City	0.82	0.95	12.50	13.06	0.50	1.06	12.00	12.00	1.00	0.58	19.19	19.32
10-198	Diamond "K" Grain Grower	Tucker Seed Store, Carthage	0.82	0.84	12.50	13.17	0.50	0.93	12.00	12.24	1.00	1.17	19.19	19.76
10-199	Diamond "K" Grain Grower	Omer Webb, Jasper	0.82	0.80	12.50	12.85	0.50	1.04	12.00	11.81	1.00	1.19	19.19	19.08
10-200	Diamond "K" Grain Grower	R. J. Horsefield, Moselle	0.82	1.17	12.50	13.15	0.50	1.11	12.00	12.04	1.00	1.01	19.19	20.83
10-201	Diamond "K" Grain Grower	J. J. Bremer, Bourbon	0.82	0.85	12.50	12.92	0.50	1.65	12.00	11.27	1.00	1.10	19.19	18.45
5-77	High Grade Acid Phosphate	Holland O'Neil Mfg. Co., Mt. Vernon				17.78		0.60	16.00	17.18			19.20	20.62
5-78	High Grade Acid Phosphate	R. A. Stinson, Wentworth				16.82		0.57	16.00	16.25			19.20	19.50
5-79	High Grade Acid Phosphate	Farmers Elev. Co., Purdy				17.06		0.76	16.00	16.30			19.20	19.56
10-202	High Grade Acid Phosphate	J. L. Wilkins, Laddonia				17.08		0.47	16.00	16.61			19.20	19.93
10-203	High Grade Acid Phosphate	Vandalia Roller Mill Co., Vandalia				17.56		0.75	16.00	16.81			19.20	20.17
10-204	High Grade Acid Phosphate	Farmers Equity Elev. Co., Bowling Green				18.32		0.54	16.00	17.78			19.20	21.34
10-205	High Grade Acid Phosphate	Fortuna Elev. Co., Fortuna				17.54		0.56	16.00	16.98			19.20	20.38
10-206	High Grade Acid Phosphate	Crowe & Barker, Fair Play				17.18		0.60	16.00	16.58			19.20	19.90
10-207	High Grade Acid Phosphate	Graves & Pettigrew, Cabool				17.79		0.76	16.00	17.03			19.20	20.44
10-208	High Grade Acid Phosphate	Farmers Elev. Co., Lowry City				17.69		0.63	16.00	17.06			19.20	20.47
10-209	High Grade Acid Phosphate	Tucker Seed Store, Carthage				17.46		0.67	16.00	16.79			19.20	20.15
10-210	High Grade Acid Phosphate	G. B. Beeney & Son, Sheldon				16.77		0.58	16.00	16.19			19.20	19.43
10-211	High Grade Acid Phosphate	R. J. Horsefield, Moselle				16.84		0.40	16.00	16.44			19.20	19.73
10-212	High Grade Acid Phosphate	J. J. Bremer, Bourbon				17.69		0.59	16.00	17.10			19.20	20.52
10-247	High Grade Acid Phosphate ¹¹	Crump & Humphrey, Centralia				17.20		0.39	16.00	16.81			19.20	20.17

¹⁰ Labeled incorrectly for potash.¹¹ Without registration tags.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton		
					Total		Insoluble		Available						
			G'td	F'nd	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		
10-213	20% Acid Phos. Fertz.....	J. E. Carlson, Swedeborg..				21.49		0.73	20.00	20.76			24.00	24.91	
10-214	12-4 Phosphate and Potash Fertilizer.....	J. L. Wilkins, Laddonia....				12.71		0.68	12.00	12.03	4.00	3.49	18.80	18.28	
10-215	12-4 Phosphate and Potash Fertilizer.....	R. J. Horsefield, Moselle...				13.66		0.65	12.00	13.01	4.00	3.78	18.80	19.77	
10-216	12-4 Phosphate and Potash Fertilizer.....	T. R. Shaffer, Sullivan....				13.22		0.56	12.00	12.66	4.00	3.92	18.80	19.50	
10-217	Raw Bone Meal.....	Missouri Farmers Assn., Brookline.....	3.70	3.74	23.00	21.06							39.65	37.89	
10-218	Raw Bone Meal.....	Tucker Seed Store, Carthage.....	3.70	4.04	23.00	24.58							39.65	42.76	
10-219	Raw Bone Meal.....	Omer Webb, Jasper.....	3.70	3.96	23.00	25.35							39.65	43.17	
10-220	Raw Bone Meal.....	T. R. Shaffer, Sullivan....	3.70	4.37	23.00	23.36							39.65	43.03	
10-227	Red Steer 3-12-3.....	Farmers Elev. Co., Silcox.....	2.47	2.41	13.00	13.86	1.00	2.01	12.00	11.85	3.00	2.46	28.82	27.78	
5-80	Special Grain Grower.....	U. L. Coleman Hdw. Co., Marionville.....	1.65	1.51	11.00	11.81	1.00	2.13	10.00	9.68	2.00	1.78	21.63	20.38	
5-81	Special Grain Grower.....	E. F. Buckner, Pierce City.....	1.65	1.67	11.00	11.75	1.00	1.27	10.00	10.48	2.00	1.83	21.63	22.11	
10-221	Superphosphate.....	Vandalia Roller Mill Co., Vandalia.....	1.65	1.70	11.00	9.89	1.00	1.51	8.00	8.38	2.00	1.92	19.23	19.82	
10-222	Superphosphate.....	R. J. Horsefield, Moselle...	1.65	1.53	11.00	9.62	1.00	1.43	8.00	8.19	2.00	1.02	19.23	17.84	
10-171	Bone Meal and Phosphate Fertilizer.....	J. L. Wilkins, Laddonia....	0.82	0.94	20.00	20.82		5.73	13.00	15.09			19.29	22.34	
10-172	Bone Meal and Phosphate Fertilizer.....	Farmers Exch., Mt. Grove.....	0.82	0.89	20.00	21.31		8.10	13.00	13.21			19.29	19.86	
10-173	Bone Meal and Phosphate Fertilizer.....	Alexander & Hyde, Niangua.....	0.82	0.87	20.00	20.45		5.43	13.00	15.02			19.29	21.94	
10-174	Bone Meal and Phosphate Fertilizer.....	Salisbury Mfg. Co., Salisbury.....	0.82	0.62	20.00	19.78		5.31	13.00	14.47			19.29	20.15	
10-265	Bone Meal and Phosphate Fertilizer.....	Farmers Elevator, Martinsburg.....	0.82	1.06	20.00	18.63		3.85	13.00	14.78			19.29	22.51	
10-224	Red Steer 1-14-4 ¹²	Omer Webb, Jasper.....	0.82	0.72	12.50	12.80	0.50	1.01	12.00	11.79	4.00	4.36	22.49	22.19	
5-60	Complete Fertilizer.....	Pioneer Brands D. W. Robertson Lumber Co., Marshfield.....	0.82	0.80	8.50	10.48	0.50	1.55	8.00	8.93	1.00	0.96	14.39	15.38	
5-61	Tomato and Vegetable Grower.....	D. W. Robertson Lumber Co., Marshfield.....	1.65	1.56	9.00	11.93	1.00	2.53	8.00	9.40	3.00	2.85	20.33	21.44	
10-223	1-12-1 Grain Grower.....	Bolivar Exchange, Bolivar.....	0.82	0.71	12.50	12.89	0.50	1.25	12.00	11.64	1.00	1.18	19.19	18.47	
10-228	16% Acid Phosphate.....	Tennessee Chemical Co., Chicago, Illinois Ox Brands B. C. Gray, Bowling Green.....				18.63	0.50	2.51	16.00	16.12			19.20	19.34	

	Tupelo Fertilizer Factory, Tupelo, Mississippi																					
10-229	Special High Grade Phosphate and Potash	Farmers Exch., Seymour				15.77	1.00	3.76	12.00	12.01	4.00	4.53	18.80	19.39								
10-230	Pure Steam Bone Meal ¹³	Farmers Exch., Seymour	2.50	4.19	24.00	24.24															35.25	43.10
	Virginia-Carolina Chemical Co., Memphis, Tennessee																					
10-235	Goodluck Guano	Graves & Pettigrew, Cabool	0.82	0.92		9.13		0.97	8.00	8.16	1.00	1.00	14.39	15.03								
10-236	Goodluck Wheat Special	J. K. Butts, Vandalia	1.65	1.64		14.19		1.80	12.00	12.39	2.00	2.62	24.03	25.13								
10-237	Goodluck Wheat Special	H. B. Sutter Impl. Co., Springfield	1.65	1.67		13.35		1.20	12.00	12.15	2.00	2.07	24.03	24.38								
10-238	Monarch Grain Grower	Omer Webb, Jasper				16.18		0.90	15.00	15.28	2.00	2.12	20.20	20.67								
10-239	Muriate of Potash	Farmers Exch., Ash Grove										48.00	52.93	52.80	58.22							
5-85	Royal Vegetable Fertilizer	L. F. Dreibelbis, Sarcouxie	2.47	2.42		9.00		0.63	8.00	8.37	4.00	3.94	25.12	25.26								
5-84	V-C 16% Superphosphate	L. F. Dreibelbis, Sarcouxie				17.77		1.42	16.00	16.35			19.20	19.62								
10-231	V-C 16% Superphosphate	Farmers Exch., Ash Grove				18.07		0.35	16.00	17.72			19.20	21.26								
10-232	V-C 20% Superphosphate	J. K. Butts, Vandalia				22.28		0.29	20.00	21.99			24.00	26.39								
5-83	V-C Phosphate and Potash	L. F. Dreibelbis, Sarcouxie				12.16		1.69	10.00	10.47	4.00	4.29	16.40	17.28								
10-233	Victor Bone and Potash Com- pound	Tucker Seed Store, Car- thage				16.23		0.37	15.00	15.86	3.00	3.07	21.30	22.41								
10-234	Victor Bone and Potash Com- pound	Omer Webb, Jasper				15.93		1.08	15.00	14.85	3.00	3.34	21.30	21.49								
	Wilson & Co., Chicago, Illinois Red "W" Brands																					
10-240	Bone Meal and Acid Phos- phate	G. B. Beeney & Son, Shel- don	0.82	1.20	23.00	20.91	10.50	9.40	12.50	11.51			18.69	19.21								
10-266	Corn and Wheat Special	Farmers Grain Elev. Co., Butler	1.64	1.97		10.27		2.05	8.00	8.22	2.00	2.40	19.18	21.37								
10-267	Raw Bone Meal	Geo. Steincross, Harwood	3.70	4.02	23.00	24.55							39.65	42.64								
10-269	Two-in-One	Geo. Steincross, Harwood	1.65	1.83		19.48		3.37	16.00	16.11	2.00	1.39	28.83	29.10								
	Miscellaneous Samples																					
2-45	Pure Bone Meal (Sterling Fertilizer Co.)	Producers Grain Co., Foris- tell	1.80	2.16	28.00	28.07							36.10	37.79								
10-268	Special Bone Meal (Wilson & Co.)	Farmers Grain Elev. Co., Butler	0.82	1.86	30.00	24.87							33.69	33.24								
10-280	Bone Phosphate ¹⁴ (Cochrane Packing Co.)	R. T. Sheppard, Peculiar		3.28		8.82		3.91	15.00	4.91		0.83	18.00	21.56								
10-289	Norwegian Nitrate of Lime ¹⁵ (Norwegian Nitrogen Prod- ucts Co.)	J. N. Draper, Springfield	12.00	11.78									54.00	53.01								
10-291	Norwegian Nitrate of Lime ¹⁵ (Norwegian Nitrogen Prod- ucts Co.)	George Rodewes, Jefferson Barracks	12.00	11.36									54.00	51.12								

¹³ Not previously registered.¹³ Goods not labelled.¹⁴ Goods wrongly labelled.¹⁵ Samples analyzed in damp condition.

TABLE 5—FERTILIZER ANALYSES AND GUARANTEES: 1922 (Continued)

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Lab. No.	Manufacturer and brands	Dealer	Nitrogen		Phosphoric acid, P ₂ O ₅						Potash K ₂ O		Value per Ton		
					Total		Insoluble		Available						
			G'td	F'nd	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				
10-292	Interstate Steam Bone and Potash (Interstate Fertilizer Co.)	A. B. Ward, Miller	1.65	2.07	14.00	15.29						4.00	4.37	25.83	29.42
10-299	16% Acid Phosphate (Darling & Co.), 1st Car.	Joseph Hadwick, Jefferson City				17.69		1.63	16.00	16.06				19.20	19.27
10-300	16% Acid Phosphate (Darling & Co.), 2nd Car.	Joseph Hadwick, Jefferson City				18.90		1.84	16.00	17.06				19.20	20.46
10-301	Big Harvest (Darling & Co.), 1st Car.	Joseph Hadwick, Jefferson City	1.60	1.74		14.57		2.69	12.00	11.88	2.00	1.92	23.80	24.20	
10-302	Big Harvest (Darling & Co.), 2nd Car.	Joseph Hadwick, Jefferson City	1.60	1.70		14.32		2.77	12.00	11.55	2.00	1.90	23.80	23.60	
10-305	1-12-1 Fertilizer (Swift & Co.)	H. H. Frost, Altamont	0.82	1.24	12.50	14.85	0.50	0.68	12.00	14.17	1.00	0.98	19.19	23.66	
10-306	High Grade Bone and Potash (Read Phosphate Co.), Lot 1	B. E. Walker, Gerald			14.00	17.26	2.00	4.25	12.00	13.01	2.00	1.53	16.60	17.29	
10-307	High Grade Bone and Potash (Read Phosphate Co.), Lot 2	B. E. Walker, Gerald			14.00	17.13	2.00	1.85	12.00	15.28	2.00	1.39	16.60	19.87	
11-30	Big Two 2½-28 (Morris & Co.)	W. W. Campbell, Bowers Mill	2.06	2.03	28.00	28.68								37.27	37.82
11-115	Champion Wheat and Corn Grower (Swift & Co.)	E. L. Peter, Troy	1.65	1.80	13.00	13.44	1.00	1.41	12.00	12.03	2.00	2.03	24.03	24.77	

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY
Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
1- 1	Ferd Fees, Union.....	Limestone No. 1.....	102. 10
1- 2	Ferd Fees, Union.....	Limestone No. 2.....	103. 09
1- 3	E. J. Halfner, Kimmswick.....	Limestone No. 1.....	100. 00
1- 4	E. J. Halfner, Kimmswick.....	Limestone No. 2.....	98. 67
1- 5	E. J. Halfner, Kimmswick.....	Limestone No. 3.....	97. 27
1- 6	Leo P. Fallert, Weingarten.....	Limestone No. 1.....	103. 67
1- 7	Leo P. Fallert, Weingarten.....	Limestone No. 2.....	105. 36
1- 8	Leo P. Fallert, Weingarten.....	Limestone No. 3.....	105. 42
1- 9	Erwin Goebel, Labaddie.....	Limestone.....	38. 09
1- 10	Erwin Goebel, Labaddie.....	Limestone.....	84. 99
1- 11	Erwin Goebel, Labaddie.....	Limestone.....	99. 54
1- 12	Erwin Goebel, Labaddie.....	Limestone.....	93. 60
1- 13	E. R. Keller, Bowling Green.....	Limestone No. 1.....	87. 43
1- 14	E. R. Keller, Bowling Green.....	Limestone No. 2.....	85. 69
1- 15	E. R. Keller, Bowling Green.....	Limestone No. 3.....	88. 66
1- 16	E. R. Keller, Bowling Green.....	Limestone No. 10.....	99. 65
1- 17	Webster Co. Farm Bureau, Marshfield.....	Limestone.....	105. 24
1- 40	J. H. Helm, Crocker.....	Crushed limestone.....	98. 84
1- 41	Eli Zerwig, Ste. Genevieve.....	Crushed limestone.....	98. 20
1- 42	Chas. W. Herzog, Ste. Genevieve.....	Crushed limestone.....	95. 18
1- 43	Chas. W. Herzog, Ste. Genevieve.....	Limestone rock.....	101. 52
1- 44	Chas. W. Herzog, Ste. Genevieve.....	Limestone rock.....	103. 44
1- 45	Albert Loida, Ste. Genevieve.....	Limestone No. 1.....	101. 87
1- 46	Albert Loida, Ste. Genevieve.....	Limestone No. 2.....	104. 37
1- 47	Albert Loida, Ste. Genevieve.....	Limestone No. 3.....	83. 54
1- 48	Albert Loida, Ste. Genevieve.....	Limestone No. 4.....	92. 09
1- 49	Albert Loida, Ste. Genevieve.....	Limestone No. 5.....	101. 70
1- 52	E. R. Keller, Bowling Green.....	Limestone.....	97. 33
1- 53	J. F. Nicholson, St. Charles.....	Limestone No. 1.....	99. 77
1- 54	J. F. Nicholson, St. Charles.....	Limestone No. 2.....	100. 18
1- 56	Stewart Leaming, Richmond.....	Limestone.....	92. 32
1- 57	Roy I. Coplen, Farmington.....	Limestone.....	85. 75
1- 58	W. L. Flanery, Perryville.....	Limestone.....	98. 49
1- 59	Jno. F. Nicholson, St. Charles.....	Limestone.....	97. 85
1- 60	J. Z. Coleman, Cadet.....	Limestone No. 1.....	88. 37
1- 61	J. Z. Coleman, Cadet.....	Limestone No. 2.....	104. 78
1- 62	L. R. Nicholson, Potosi.....	Crushed limestone.....	105. 65
1- 63	W. W. Merritt, New London.....	Limestone.....	99. 95
1- 64	C. F. Viedt, New Haven.....	Limestone No. 1.....	101. 11
1- 65	C. F. Viedt, New Haven.....	Limestone No. 2.....	102. 10
1- 66	L. L. Hunt, Mt. Vernon.....	Limestone No. 1.....	100. 35
1- 67	L. L. Hunt, Mt. Vernon.....	Limestone No. 2.....	99. 65
1- 68	J. Bland Hill, Marshfield.....	Limestone No. 1.....	99. 54
1- 69	J. Bland Hill, Marshfield.....	Limestone No. 2.....	101. 63
1- 70	Sylvian Tuepher, Rush Hill.....	Limestone.....	99. 54
1- 74	R. Blackwell, Bonne Terre.....	Limestone No. 1.....	100. 36
1- 75	R. Blackwell, Bonne Terre.....	Limestone No. 2.....	105. 65
1- 76	Peter Shewmaker, Carl Junction.....	Chats.....	39. 43
1- 77	Richard Flesch, Weldon Springs.....	Limestone No. 1.....	73. 83
1- 78	Richard Flesch, Weldon Springs.....	Limestone No. 2.....	96. 74
1- 83	Andrew J. Jones, Washington.....	Limestone No. 1.....	98. 90
1- 84	Andrew J. Jones, Washington.....	Limestone No. 2.....	105. 30
1- 85	Andrew J. Jones, Washington.....	Limestone No. 3.....	101. 52
1- 86	Chas. Struebbe, New Haven.....	Limestone No. 1.....	106. 70
1- 87	Chas. Struebbe, New Haven.....	Limestone No. 2.....	103. 44
1- 88	J. F. Peverly, Dixon.....	Limestone.....	89. 76
1- 89	Chas. Schlitt, Krakow.....	Limestone.....	100. 01
1- 90	Chas. Schlitt, Krakow.....	Limestone.....	101. 23
1- 91	Chas. Schlitt, Krakow.....	Limestone.....	95. 64
1- 94	L. L. Hunt, Mt. Vernon.....	"Fertile Rock".....	47. 11
1- 95	Jno. F. Nicholson, St. Charles.....	Limestone.....	100. 61
1- 99	Andy Hofmockel, Lohman.....	Limestone No. 1.....	102. 68
1-100	Andy Hofmockel, Lohman.....	Limestone No. 2.....	100. 71
1-101	Andy Hofmockel, Lohman.....	Limestone No. 3.....	103. 89
1-102	Andy Hofmockel, Lohman.....	Limestone No. 4.....	102. 36
1-103	Andy Hofmockel, Lohman.....	Limestone No. 5.....	101. 10
1-104	Andy Hofmockel, Lohman.....	Limestone No. 6.....	100. 89
1-105	Andy Hofmockel, Lohman.....	Limestone No. 7.....	103. 56
1-106	P. J. McDermott, Lonedell.....	Limestone No. 1.....	73. 17
1-107	P. J. McDermott, Lonedell.....	Limestone No. 2.....	94. 40
1-108	P. J. McDermott, Lonedell.....	Limestone No. 3.....	102. 42
1-109	P. J. McDermott, Lonedell.....	Limestone No. 4.....	99. 03
1-111	Ellis Bros., Molino.....	Limestone.....	99. 95
1-114	E. B. Fray, Yates.....	Limestone No. 1.....	93. 90
1-115	E. B. Fray, Yates.....	Limestone No. 2.....	97. 18

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

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
1-116	E. B. Fray, Yates	Limestone No. 3	95.32
1-117	L. M. Wood, Chesterfield	Limestone No. 1	97.78
1-118	L. M. Wood, Chesterfield	Limestone No. 2	97.62
1-119	L. M. Wood, Chesterfield	Limestone No. 3	95.49
1-120	L. M. Wood, Chesterfield	Limestone No. 4	102.42
1-121	Big Ben Quarry, St. Louis	Limestone	87.57
1-122	Missouri Mineral Products Co., Auxvasse	Limestone	98.38
1-126	Schmidt Bros., De Soto	Limestone No. 1	90.90
1-127	Schmidt Bros., De Soto	Limestone No. 2	104.05
1-128	Schmidt Bros., De Soto	Limestone No. 3	102.36
1-129	Schmidt Bros., De Soto	Limestone No. 4	93.58
1-130	John M. Hellman, Villa Ridge	Limestone No. 1	97.18
1-131	John M. Hellman, Villa Ridge	Limestone No. 2	102.91
1-132	John Hellman, Villa Ridge	Limestone No. 1 (crushed)	100.07
1-133	John Hellman, Villa Ridge	Limestone No. 2 (rock)	92.43
1-135	R. R. Thomasson, Columbia	Limestone	94.23
2- 1	Henry Niemann, Washington	Limestone No. 1	97.89
2- 2	Henry Niemann, Washington	Limestone No. 2	96.96
2- 3	Henry Niemann, Washington	Limestone No. 3	95.71
2- 4	Henry Niemann, Washington	Limestone No. 4	85.50
2- 5	J. Bland Hill, Marshfield	Limestone	100.78
2- 6	J. Bland Hill, Marshfield	Limestone	91.23
2- 7	George Voss, Krakow	Limestone	99.90
2- 8	H. H. Carrithers, Salem	Limestone	104.60
2- 9	H. H. Carrithers, Salem	Limestone	104.87
2-10	H. H. Carrithers, Salem	Limestone	105.03
2-11	L. B. Heutcher, De Soto	Limestone No. 1	105.58
2-12	L. B. Heutcher, De Soto	Limestone No. 2	103.72
2-13	L. B. Heutcher, De Soto	Limestone No. 3	105.09
2-14	Roy I. Coplen, Farmington	Limestone	88.34
2-15	Ben F. Brandes, Foristell	Limestone No. 1	97.79
2-16	Ben F. Brandes, Foristell	Limestone No. 2	99.25
2-17	Ben F. Brandes, Foristell	Limestone No. 3	97.27
2-20	G. R. Skinner, Clayton	Limestone	61.08
2-21	Roy I. Coplen, Farmington	Slime	60.54
2-22	Roy I. Coplen, Farmington	Limestone	104.23
2-23	Roy I. Coplen, Farmington	Limestone	104.50
2-24	F. J. Parkin, Fredericktown	Limestone No. 1	104.67
2-25	F. J. Parkin, Fredericktown	Limestone No. 2	103.64
2-26	Ellis Bros. Molino	Limestone	97.91
2-28	J. Bland Hill, Marshfield	Limestone	90.62
2-29	E. R. Keller, Bowling Green	Limestone No. 1	92.46
2-30	E. R. Keller, Bowling Green	Limestone No. 2	98.67
2-31	E. L. Peter, Troy	Limestone (rock)	96.51
2-32	E. L. Peter, Troy	Limestone (crushed)	84.41
2-33	Louis Stetzer, Elmout	Limestone No. 1	82.25
2-34	Louis Stetzer, Elmout	Limestone No. 2	99.27
2-35	Louis Stetzer, Elmout	Limestone No. 3	101.75
2-41	J. R. Kline, Sullivan	Limestone A	102.61
2-42	J. R. Kline, Sullivan	Limestone B	104.39
2-43	H. H. Carrithers, Salem	Limestone No. 1	103.91
2-44	H. H. Carrithers, Salem	Limestone No. 2	99.53
2-63	Peter A. Isenman, New Offenburg	Limestone No. 1	93.65
2-64	Peter A. Isenman, New Offenburg	Limestone No. 2	92.89
2-65	Peter A. Isenman, New Offenburg	Limestone No. 3	93.05
2-66	Peter A. Isenman, New Offenburg	Limestone No. 4	96.56
2-67	Henry J. Wichman, Webster Groves	Limestone	98.16
2-69	R. D. Jay, Keytesville	Limestone No. 1, blue	89.16
2-70	R. D. Jay, Keytesville	Limestone No. 2, gray	77.34
2-71	E. R. Keller, Bowling Green	Limestone No. 1	97.00
2-72	E. R. Keller, Bowling Green	Limestone No. 2	98.78
2-73	E. R. Keller, Bowling Green	Limestone No. 3	97.21
2-74	C. A. Patton, Union	Limestone	90.19
2-75	S. O. Embree, Madison	Limestone No. 1	98.45
2-76	S. O. Embree, Madison	Limestone No. 2	91.81
2-77	S. O. Embree, Madison	Limestone No. 3	13.61
2-78	C. H. Walker, Buffalo	Limestone No. 1	90.24
2-79	C. H. Walker, Buffalo	Limestone No. 2	101.32
2-80	C. H. Walker, Buffalo	Limestone No. 3	93.59
2-81	C. H. Walker, Buffalo	Limestone No. 4	97.97

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY (Continued)
Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
2-82	H. R. Frink, Hallsville	Limestone No. 1	98.72
2-83	H. R. Frink, Hallsville	Limestone No. 2	98.72
2-84	H. R. Frink, Hallsville	Limestone No. 3	98.94
2-85	H. R. Frink, Hallsville	Limestone No. 4	99.64
2-86	Mike Kertz, Bloomsdale	Limestone rock	77.28
2-87	Leo P. Fallert, Weingarten	Limestone No. 1	103.37
2-88	Leo P. Fallert, Weingarten	Limestone No. 2	103.37
2-89	Leo P. Fallert, Weingarten	Limestone No. 3	98.78
2-90	Leo P. Fallert, Weingarten	Limestone No. 1	106.28
2-91	Leo P. Fallert, Weingarten	Limestone No. 2	106.88
2-92	Leo P. Fallert, Weingarten	Limestone No. 3	104.83
2-102	W. W. Merritt, New London	Rock	1.56
2-103	J. Bland Hill, Marshfield	Limestone	103.26
2-104	J. Bland Hill, Marshfield	Limestone No. 1	102.07
2-105	J. Bland Hill, Marshfield	Limestone No. 2	99.75
3-396	E. M. Funk, Seymour	Limestone No. 1	95.54
3-397	E. M. Funk, Seymour	Limestone No. 2	103.10
3-398	E. M. Funk, Seymour	Limestone No. 3	103.85
3-399	E. M. Funk, Seymour	Limestone No. 4	84.73
3-400	E. M. Funk, Seymour	Limestone No. 5	93.38
3-401	F. G. Kraege, Palmyra	Limestone No. 1	96.35
3-402	F. G. Kraege, Palmyra	Limestone No. 2	95.80
3-403	F. G. Kraege, Palmyra	Limestone No. 3	98.13
3-404	Geo. Huber, Hematite	Limestone No. 1	103.37
3-405	Geo. Huber, Hematite	Limestone No. 7	98.41
3-406	Geo. Huber, Hematite	Limestone No. 8	92.95
3-407	Geo. Huber, Hematite	Limestone No. 9	101.37
3-408	Geo. Huber, Hematite	Limestone No. 10	97.97
3-409	Geo. Huber, Hematite	Limestone No. 11	75.55
3-410	G. R. Skinner, Clayton	Limestone	96.51
3-411	G. R. Skinner, Clayton	Limestone, crushed, coarse	96.19
3-412	G. R. Skinner, Clayton	Limestone, crushed, fine	95.05
3-413	E. R. Keller, Bowling Green	Limestone No. 1	55.57
3-414	E. R. Keller, Bowling Green	Limestone No. 2	93.81
3-415	P. F. Schowengerdt, Columbia	Rock No. 1	8.36
3-416	P. F. Schowengerdt, Columbia	Limestone No. 2	93.11
3-417	Jos. Hennick, Weingarten	Limestone	94.94
3-418	Felix Bauman, Weingarten	Limestone No. 1	96.02
3-419	Felix Bauman, Weingarten	Limestone No. 2	103.96
3-420	Felix Bauman, Weingarten	Limestone No. 3	88.19
3-421	E. T. Itchner, Hillsboro	Limestone No. 13	103.58
3-422	E. T. Itchner, Hillsboro	Limestone No. 14	97.27
3-423	E. T. Itchner, Hillsboro	Limestone No. 15	101.15
3-424	E. T. Itchner, Hillsboro	Limestone No. 16	102.18
3-425	E. T. Itchner, Hillsboro	Limestone No. 17	96.57
3-426	E. T. Itchner, Hillsboro	Limestone No. 18	97.65
3-427	E. R. Keller, Bowling Green	Limestone	97.86
3-428	W. T. Angle, Sedalla	Limestone	101.32
3-430	E. M. Funk, Seymour	Limestone No. 1	101.86
3-431	E. M. Funk, Seymour	Limestone No. 2	99.16
3-432	E. M. Funk, Seymour	Limestone No. 3	97.38
3-433	E. M. Funk, Seymour	Limestone No. 4	100.72
3-435	J. E. Darnell, Wooldridge	Limestone	97.32
3-437	O. E. Jennings, Springfield	Limestone	74.31
3-438	Jos. Hermann, Weingarten	Limestone No. 1	103.05
3-439	Jos. Hermann, Weingarten	Limestone No. 2	102.23
3-440	Jos. Hermann, Weingarten	Limestone No. 3	103.91
3-441	J. Bland Hill, Marshfield	Limestone	98.83
3-442	Ed Hollman, Washington	Limestone No. 1	98.51
3-443	Ed Hollman, Washington	Limestone No. 2	92.78
3-444	Ed Hollman, Washington	Limestone No. 3	94.89
3-445	H. L. Edberton, Grove Spring	Limestone	98.19
3-446	Wm. F. Pohlman, New Haven	Limestone	98.62
3-447	H. L. Stevens, Paris	Limestone No. 1	96.19
3-448	H. L. Stevens, Paris	Limestone No. 2	94.24
3-449	H. L. Stevens, Paris	Rock No. 3	3.34
3-450	R. W. Disharoon, Villa Ridge	Limestone	96.02
3-451	Roy I. Coplen, Farmington	Limestone No. 1	77.07
3-452	Roy I. Coplen, Farmington	Limestone No. 2	81.98
3-453	Roy I. Coplen, Farmington	Limestone No. 3	75.23
3-454	Roy I. Coplen, Farmington	Limestone No. 4	77.45
3-455	G. R. Skinner, Clayton	Limestone No. 1	96.73
3-456	G. R. Skinner, Clayton	Limestone No. 2	98.83
3-457	G. R. Skinner, Clayton	Limestone No. 3	97.54
3-459	F. Kuehle, Jackson	Limestone No. 1	89.11
3-460	F. Kuehle, Jackson	Limestone No. 2	90.08

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY (Continued)
Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
3-469	F. G. Kraege, Palmyra	Limestone No. 1	97.43
3-470	F. G. Kraege, Palmyra	Limestone No. 2	98.45
3-471	F. G. Kraege, Palmyra	Limestone No. 3	97.70
3-472	John Witten, Cyrene	Limestone	99.21
3-473	W. S. Auer, Slater	Limestone No. 1	98.45
3-474	W. S. Auer, Slater	Limestone No. 2	98.67
3-475	W. S. Auer, Slater	Limestone No. 3	97.00
3-476	E. L. Peter, Troy	Limestone No. 1	98.83
3-477	E. L. Peter, Troy	Limestone No. 2	98.24
3-478	E. L. Peter, Troy	Calcite Crystals No. 3	99.96
3-479	S. P. Harris, Barnhart	Limestone	92.68
3-480	Geo. J. Brune, Gilmore	Limestone No. 1, white	98.51
3-481	Geo. J. Brune, Gilmore	Limestone No. 2, blue	97.97
3-482	Henry Miller, Weingarten	Limestone No. 1	103.64
3-483	Henry Miller, Weingarten	Limestone No. 3	102.07
3-484	Henry Miller, Weingarten	Limestone No. 2	93.27
3-489	Leo P. Fallert, Weingarten	Limestone No. 1	98.08
3-490	Leo P. Fallert, Weingarten	Limestone No. 2	98.40
3-491	Leo P. Fallert, Weingarten	Limestone No. 3	104.56
3-494	N. I. George, Lohman	Limestone No. 1	101.42
3-495	N. I. George, Lohman	Limestone No. 2	102.23
3-496	N. I. George, Lohman	Limestone No. 3	98.83
3-497	N. I. George, Lohman	Limestone No. 4	101.91
3-498	N. I. George, Lohman	Limestone No. 5	99.64
3-499	N. I. George, Lohman	Limestone No. 6	102.34
3-500	Jno. F. Nicholson, St. Charles	Limestone No. 1	100.83
3-501	Jno. F. Nicholson, St. Charles	Limestone No. 2	101.37
3-502	Jno. F. Nicholson, St. Charles	Limestone No. 3	99.91
3-508	C. W. Vetter, Perryville	Limestone No. 29	97.37
3-509	C. W. Vetter, Perryville	Limestone No. 30	98.08
3-510	C. W. Vetter, Perryville	Limestone No. 31	95.21
3-511	C. W. Vetter, Perryville	Limestone No. 32	96.13
3-512	C. W. Vetter, Perryville	Limestone No. 33	96.30
3-513	C. W. Vetter, Perryville	Limestone No. 34	95.80
3-514	C. W. Vetter, Perryville	Limestone No. 35	97.21
3-515	C. W. Vetter, Perryville	Limestone No. 36	85.55
3-516	C. W. Vetter, Perryville	Limestone No. 37	89.49
3-517	H. L. Stevens, Paris	Limestone No. 1	98.56
3-518	G. R. Skinner, Clayton	Limestone (crushed)	90.95
3-522	E. L. Peter, Troy	Limestone No. 1	100.02
3-523	E. L. Peter, Troy	Limestone No. 2	98.02
3-524	E. L. Peter, Troy	Limestone No. 3	98.89
3-525	E. L. Peter, Troy	Limestone No. 4	98.94
4- 1	E. L. Peter, Troy	Limestone No. 1	99.43
4- 2	E. L. Peter, Troy	Limestone No. 2	99.32
4- 3	E. L. Peter, Troy	Limestone No. 3	99.10
4- 4	E. R. Spence, Columbia	Limestone	98.29
4- 5	L. S. Kleinschmidt, Savannah	Limestone No. 1	95.21
4- 6	L. S. Kleinschmidt, Savannah	Limestone No. 2	96.94
4- 7	L. S. Kleinschmidt, Savannah	Limestone No. 3	96.89
4- 8	L. L. Hunt, Mt. Vernon	Limestone No. 1	98.67
4- 9	L. L. Hunt, Mt. Vernon	Limestone No. 2a	97.32
4-10	L. L. Hunt, Mt. Vernon	Limestone No. 2b	98.67
4-11	L. L. Hunt, Mt. Vernon	Limestone No. 1	99.43
4-12	L. L. Hunt, Mt. Vernon	Limestone No. 2	99.53
4-13	L. L. Hunt, Mt. Vernon	Limestone No. 3	99.37
4-15	John J. Heutz, Merwin	Limestone	93.86
4-16	O. E. Buchanan, Wellsville	Limestone	96.89
4-17	Rudolph Zimmerman, New Florence	Limestone No. 1	98.18
4-18	Rudolph Zimmerman, New Florence	Limestone No. 2	97.64
4-19	Rudolph Zimmerman, New Florence	Limestone No. 3	94.24
4-20	Rudolph Zimmerman, New Florence	Limestone No. 4	86.79
4-21	Rudolph Zimmerman, New Florence	Limestone No. 5	75.83
4-22	W. G. Joyner, Buffalo	Limestone	99.05
4-24	Sedalia Quarry, Sedalia	Limestone, grey	56.27
4-25	Hannibal Lime Co., Hannibal	Limestone, chalky	99.54
4-26	Prince Johnson Quarry, Leeds	Limestone, greenish gray	96.02
4-27	Edward Hely Quarry, Cape Girardeau	Limestone, blue gray	89.27
4-28	Leon Neuenschwander, Chloee	Limestone	98.13
4-29	O. G. Teegarden, Bolivar	Limestone	99.05

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

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
4-30	L. F. Childers, Fayette	Limestone	93.12
4-31	C. W. Atkinson, Boonville	Limestone	98.89
4-32	J. Bland Hill, Marshfield	Limestone	91.98
4-33	C. C. Keller, Richland	Limestone No. 1	104.33
4-34	C. C. Keller, Richland	Limestone No. 2	89.53
4-72	J. Bland Hill, Marshfield	Limestone No. 1, dark gray	104.55
4-73	J. Bland Hill, Marshfield	Limestone No. 1a, white	90.56
4-74	J. Bland Hill, Marshfield	Limestone No. 2, black	103.08
4-80	L. L. Hunt, Mt. Vernon	Limestone	100.25
4-81	Chas. C. Bell, Boonville	Limestone	99.05
4-82	Chas. C. Bell, Boonville	Limestone	99.00
4-83	Chas. C. Bell, Boonville	Rock	28
4-84	Chas. C. Bell, Boonville	Limestone	99.05
4-85	P. J. Mayer, Montrose	Limestone	86.16
4-86	E. D. Walker, Poplar Bluff	Limestone	99.54
4-87	C. W. Vetter, Perryville	Limestone No. 38	86.43
4-88	C. W. Vetter, Perryville	Limestone No. 39	97.96
4-89	Neosho Nurseries Co., Neosho	Wood ashes from lime kiln	120.66
4-90	Neosho Nurseries Co., Neosho	Air slacked lime and lime sweep- ing	95.63
4-91	E. T. Itschner, Hillsboro	Limestone	101.18
4-92	Harvey T. Berry, Lincoln	Limestone	92.96
4-93	John Hays Industries, Jefferson City	Limestone	97.20
4-94	J. E. Harris, Wellsville	Limestone	86.54
4-95	L. J. Wormington, Neosho	Limestone	98.34
4-96	L. J. Wormington, Neosho	Limestone	98.40
4-97	L. J. Wormington, Neosho	Limestone	98.02
5-99	J. E. Black, Patterson	Limestone Sand No. 1	101.01
5-100	J. E. Black, Patterson	Limestone No. 2	87.03
5-101	G. V. Sheets, Bloomfield	Limestone	96.72
5-111	Guy E. James, Chilhowee	Limestone	93.34
5-112	Guy E. James, Chilhowee	Limestone	78.37
5-113	Guy E. James, Chilhowee	Limestone	89.15
5-114	Guy E. James, Chilhowee	Limestone	94.65
5-115	Wm. Heinrichs, Jefferson City	Limestone	97.09
5-116	Ira Drymon, Butler	Limestone No. I	96.93
5-117	Ira Drymon, Butler	Limestone No. II	84.09
5-118	C. W. Vetter, Perryville	Limestone No. 40	94.04
5-119	C. W. Vetter, Perryville	Limestone No. 41	94.50
5-120	C. W. Vetter, Perryville	Limestone No. 42	93.50
5-121	H. L. Stevens, Paris	Limestone crushed	87.03
5-123	Imperial Coal Co., Corder	Limestone	75.38
5-124	E. R. Keller, Bowling Green	Limestone No. 1	15.14
5-125	E. R. Keller, Bowling Green	Limestone No. 2	91.60
5-126	E. R. Keller, Bowling Green	Limestone No. 3	82.01
5-127	Edwin A. Gordon, Oermann	Limestone, crushed No. 1	90.12
5-128	Edwin A. Gordon, Oermann	Limestone, crushed No. 2	93.75
5-134	John C. Mills, Jr., Kirksville	Limestone ground	94.51
5-135	E. T. Itschner, Hillsboro	Limestone No. 1	96.08
5-136	E. T. Itschner, Hillsboro	Limestone No. 2	87.30
5-137	W. L. Flanery, Perryville	Limestone No. 1	100.57
5-138	W. L. Flanery, Perryville	Limestone No. 2	105.40
5-139	P. C. Walton, Mineral Point	Limestone, crushed	103.02
6-22	W. L. Flanery, Perryville	Limestone	96.62
6-23	W. L. Flanery, Perryville	Limestone	65.57
6-24	A. B. Chapman, Fredericktown	Limestone No. 1	104.91
6-25	A. B. Chapman, Fredericktown	Limestone No. 2	105.07
6-26	W. F. Delp, Springfield	Limestone No. 1	99.11
6-27	W. F. Delp, Springfield	Limestone No. 2	98.84
6-28	Randolph Ford, Elsberry	Limestone	90.55
6-29	R. B. Marr, Eldorado Springs	Limestone	97.11
6-30	P. E. Newburn, Cosby	Limestone	88.98
6-31	Chas. Meyers, Thompson	Limestone	98.95
6-62	A. B. Chapman, Fredericktown	Limestone	103.40
6-63	Soils Dept., Columbia	Sludge, Water Purifying Plant	26.45
6-64	Ray Miller, Harrisonville	Limestone	66.34
6-65	Roy I. Coplen, Farmington	Limestone	70.78
6-66	Roy I. Coplen, Farmington	Limestone	96.57
6-67	Roy I. Coplen, Farmington	Limestone	99.71
6-68	Roy I. Coplen, Farmington	Limestone	104.80
6-69	Roy I. Coplen, Farmington	Limestone	101.88
6-70	Roy I. Coplen, Farmington	Limestone	94.40
6-71	Joseph Davis, Shelbyville	Limestone	98.73
6-72	Joseph Davis, Shelbyville	Limestone No. 1	98.73
6-73	Joseph Davis, Shelbyville	Limestone No. 2	98.95

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY (Continued)
Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
6-74	Joseph Davis, Shelbyville.....	Limestone No. 3.....	99.16
6-75	Joseph Davis, Shelbyville.....	Limestone.....	83.78
6-76	Joseph Davis, Shelbyville.....	Limestone Screenings.....	82.75
6-77	Guy E. James, Chilhowee.....	Limestone.....	96.02
6-78	Guy E. James, Chilhowee.....	Limestone.....	84.86
6-79	Guy E. James, Chilhowee.....	Limestone.....	78.25
6-80	Guy E. James, Chilhowee.....	Limestone.....	94.40
6-81	Guy E. James, Chilhowee.....	Limestone.....	89.09
6-82	Guy E. James, Chilhowee.....	Limestone No. 1.....	78.36
6-83	Guy E. James, Chilhowee.....	Limestone No. 2.....	73.54
6-84	Guy E. James, Chilhowee.....	Limestone.....	89.63
6-85	Guy E. James, Chilhowee.....	Limestone.....	86.87
6-86	Guy E. James, Chilhowee.....	Limestone.....	91.09
6-87	Roy I. Copen, Farmington.....	Limestone.....	100.41
7-19	L. L. Hunt, Mt. Vernon.....	Limestone No. 1.....	98.84
7-20	L. L. Hunt, Mt. Vernon.....	Limestone No. 2.....	99.22
7-21	Ira Drymon, Butler.....	Limestone No. 1.....	92.67
7-22	Ira Drymon, Butler.....	Limestone No. 2.....	81.13
7-23	Ira Drymon, Butler.....	Limestone No. 3.....	68.71
7-24	Hannibal Lime Co., Hannibal.....	Limestone, crushed.....	97.59
7-25	Roy I. Copen, Farmington.....	Chat.....	82.04
7-26	E. E. Isaac, Plattsburg.....	Limestone, crushed.....	79.93
7-27	G. M. Hull, Clinton.....	Limestone.....	93.96
7-44	Cyrus Grant, Schell City.....	Limestone.....	99.92
7-45	J. W. Burch, Fulton.....	Limestone No. 1.....	98.14
7-46	J. W. Burch, Fulton.....	Limestone No. 2.....	99.60
7-47	J. W. Burch, Fulton.....	Limestone No. 3.....	96.35
7-48	J. W. Burch, Fulton.....	Limestone No. 4.....	98.08
7-49	J. W. Burch, Fulton.....	Limestone No. 5.....	98.25
7-50	J. W. Burch, Fulton.....	Limestone No. 6.....	97.92
7-51	J. R. Plummer, Cross Timbers.....	Limestone No. 1.....	101.61
7-52	J. R. Plummer, Cross Timbers.....	Limestone No. 2.....	101.23
7-53	J. R. Plummer, Cross Timbers.....	Limestone No. 3.....	100.95
7-54	H. G. Stevens, Paris.....	Limestone No. 1 L.....	88.33
7-55	H. G. Stevens, Paris.....	Limestone No. 2 L.....	85.62
7-56	H. G. Stevens, Paris.....	Limestone No. 3 L.....	88.00
7-57	H. G. Stevens, Paris.....	Limestone No. 1 R.....	93.42
7-58	H. G. Stevens, Paris.....	Limestone No. 2 R.....	82.80
7-59	H. G. Stevens, Paris.....	Limestone No. 3 R.....	90.71
7-60	W. F. Delp, Springfield.....	Limestone.....	99.38
7-61	Ira E. Kunkel, West Plains.....	Limestone.....	103.15
7-62	P. J. McDermott, Robertsville.....	Limestone.....	102.20
7-64	R. A. Langenbacher, St. Charles.....	Limestone No. 1.....	101.70
7-65	R. A. Langenbacher, St. Charles.....	Limestone No. 2.....	102.20
7-66	R. A. Langenbacher, St. Charles.....	Limestone No. 3.....	102.15
7-67	C. W. Vetter, Perryville.....	Limestone No. 43.....	97.60
7-68	C. W. Vetter, Perryville.....	Limestone No. 44.....	95.85
7-69	E. R. Keller, Bowling Green.....	Limestone No. 1.....	101.70
7-70	E. R. Keller, Bowling Green.....	Limestone No. 2.....	98.65
8-1	Otto Viefhaus, Augusta.....	Limestone No. 1.....	88.50
8-2	Otto Viefhaus, Augusta.....	Limestone No. 2.....	90.80
8-3	Otto Viefhaus, Augusta.....	Limestone No. 3.....	70.05
8-4	Ira Drymon, Butler.....	Limestone No. 1.....	99.60
8-5	Ira Drymon, Butler.....	Limestone No. 2.....	99.30
8-6	Ira Drymon, Butler.....	Limestone No. 3.....	99.35
8-7	Ira Drymon, Butler.....	Limestone No. 4.....	101.70
8-8	Chas. Mouser, Marquand.....	Limestone No. 1.....	106.15
8-9	Chas. Mouser, Marquand.....	Limestone No. 2.....	104.90
8-10	T. F. Klausmeier, Wright City.....	Limestone.....	100.95
8-11	Ernest Eggers, Oermann.....	Limestone No. 1.....	90.85
8-12	Ernest Eggers, Oermann.....	Limestone No. 2.....	84.60
8-13	H. A. Hanneken, Union.....	Limestone, crushed.....	93.85
8-14	E. R. Keller, Bowling Green.....	Limestone, crushed.....	85.05
8-15	Harold W. Crow, Knob Lick.....	Limestone.....	87.55
8-16	Ira Drymon, Butler.....	Limestone No. 1.....	96.05
8-18	Ira Drymon, Butler.....	Limestone No. 3.....	95.50
8-19	L. L. Hunt, Mt. Vernon.....	Limestone.....	99.55
8-20	E. R. Keller, Bowling Green.....	Limestone.....	93.00
8-21	E. R. Keller, Bowling Green.....	Limestone No. 1.....	87.00
8-22	E. R. Keller, Bowling Green.....	Limestone No. 2.....	99.55
8-26	Arthur A. Hammer, Rockville.....	Limestone.....	96.00
8-27	F. G. Kraege, Palmyra.....	Limestone.....	88.85
8-28	R. A. Langenbacher, St. Charles.....	Limestone.....	95.20
8-29	R. A. Langenbacher, St. Charles.....	Limestone.....	77.65
8-30	G. R. Skinner, Clavton.....	Limestone.....	91.05
8-31	W. T. Angle, Sedalla.....	Limestone No. 1.....	97.80

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY (Continued)
Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
8-32	W. T. Angle, Sedalia	Limestone No. 2	97.65
8-33	W. T. Angle, Sedalia	Limestone No. 3	93.15
8-34	W. T. Angle, Sedalia	Limestone No. 4	98.60
8-35	Ray E. Miller, Harrisonville	Limestone, crushed	79.20
9-1	John D. Meyer, Augusta	Limestone No. 1	91.90
9-2	John D. Meyer, Augusta	Limestone No. 2	100.15
9-3	John F. Nicholson, St. Charles	Limestone	94.80
9-22	W. C. Pelikan, Richwoods	Limestone No. 1	101.45
9-23	W. C. Pelikan, Richwoods	Limestone No. 2	99.80
9-25	J. B. Werdehausen, Meta	Limestone No. 1	98.90
9-26	J. B. Werdehausen, Meta	Limestone No. 2	98.10
9-27	J. B. Werdehausen, Meta	Limestone No. 3	93.55
9-28	John Wansing, Meta	Limestone No. 1	101.60
9-29	John Wansing, Meta	Limestone No. 2	99.15
9-30	W. T. Angle, Sedalia	Limestone No. 1	82.45
9-31	W. T. Angle, Sedalia	Limestone No. 2	96.10
9-32	K. K. Black, Fordland	Limestone (impure marl)	55.25
9-33	E. R. Keller, Bowling Green	Limestone	95.10
9-34	John Nordman, Leslie	Limestone	93.05
9-35	Boto Radir, Conway	Limestone	95.15
9-36	A. Carlson, Union	Limestone No. 1	92.75
9-37	A. Carlson, Union	Limestone No. 2	90.70
9-38	A. Carlson, Union	Limestone No. 3	89.90
9-39	A. Carlson, Union	Limestone No. 4	92.95
9-40	A. Carlson, Union	Limestone No. 5	95.40
9-41	O. V. Singleton, Chilhowee	Limestone	90.65
9-42	O. V. Singleton, Chilhowee	Limestone	85.40
9-43	Bryce Edwards, Morehouse	Ashes of sawdust	87.65
9-44	J. W. Wright, Frankford	Limestone No. 1	97.35
9-45	J. W. Wright, Frankford	Limestone No. 2	97.75
9-46	Frank J. Stabb, River Aux Vases	Limestone	84.30
9-48	E. L. Griggs, Altamont	Limestone, crushed	79.05
9-49	Jno. F. Nicholson, Columbia	Limestone No. 1	98.75
9-50	Jno. F. Nicholson, Columbia	Limestone No. 2	92.55
9-51	Jno. F. Nicholson, Columbia	Limestone No. 3	99.80
9-52	Jno. F. Nicholson, Columbia	Limestone No. 4	98.55
9-53	Jno. F. Nicholson, Columbia	Limestone No. 5	94.25
9-54	Jno. F. Nicholson, Columbia	Limestone No. 6	83.65
9-55	Jno. F. Nicholson, Columbia	Limestone No. 7	99.50
9-56	Jno. F. Nicholson, Columbia	Limestone No. 8	85.90
9-57	Jno. F. Nicholson, Columbia	Limestone No. 9	95.20
9-58	Paul Mayor, Richwoods	Limestone	102.65
9-59	Morton Tuttle, Prairie Home	Limestone No. 1	96.65
9-60	Morton Tuttle, Prairie Home	Limestone No. 2	96.25
9-62	Jcs'ph Davis, Shelbyville	Air slacked lime	93.95
9-63	H. M. Whittaker, Morrisville	Limestone, crushed, No. 1	95.05
9-64	H. M. Whittaker, Morrisville	Limestone, crushed, No. 2	95.40
9-65	H. M. Whittaker, Morrisville	Limestone, crushed, No. 3	94.85
9-66	H. M. Whittaker, Morrisville	Limestone, crushed, No. 4	96.10
9-67	H. M. Whittaker, Morrisville	Limestone, crushed, No. 5	94.05
9-68	E. R. Keller, Bowling Green	Limestone	92.15
9-69	E. L. Peter, Troy	Limestone No. 1	92.95
9-70	E. L. Peter, Troy	Limestone No. 2	93.50
9-71	C. C. Keller, Richland	Limestone	98.15
9-72	C. C. Keller, Richland	Limestone	99.30
9-73	C. C. Keller, Richland	Limestone	99.50
9-74	Amos Gingerich, Versailles	Limestone	93.20
9-75	Ira Drymon, Butler	Limestone No. 1	94.20
9-76	Ira Drymon, Butler	Limestone No. 2	93.40
9-77	Ira Drymon, Butler	Limestone No. 3	84.65
9-78	Ira Drymon, Butler	Limestone No. 4	86.00
9-79	J. W. Burch, Fulton	Limestone No. I	86.35
9-80	J. W. Burch, Fulton	Limestone No. II	88.20
9-81	J. W. Burch, Fulton	Limestone No. III	92.10
9-82	J. W. Burch, Fulton	Limestone No. IV	94.35
9-83	C. W. Vetter, Monticello	Limestone No. 45	89.10
9-84	C. W. Vetter, Monticello	Limestone No. 46	94.55
9-85	C. W. Vetter, Monticello	Limestone No. 47	92.45
9-86	C. W. Vetter, Monticello	Limestone No. 48	91.80
9-87	C. W. Vetter, Monticello	Limestone No. 49	99.45
9-88	W. N. Morris, Cape Girardeau	Limestone	99.25
9-89	Robert S. Clough, Warrensburg	Limestone	68.20
9-90	Peter Bookholtz, French Village	Limestone No. 1	95.80
9-91	Peter Bookholtz, French Village	Limestone No. 2	94.30
9-92	Peter Gridley, French Village	Limestone No. 1	103.65
9-93	Peter Gridley, French Village	Limestone No. 2	104.15

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

Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
9-94	G. R. Skinner, Clayton	Limestone No. 1	98.55
9-95	G. R. Skinner, Clayton	Limestone No. 2	98.00
9-96	G. R. Skinner, Clayton	Limestone No. 3	91.75
9-97	G. R. Skinner, Clayton	Limestone No. 1	93.15
9-98	G. R. Skinner, Clayton	Limestone No. 2	96.65
9-99	G. R. Skinner, Clayton	Limestone No. 3	98.05
9-100	W. T. Angle, Sedalia	Limestone	93.75
9-101	F. L. Peter, Troy	Limestone	91.15
9-102	J. W. Burch, Fulton	Limestone No. I	96.45
9-103	J. W. Burch, Fulton	Limestone No. II	99.80
9-104	J. W. Burch, Fulton	Limestone No. III	99.65
9-105	J. W. Burch, Fulton	Limestone No. IV	100.35
10-271	W. E. Poard, Benton	Limestone	104.35
10-272	L. L. Hunt, Mt. Vernon	Limestone No. 1	98.20
10-273	L. L. Hunt, Mt. Vernon	Limestone No. 2	94.65
10-274	Matt Konpal, Florida	Limestone, crushed	92.50
10-275	J. W. Shanks, Benjamin	Limestone	92.65
10-276	Hannibal Lime Co., Hannibal	Lime tailings	95.50
10-277	W. T. Angle, Sedalia	Limestone, crushed	91.75
10-278	F. L. Peter, Troy	Limestone, crushed	75.25
10-279	Ira Drymon, Butler	Limestone	82.25
10-281	Ira Drymon, Butler	Limestone No. 1	95.70
10-282	Ira Drymon, Butler	Limestone No. 2	97.20
10-283	Ira Drymon, Butler	Limestone No. 3	95.65
10-284	Ira Drymon, Butler	Limestone No. 4	91.45
10-285	Ira Drymon, Butler	Limestone No. 5	95.25
10-286	Ira Drymon, Butler	Limestone No. 6	93.90
10-287	Ira Drymon, Butler	Limestone No. 7	89.55
10-288	Ira Drymon, Butler	Limestone No. 8	95.75
10-293	C. T. McMurtry, Kidder	Limestone No. 1	85.65
10-294	C. T. McMurtry, Kidder	Limestone No. 2	88.25
10-295	C. T. McMurtry, Kidder	Limestone No. 3	93.05
10-296	Edwin Lewis, Glasgow	Limestone No. 1	94.55
10-297	Edwin Lewis, Glasgow	Limestone No. 2	90.65
10-298	Alfred H. Meyer, Gerald	Limestone	96.15
10-303	E. R. Keller, Bowling Green	Burnt lime	103.80
10-304	G. R. Skinner, Clayton	Partly burned lime	100.75
10-308	F. W. Brueseke, Sullivan	Limestone No. 1	84.30
10-309	F. W. Brueseke, Sullivan	Limestone No. 2	91.75
10-310	F. W. Brueseke, Sullivan	Limestone No. 3	97.25
10-311	E. R. Keller, Bowling Green	Limestone	81.85
10-312	Roy I. Coplen, Farmington	Limestone No. 1	79.75
10-313	Roy I. Coplen, Farmington	Limestone No. 2	81.95
10-314	A. P. Rauch, Billings	Limestone	99.05
11-1	Arthur Huckie, Kimmswick	Limestone No. 1	99.75
11-2	Arthur Huckie, Kimmswick	Limestone No. 2	99.65
11-3	Arthur Huckie, Kimmswick	Limestone No. 3	99.55
11-4	W. T. Angle, Sedalia	Limestone No. 1	99.80
11-5	W. T. Angle, Sedalia	Limestone No. 2	99.25
11-6	C. A. Neyer Motor Co., Billings	Limestone No. 1	101.60
11-7	C. A. Neyer Motor Co., Billings	Limestone No. 2	101.85
11-8	C. A. Neyer Motor Co., Billings	Limestone No. 3	101.55
11-9	C. A. Neyer Motor Co., Billings	Limestone No. 4	101.25
11-10	C. A. Neyer Motor Co., Billings	Limestone No. 5	102.65
11-11	Geo. C. Busch, Elmont	Limestone No. 1	86.55
11-12	Geo. C. Busch, Elmont	Limestone No. 2	96.20
11-13	Geo. C. Busch, Elmont	Limestone No. 3	97.75
11-14	Wallace Frederick, Stoutsville	Limestone	101.20
11-15	J. W. Burch, Fulton	Limestone No. I	97.35
11-16	J. W. Burch, Fulton	Limestone No. II	99.15
11-17	J. W. Burch, Fulton	Limestone No. III	99.85
11-18	J. W. Burch, Fulton	Limestone No. IV	100.35
11-19	J. W. Burch, Fulton	Limestone No. V	99.30
11-20	Frank Stonner, Marshfield	Limestone No. 1	105.05
11-21	Frank Stonner, Marshfield	Limestone No. 2	104.85
11-22	Frank Stonner, Marshfield	Limestone No. 3	102.95
11-23	Frank Stonner, Marshfield	Limestone No. 4	102.25
11-24	Frank Stonner, Marshfield	Limestone A	98.30
11-25	Frank Stonner, Marshfield	Limestone B	98.35
11-26	Frank Stonner, Marshfield	Limestone No. 1	93.20
11-27	Frank Stonner, Marshfield	Limestone No. 2	100.00
11-31	Boyd Coal Co., Knobnoster	Limestone	93.70
11-61	W. F. Delp, Springfield	Limestone No. 2	102.55
11-62	R. A. Langanbacher, St. Charles	Limestone	87.75
11-63	Paul C. Potter, Leadmine	Limestone	101.80
11-64	J. E. Douglass, Leeton	Limestone No. 1	71.40

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY (Continued)
Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
11-65	J. E. Douglass, Leeton	Limestone No. 2	57.75
11-66	W. A. Souders, Owensville	Limestone No. 1	94.10
11-67	W. A. Souders, Owensville	Limestone No. 2	101.20
11-68	W. A. Souders, Owensville	Limestone No. 3	99.30
11-69	Thos. V. Regelsperger, Perryville	Limestone, yellow	90.70
11-70	Thos. V. Regelsperger, Perryville	Limestone, blue	88.85
11-71	G. D. Biechle, Biehle	Limestone No. 1	99.40
11-73	G. D. Biechle, Biehle	Limestone No. 3	97.25
11-74	Leo J. Elder, Perryville	Limestone No. 4	99.95
11-75	Leo J. Elder, Perryville	Limestone No. 5	100.70
11-76	Leo J. Elder, Perryville	Limestone No. 6	100.70
11-77	Louis Nessel, Perryville	Limestone No. 7	97.30
11-78	Louis Nessel, Perryville	Limestone No. 8	89.80
11-79	Louis Nessel, Perryville	Limestone No. 9	42.90
11-80	Geo. Muench, Perryville	Limestone No. 10	91.85
11-81	Albert F. Moore, Perryville	Limestone No. 11	100.85
11-82	Albert F. Moore, Perryville	Limestone No. 12	102.40
11-83	Albert F. Moore, Perryville	Limestone No. 13	101.70
11-84	Albert F. Moore, Perryville	Limestone No. 14	102.15
11-85	John Sutterer, Sereno	Limestone No. 15	100.15
11-86	Ira Drymon, Butler	Limestone No. 1	83.75
11-87	Ira Drymon, Butler	Limestone No. 2	65.20
11-88	Ira Drymon, Butler	Limestone No. 3	83.45
11-89	Ira Drymon, Butler	Limestone No. 3a	85.50
11-90	Ira Drymon, Butler	Limestone No. 4	95.80
11-91	Ira Drymon, Butler	Limestone No. 5	77.50
11-92	Ira Drymon, Butler	Limestone No. 6	77.75
11-93	H. B. Meyer, Bowling Green	Limestone	96.40
11-94	E. R. Keller, Bowling Green	Limestone No. 1	100.90
11-95	E. R. Keller, Bowling Green	Limestone No. 2	102.00
11-96	E. R. Keller, Bowling Green	Limestone No. 3	101.90
11-97	L. J. Wormington, Neosho	Limestone No. 1	101.75
11-98	L. J. Wormington, Neosho	Limestone No. 2	102.60
11-99	Roy I. Coplen, Farmington	Limestone No. 1	89.25
11-100	Roy I. Coplen, Farmington	Limestone No. 2	91.70
11-101	Roy I. Coplen, Farmington	Limestone No. 3	102.15
11-103	J. E. Burns, Eagleville	Limestone	93.60
11-104	Waldo Kirshman, Prairie Home	Limestone No. 1	100.50
11-105	Waldo Kirshman, Prairie Home	Limestone No. 2	99.15
11-106	Waldo Kirshman, Prairie Home	Limestone No. 3	100.50
11-107	Waldo Kirshman, Prairie Home	Limestone No. 4	100.15
11-108	Waldo Kirshman, Prairie Home	Limestone No. 5	100.65
11-109	Waldo Kirshman, Prairie Home	Limestone No. 6	99.95
11-110	Al Pillars, Bryant	Limestone	100.00
11-111	A. P. Rauch, Billings	Limestone	99.50
11-112	W. F. Delp, Springfield	Limestone	98.15
11-113	W. F. Delp, Springfield	Limestone, yellow, No. 1	96.85
11-114	W. F. Delp, Springfield	Limestone, dark gray, No. 2	98.80
11-116	Arnold & Trapp, Butler	Limestone No. 1	93.75
11-117	Arnold & Trapp, Butler	Limestone No. 2	92.20
11-118	Arnold & Trapp, Butler	Limestone No. 3	87.55
11-119	Arnold & Trapp, Butler	Limestone No. 4	88.00
11-120	Arnold & Trapp, Butler	Limestone No. 5	71.45
11-121	Arnold & Trapp, Butler	Limestone No. 6	94.35
11-122	Arnold & Trapp, Butler	Limestone No. 7	93.00
11-123	Arnold & Trapp, Butler	Limestone No. 8	90.25
11-124	Arnold & Trapp, Butler	Limestone No. 9	88.55
11-125	Arnold & Trapp, Butler	Limestone No. 10	96.70
11-126	Arnold & Trapp, Butler	Limestone No. 11	88.55
11-127	Barnes Boyd Motor Co., Mexico	Limestone	100.40
11-128	White Leghorn Farm, Conway	Limestone	102.15
11-129	White Leghorn Farm, Conway	Limestone	101.05
11-130	R. C. Wommack, Fair Grove	Limestone	93.85
11-131	R. S. Clough, Warrensburg	Limestone surface	80.30
11-132	R. S. Clough, Warrensburg	Limestone underground	67.45
11-133	W. C. Randolph, Summerville	Limestone No. 1	57.20
11-134	W. C. Randolph, Summerville	Limestone No. 2	101.95
11-135	W. C. Randolph, Summerville	Limestone No. 3	99.80
11-136	E. T. Itschner, Hillsboro	Limestone No. 1	101.80
11-137	E. T. Itschner, Hillsboro	Limestone No. 2	101.50
11-138	E. T. Itschner, Hillsboro	Limestone No. 3	101.45
11-139	E. T. Itschner, Hillsboro	Limestone No. 4	84.30
11-140	E. T. Itschner, Hillsboro	Limestone No. 5	94.90
12-19	Farmers Produce Exchange, St. James	Limestone, crushed	75.50

TABLE 6.—POWER OF LIMESTONE AND SIMILAR MATERIALS TO NEUTRALIZE SOIL ACIDITY (Continued)
Expressed in Percentage of Calcium Carbonate

Lab. No.	Sender	Material	Calcium carbonate equivalent
12- 20	Farmers Produce Exchange, St. James.	Limestone rock.....	94.75
12- 21	Farmers Produce Exchange, St. James.	Rock.....	0.00
12- 22	Frank Stonner, Marshfield.....	Limestone.....	96.75
12- 23	Oscar Depperman, New Haven.....	Limestone.....	97.45
12- 25	Paul C. Stark, Louisiana.....	Limestone, yellowish.....	94.90
12- 26	J. A. Michael, De Soto.....	Limestone.....	99.25
12- 27	Stupp Farm & Cattle Co., Peverly.....	Limestone No. 1.....	105.00
12- 28	Stupp Farm & Cattle Co., Peverly.....	Limestone No. 2.....	99.70
12- 29	Stupp Farm & Cattle Co., Peverly.....	Limestone No. 3.....	95.65
12- 30	Jos. Gardner, Niangua.....	Limestone.....	100.30
12- 31	J. H. H. Mote, Carthage.....	Limestone.....	103.55
12- 32	J. H. H. Mote, Carthage.....	Limestone.....	102.85
12- 33	Ira Drymon, Butler.....	Limestone, crushed.....	89.05
12- 34	Ira Drymon, Butler.....	Limestone rock No. 1.....	100.55
12- 35	Ira Drymon, Butler.....	Limestone rock No. 2.....	101.10
12- 36	R. A. Langanbacher, St. Charles.....	Limestone screenings.....	90.10
12- 37	Alvin Griesdieck, St. Louis.....	Limestone, crushed.....	94.90

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923

Fertilizer	Nitro- gen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
		Per Cent	Per Cent	Per Cent	
American Agricultural Chemical Co., National Stock Yards, East St. Louis, Illinois A. A. C. Brands					
Fruit and Grass Fertilizer	7.40		7.00	0.50	.....
Potash Fertilizer	1.65		10.00	0.50	10.00
Muck Soil Special	0.82		10.00	0.50	12.00
Bone Meal	1.65	27.00			.....
Pure Raw Bone	3.29	20.00			.....
Nitrate of Soda	15.00				.....
Sulphate of Ammonia	20.00				.....
2-16-2 Fertilizer	1.65		16.00	0.50	2.00
Truck Fertilizer	2.47		8.00	0.50	6.00
20% Phosphate			20.00	0.50	.....
Muriate Potash					50.00
Boarshead Brands					
16% Phosphate			16.00	0.50	.....
Faultless Grain Grower			12.00	0.50	2.00
Ammoniated Phosphate	1.65		12.00	0.50	.....
Seeding Down Guano	0.82		8.00	0.50	1.00
Harvest King	0.82		8.00	0.50	3.00
World of Good Superphosphate	1.65		8.00	0.50	2.00
Ammoniated Bone and Potash	0.82		10.00	0.50	1.00
World of Good Corn and Wheat Grower	1.65		12.00	0.50	2.00
Sandy Soil Grain Grower	1.65		8.00	0.50	5.00
Bradley Brands					
High Grade Phosphate			16.00	0.50	.....
All But Straw			12.00	0.50	2.00
Bradley Special	1.65		12.00	0.50	.....
Corn and Wheat Phosphate	0.82		8.00	0.50	1.00
Niagara Phosphate	0.82		8.00	0.50	3.00
B. D. Sea Fowl Guano	1.65		8.00	0.50	2.00
Wheat and Clover Fertilizer	0.82		10.00	0.50	1.00
Best Grain Grower	1.65		12.00	0.50	2.00
Sure Winner	1.65		8.00	0.50	5.00
Empire Brands					
16% Phosphate			16.00	0.50	.....
Phosphate and Potash			12.00	0.50	2.00
Nitrophos	1.65		12.00	0.50	.....
Wheat and Clover Grower	0.82		8.00	0.50	1.00
Crop Grower	0.82		8.00	0.50	3.00
Bone Black Fertilizer	1.65		8.00	0.50	2.00
Farmers Favorite	0.82		10.00	0.50	1.00
Middle West Grain Grower	1.65		12.00	0.50	2.00
Potato and Tobacco Fertilizer	1.65		8.00	0.50	5.00
Horseshoe Brands					
Economy Phosphate			16.00	0.50	.....
Grain Maker			12.00	0.50	2.00
War Brand	1.65		12.00	0.50	.....
Reliable Wheat Grower	0.82		8.00	0.50	1.00
Animal Bone Manure and Potash	0.82		8.00	0.50	3.00
National Bone Dust	1.65		8.00	0.50	2.00
Acidulated Bone and Potash	0.82		10.00	0.50	1.00
Pioneer Grain Grower	1.65		12.00	0.50	2.00
Horseshoe Fertilizer	1.65		8.00	0.50	5.00
Arkansas Fertilizer Co., Little Rock, Arkansas White Diamond Brand					
Special Acid Phosphate	0.00		16.00		0.00
Blood, Bone and Potash	2.00		12.00		1.50
Early Potato and Truck, W. P.	2.50		12.00		0.00
Early Potato and Truck	2.50		8.00		4.00
Ammoniated Bone Superphosphate	1.65		9.00		2.00
Corn Grower, Without Potash	1.65		11.00		0.00
Arkansas Standard	1.65		10.00		1.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (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	
Blood and Bone Fertilizer.....	1.50		11.00		1.50
Queen of the South.....	1.65		12.00		0.00
Southern Queen.....	1.65		10.00		2.00
Southern Standard.....	1.65		10.00		1.50
Southern Standard, W. P.....	1.65		11.50		0.00
20th Century.....	1.65		9.00		2.00
"20th Century, 1916".....	1.65		10.60		0.40
Vegetable Fertilizer.....	2.00		7.50		3.00
"Gro-Fast" Fertilizer.....	1.65		8.00		2.00
Kali Superphosphate.....	0.00		11.00		3.00
Early Harvest.....	1.65		10.50		0.50
Economy.....	0.82		10.00		2.00
Number 39.....	0.82		10.00		1.00
New South.....	1.65		10.00		0.00
Commonwealth Wheat Grower.....	0.82		8.00		1.00
Commonwealth Corn Grower.....	0.82		8.00		2.00
Superphosphate, with Potash.....	0.00		10.00		2.00
Superphosphate, with Ammonia.....	0.82		12.00		0.00
Special Wheat Grower "B".....	1.00		7.00		1.00
Southern King.....	2.00		12.00		2.00
Special Raw Bone and Potash.....	1.65	18.00			1.00
Raw Bone Meal Fertilizer.....	3.29	20.00			
Steamed Bone Meal.....	0.82	29.00			
Nitrate of Soda.....	15.63		0.00		0.00
Arcadian Sulphate of Ammonia.....	20.77		0.00		0.00
Muriate of Potash.....	0.00		0.00		50.00
Kainit.....	0.00		0.00		14.00
The Armour Fertilizer Works, 209 West Jackson Blvd., Chicago, Illinois Big Crop Brands					
2-16-2 Fertilizer.....	1.65		16.00	0.50	2.00
2-12-2 Fertilizer.....	1.65		12.00	0.50	2.00
4-12 Fertilizer.....	3.30		12.00	0.50	
12-4 Fertilizer.....			12.00	0.50	4.00
16% Acid Phosphate.....			16.00	0.50	
20% Acid Phosphate.....			20.00	0.50	
2-12-6 Fertilizer.....	1.65		12.00	0.50	6.00
3-8-6 Fertilizer.....	2.47		8.00	0.50	6.00
Bone Meal and Acid Phosphate.....	0.82	20.00	11.00	9.00	
Bone Meal.....	2.47	24.00			
Nitrate of Soda.....	14.85				
Armour Brands					
1-12-1 Fertilizer.....	0.82		12.00	0.50	1.00
Grain Grower.....	1.65		8.00	0.50	2.00
Tuscarora Brands					
2-16-2 Fertilizer.....	1.65		16.00	0.50	2.00
2-12-2 Fertilizer.....	1.65		12.00	0.50	2.00
4-12 Fertilizer.....	3.30		12.00	0.50	
12-4 Fertilizer.....			12.00	0.50	4.00
16% Acid Phosphate.....			16.00	0.50	
20% Acid Phosphate.....			20.00	0.50	
2-12-6 Fertilizer.....	1.65		12.00	0.50	6.00
3-8-6 Fertilizer.....	2.47		8.00	0.50	6.00
Bone Meal and Acid Phosphate.....	0.82	20.00	11.00	9.00	
Bone Meal.....	2.47	24.00			
1-12-1 Fertilizer.....	0.82		12.00	0.50	1.00
Grain Grower.....	1.65		8.00	0.50	2.00
Ash Grove Lime & Portland Cement Co., Kansas City, Missouri "Limash"					
Ignition.....	22.09				
Insoluble.....	15.82				
Iron and Aluminum Oxides.....	10.08				
Lime (CaO).....	47.90				
Magnesium Oxide.....	2.62				
Sodium Oxide.....	0.54				
Potassium Oxide.....	0.91				
Phosphorus.....	0.04				
	100.00				

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (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	
<p>The Barrett Co., 40 Rector Street, New York, N. Y.</p>					
Arcadian Sulphate of Ammonia.....	20.75				
<p>Blood & Bone Fertilizer Co., St. Louis, Mo. "Steer Head Brand"</p>					
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
Wheat Grower (High Grade).....	1.03		10.00	1.00	3.00
Wheat Grower (Medium Grade).....	1.03		8.00	1.00	1.00
Crop Grower (High Grade).....	1.64		8.00	1.00	2.00
Ammoniated Bone Phosphate (High Grade).....	1.64		12.00	1.00	0.00
Ammoniated Bone Phosphate (Medium Grade).....	1.03		10.00	1.00	0.00
Soluble Bone Phosphate (High Grade).....			16.00	1.00	
Special Corn Grower (High Grade).....	2.06		8.00	1.00	3.00
Special Corn Grower (Medium Grade).....	1.65		8.00	1.00	2.00
Special Oat Grower (High Grade).....	1.65		8.00	1.00	2.00
Special Oat Grower (Medium Grade).....	1.03		7.00	1.00	1.00
<p>Calumet Fertilizer Co., New Albany, Ind. Calumet Brands</p>					
Half Thirteen One.....	0.41	15.50	13.00	2.50	1.00
Crop Grower.....	0.82	9.00	8.00	1.00	1.00
Onion and Tobacco Grower.....	0.82	9.00	8.00	1.00	3.00
Northern Special.....	0.82	9.00	8.00	1.00	8.00
Two Eight Two.....	1.64	9.00	8.00	1.00	2.00
Potato and Tobacco Special.....	1.64	9.00	8.00	1.00	5.00
Two Twelve Two.....	1.64	13.00	12.00	1.00	2.00
Two Twelve Six.....	1.64	13.00	12.00	1.00	6.00
Otto Voyles Two in One.....	1.64	17.00	16.00	1.00	2.00
High Grade Tobacco and Truck Grower.....	2.46	11.00	10.00	1.00	4.00
Extra Ammoniated Bone Phosphate.....	1.64	13.00	12.00	1.00	
Fourteen Four.....		15.00	14.00	1.00	4.00
Ten Five.....		11.00	10.00	1.00	5.00
Ten Ten Hummer.....		11.00	10.00	1.00	10.00
Twelve Twelve.....		13.00	12.00	1.00	12.00
Eight Twenty-four.....		9.00	8.00	1.00	24.00
Bone and Acid Phosphate.....	0.62	20.00	12.00	8.00	
Half and Half.....	2.05	12.00	6.00	6.00	1.00
Acid Phosphate 16%.....		17.00	16.00	1.00	
Acid Phosphate 18%.....		19.00	18.00	1.00	
Special Pure Bone Meal.....	0.82	30.00	(Bone)		
Raw Bone Meal.....	3.70	20.00	(Bone)		
<p>The Cochrane Packing Co., Kansas City, Kansas Cochrane's Brands</p>					
Pulverized Sheep Manure.....	2.00	3.00	2.00	1.00	1.00
Special Potato Grower.....	2.00	3.00	2.00	1.00	1.00
Vegetable Grower.....	0.82	9.00	8.00	1.00	1.00
Wheat Producer.....	0.82	9.00	8.00	1.00	1.00
Corn and Oat Grower.....	0.82	11.25	10.00	1.25	1.00
Special Wheat Grower.....	0.82	11.25	10.00	1.25	1.00
Champion Grain Grower.....	1.65	11.25	10.00	1.25	1.00
Steam Bone Meal.....	2.47	24.00			
<p>Commercial Fertilizer Co., North Little Rock, Ark. Commercial Brands</p>					
Acid Phosphate.....	0.00		16.00		0.00
Blood, Bone and Potash.....	2.00		12.00		1.50
Early Potato and Truck, W. P.....	2.50		12.00		0.00
Early Potato and Truck.....	2.50		8.00		4.00
Southern King.....	2.00		12.00		2.00
Arkahoma Special.....	1.65		9.00		2.00
Four States Standard.....	1.65		11.00		0.00
Crop Getter.....	1.65		12.00		0.00
Special Cotton Grower.....	1.65		10.00		2.00
Arkansas Complete.....	1.65		10.00		1.50

TABLE 17.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (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
All-Crop Fertilizer.....	1.65	.....	9.00	.....	2.00
Bove-All Cotton Grower.....	1.65	.....	8.00	.....	2.00
Early Harvest.....	1.65	.....	10.50	.....	0.50
Economy.....	0.82	.....	10.00	.....	2.00
Farmers' Friend.....	0.82	.....	10.00	.....	1.00
Square Deal Fertilizer.....	0.82	.....	8.00	.....	1.00
Phospho-Potash.....	0.00	.....	10.00	.....	2.00
Special Wheat Grower "B".....	1.00	.....	7.00	.....	1.00
Raw Bone and Potash.....	1.65	18.00	.....	.....	1.00
Raw Bone Meal Fertilizer.....	3.29	20.00	.....	.....	0.00
Steamed Bone Meal.....	0.82	29.00	.....	.....	0.00
Arcadian Sulphate of Ammonia.....	20.77	.....	0.00	.....	0.00
Nitrate of Soda.....	15.63	.....	0.00	.....	0.00
Muriate of Potash.....	0.00	.....	0.00	.....	50.00
Kainit.....	0.00	.....	0.00	.....	14.00
Cudahy Packing Co., Chicago, Illinois Cudahy's High Grade Fertilizers					
0-18-0.....	0.00	.....	18.00	.....	0.00
2-12-2.....	1.65	.....	12.00	.....	2.00
2-14-2.....	1.65	.....	14.00	.....	2.00
2-16-2.....	1.65	.....	16.00	.....	2.00
2-12-6.....	1.65	.....	12.00	.....	6.00
4-12-0.....	3.30	.....	12.00	.....	0.00
0-14-4.....	0.00	.....	14.00	.....	4.00
3-12-4.....	2.50	.....	12.00	.....	4.00
3-8-6.....	2.50	.....	8.00	.....	6.00
0-12-4.....	0.00	.....	12.00	.....	4.00
Cudahy's Blue Ribbon Fertilizer					
Steamed Bone Meal.....	2.47	24.00	.....	.....	.....
16% Acid Phosphate.....	.....	.....	16.00	.....	.....
1½-20 (Half and Half) 50% Bone Meal and 50% Acid Phosphate.....	1.23	20.00	13.00	.....	.....
Darling & Company, Union Stock Yards, Chicago, Illinois Darling's Brands					
Big Harvest.....	1.65	.....	12.00	2.00	2.00
Crop King.....	1.65	.....	12.00	2.00	6.00
Grain Grower.....	0.82	.....	9.00	2.00	1.00
General Crop.....	1.65	.....	12.00	2.00	.....
Fourteen Four.....	.....	.....	14.00	0.50	4.00
16% Acid Phosphate.....	.....	.....	16.00	1.00	.....
18% Acid Phosphate.....	.....	.....	18.00	0.50	.....
Pure Ground Bone.....	1.85	28.00	.....	.....	.....
Bone and Acid Phosphate Half and Half.....	0.82	.....	12.00	*11.00	.....
Bone Base.....	1.65	.....	14.00	*4.00	2.00
Pulverized Sheep Manure.....	1.85	.....	1.00	.....	1.00
Blood and Bone.....	4.94	12.00	.....	.....	.....
Nitrate of Soda.....	14.82	.....	.....	.....	.....
Douglass Fertilizer Co., Little Rock, Arkansas 4-Brand					
Acid Phosphate.....	0.00	.....	16.00	.....	0.00
Blood, Bone and Potash.....	2.00	.....	12.00	.....	1.50
Early Potato and Truck, W. P.....	2.50	.....	12.00	.....	0.00
Early Potato and Truck.....	2.50	.....	8.00	.....	4.00
Southern King.....	2.00	.....	12.00	.....	2.00
Arkahoma Special.....	1.65	.....	9.00	.....	2.00
Douglass Choice.....	1.65	.....	11.00	.....	0.00
Douglass Complete.....	1.65	.....	10.00	.....	1.00
Douglass Preferred.....	1.65	.....	12.00	.....	0.00
Douglass Superior Fertilizer.....	1.65	.....	10.00	.....	2.00
4-Brand Prize Winner.....	1.65	.....	9.00	.....	2.00
"Douglass Special Cotton Grower 1916".....	1.65	.....	10.60	.....	0.40
Douglass Vegetable Fertilizer.....	2.00	.....	7.50	.....	3.00
4-Brand Complete.....	1.65	.....	8.00	.....	2.00
4-Brand Phosphate and Potash.....	0.00	.....	11.00	.....	3.00

*From Bone.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (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	
Early Harvest.....	1.65	.....	10.50	.....	0.50
Economy.....	0.82	.....	10.00	.....	2.00
Douglass Acidulated Bone.....	0.82	.....	10.00	.....	1.00
Douglass Universal.....	1.65	.....	10.00	.....	0.00
4-Brand Wheat Grower.....	0.82	.....	8.00	.....	1.00
4-Brand Corn Grower.....	0.82	.....	8.00	.....	2.00
4-Brand Phospho-Potash.....	0.00	.....	10.00	.....	2.00
Special Wheat Grower "B".....	1.00	.....	7.00	.....	1.00
4-Brand Raw Bone and Potash.....	1.65	18.00	.....	.....	1.00
Raw Bone Meal Fertilizer.....	3.29	20.00	.....	.....	0.00
Steamed Bone Meal.....	0.82	29.00	.....	.....	0.00
Nitrate of Soda.....	15.63	.....	0.00	.....	0.00
Arcadian Sulphate of Ammonia.....	20.77	.....	0.00	.....	0.00
Muriate of Potash.....	0.00	.....	0.00	.....	50.00
Kainit.....	0.00	.....	0.00	.....	14.00
Earp-Thomas Cultures Corporation, Nelson Avenue & Hill St., Long Island City, N. Y.					
Stim-U-Plant Tablets.....	11.00	.....	11.71	0.36	15.00
The Empire Guano Co., Nashville, Tennessee					
Wheat, Oat and Corn Grower.....	0.82	17.00	7.00	10.00	1.00
Blood, Bone and Potash.....	1.65	13.00	8.00	5.00	2.00
Missouri Premium Guano.....	0.41	12.00	8.00	4.00	4.00
Prize Grain Grower.....	1.65	15.00	12.00	3.00	2.00
Missouri Grain Grower.....	0.82	15.00	12.00	3.00	1.00
Clover and Wheat Special.....	0.82	15.00	12.00	3.00	2.00
Red Banner Favorite.....	1.65	16.00	12.00	4.00	.....
High Grade Bone and Potash.....	.....	15.00	12.00	3.00	2.00
High Grade Potash Special.....	.....	16.00	14.00	2.00	2.00
Climax Phosphate.....	.....	18.00	16.00	2.00	.....
Bone Mixture.....	1.23	20.00	11.00	9.00	.....
Raw Bone Meal.....	3.70	20.00	.....	.....	.....
High Grade Truck Fertilizer.....	2.47	13.00	8.00	5.00	5.00
High Grade Grain Grower.....	1.65	16.00	12.00	4.00	4.00
Premium 2-16-2.....	1.65	18.00	16.00	2.00	2.00
Premium 10-10.....	.....	15.00	10.00	5.00	10.00
Premium Phosphate.....	.....	19.00	18.00	1.00	.....
The Excell Laboratories, Chicago, Illinois					
Zenkes New Plant Life (Domestic Strength).....	1.40	1.10	1.07	0.03	0.54
Zenkes New Plant Life (Full Strength).....	2.80	2.20	2.14	0.06	1.08
The Flower City Plant Food Co., Rochester, New York					
Walker's Excelsior Plant Food.....	5.00	.....	7.00	.....	3.00
Japanese Fern and Palm Food.....	5.00	.....	6.00	.....	1.00
Floyd Plant Food Co., 298 Arcade Bldg., St. Louis, Mo. F. P. F. Brands					
4-4-1 Lawn and Garden Fertilizer.....	3.30	4.10	4.00	0.10	1.00
Nitrated-Gypsum.....	2.51	.....	.....	.....	.....
4-6-2 "Common Sense" Brand.....	3.30	6.15	6.00	0.15	2.00
3-8-6.....	2.51	8.15	8.00	0.15	6.00
3-12-3.....	2.51	12.25	12.00	0.25	3.00
2-12-2.....	1.67	12.25	12.00	0.25	2.00
2-8-2.....	1.67	8.15	8.00	0.15	2.00
4-12-0.....	3.30	12.25	12.00	0.25	.....
2-14-0.....	1.67	14.25	14.00	0.25	.....
0-12-4.....	.....	12.25	12.00	0.25	4.0
0-16-2.....	.....	16.30	16.00	0.30	2.00
0-10-10.....	.....	10.25	10.00	0.25	10.00
16% Acid Phosphate.....	.....	16.30	16.00	0.30	.....
18% Acid Phosphate.....	.....	18.40	18.00	.....	.....
Half and Half (½ 18% Acid Phosphate; ½ Ground Raw Bone).....	1.67	22.00	13.00	9.00	.....
Ground Steam Bone (1 and 30).....	0.84	30.00	.....	.....	.....
Steam Bone Meal (3 and 24).....	2.51	24.00	.....	.....	.....

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Available	Insoluble	
		Per Cent	Per Cent	Per Cent	
Gate City Fertilizer Co., Little Rock, Arkansas Red Ball Brands					
Extra Acid Phosphate.....	0.00		16.00		0.00
Southern King.....	2.00		12.00		2.00
Blood, Bone and Potash.....	2.00		12.00		1.50
Early Potato and Truck, W. P.....	2.50		12.00		0.00
Early Potato and Truck.....	2.50		8.00		4.00
Arkahoma Special.....	1.65		9.00		2.00
Four States Standard.....	1.65		11.00		0.00
Complete Fertilizer.....	1.65		10.00		1.00
Blood and Bone.....	1.50		11.00		1.50
Ammoniated Superphosphate.....	1.65		12.00		0.00
Diversified Croppers.....	1.65		10.00		2.00
Cotton Grower.....	1.65		9.00		2.00
"Cotton Grower 1916".....	1.65		10.60		0.40
Old Time Vegetable.....	2.00		7.50		3.00
Old Reliable Fertilizer.....	1.65		8.00		2.00
Phosphate and Potash.....	0.00		11.00		3.00
Early Harvest.....	1.65		10.50		0.50
Economy.....	0.82		10.00		2.00
Acidulated Bone Fertilizer.....	0.82		10.00		1.00
Soluble Bone Fertilizer.....	1.65		10.00		0.00
Arkmo Wheat Grower.....	0.82		8.00		1.00
Arkmo Corn Grower.....	0.82		8.00		2.00
Phospho-Potash.....	0.00		10.00		2.00
Special Wheat Grower "B".....	1.00		7.00		1.00
Raw Bone and Potash.....	1.65	18.00			1.00
Raw Bone Meal Fertilizer.....	3.29	20.00			0.00
Steamed Bone Meal.....	0.82	29.00			0.00
Nitrate of Soda.....	15.63		0.00		0.00
Arcadium Sulphate of Ammonia.....	20.77		0.00		0.00
Muriate of Potash.....	0.00		0.00		50.00
Kainit.....	0.00		0.00		14.00
Jacksonville Reduction Co., Jacksonville, Ill.					
Purity Bone Meal Fertilizer.....	3.60	18.00			
Majico Products Co., Kansas City, Mo.					
Fairy Plant Food.....	4.00		2.69	1.50	2.32
Morris & Co., Kansas City, Kansas Morris' Brands					
Big One (2-8-16).....	1.64		8.00	1.00	16.00
Big Two (Bone Meal).....	1.64	29.00			
Big Three (1-9-3).....	0.82		9.00	1.00	3.00
Big Four (Half and Half).....	0.82		13.00	5.00	
Big Five (0-10-10).....			10.00	1.00	10.00
Big Six (2-12-6).....	1.64		12.00	1.50	6.00
Big Seven (3-8-6).....	2.46		8.00	2.00	6.00
Big Eight (1-8-1).....	0.82		8.00	1.00	1.00
Big Nine (1-12-1).....	0.82		12.00	1.00	1.00
Big Ten (2-8-2).....	1.64		8.00	2.00	2.00
Big Eleven (3-12-4).....	2.46		12.00	1.50	4.00
Big Twelve (2-12-0).....	1.64		12.00	1.50	
Big Fourteen (2-12-2).....	1.64		12.00	1.50	2.00
Big Fifteen (2-16-2).....	1.64		16.00	1.00	2.00
16% Acid Phosphate.....			16.00		
Mt. Pleasant Fertilizer Co., Inc. Memphis, Tenn. Mt. Pleasant Brands					
2-16-2.....	1.65		16.00		2.00
2-12-2.....	1.65		12.00		2.00
1-12-1.....	0.82		12.00		1.00
1-8-1.....	0.82		8.00		1.00
2-12-0.....	1.65		12.00		
15-3 Phosphate and Potash.....			15.00		3.00
15-2 Phosphate and Potash.....			15.00		2.00
12-2 Phosphate and Potash.....			12.00		2.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (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	
10-4 Phosphate and Potash.....			10.00		4.00
20% Superphosphate.....			20.00		
16% Superphosphate.....			16.00		
Bone Meal and Phosphate.....	1.23	20.00	11.00	9.00	
Steamed Bone Meal.....	2.50	22.00			
Raw Bone Meal.....	3.70	20.00			
4-12-0 Fertilizer.....	3.30		12.00		
2-14-2 Fertilizer.....	1.65		14.00		2.00
2-12-6 Fertilizer.....	1.65		12.00		6.00
14-4 Phosphate and Potash.....			14.00		4.00
3-12-4 Fertilizer.....	2.47		12.00		4.00
3-8-6 Fertilizer.....	2.47		8.00		6.00
Natural Guano Co., Aurora, Illinois					
"Sheep's Head" Pulverized Sheep Manure.....	2.25		1.00	0.25	2.00
Norwegian Nitrogen Products Co., 17 State Street, New York					
Norwegian Nitrate of Lime.....	12.00				
Oyama Products Co., Newburgh, N. Y.					
Oyama Plant Food.....	17.00		17.35		24.52
The Phosphated Manure Co., Chicago, Ill. Wizard Brand					
Phosphated Manure.....	0.82		9.00		1.00
Acid Phosphate.....			16.00		
The Pulverized Manure Co., Chicago, Ill. Wizard Brand					
Cattle Manure.....	1.80		1.00		1.00
Sheep Manure.....	2.00		1.25		2.00
Read Phosphate Co., Nashville, Tenn.					
Corn, Wheat and Oat Grower.....	0.82	17.00	7.00	10.00	1.00
Blood and Bone No. 1.....	1.65	13.00	8.00	5.00	2.00
Missouri Special.....	0.41	12.00	8.00	4.00	4.00
Premium Grain Grower.....	1.65	15.00	12.00	3.00	2.00
Missouri Grain Special.....	0.82	15.00	12.00	3.00	1.00
Wheat and Clover Grower.....	0.82	15.00	12.00	3.00	2.00
Red Diamond Favorite.....	1.65	15.00	12.00	3.00	
High Grade Bone and Potash.....		14.00	12.00	2.00	2.00
High Grade Potash Mixture.....		16.00	14.00	2.00	2.00
Special High Grade Phosphate.....		18.00	16.00	2.00	
Raw Bone Meal.....	3.70	20.00			
Half and Half.....	1.85	20.00	10.00	10.00	
High Grade Truck Fertilizer.....	2.47	13.00	8.00	5.00	5.00
High Grade Blood and Bone.....	1.65	15.00	12.00	3.00	4.00
Red Diamond 2-16-2.....	1.65	18.00	16.00	2.00	2.00
Red Diamond 0-10-10.....		15.00	10.00	5.00	10.00
Premium Phosphate.....		19.00	18.00	1.00	
M. C. Read & Son, Webb City, Mo.					
Insecticide and Tree Grower.....	2.00		1.00	1.70	5.00
C. F. Schumaker Fertilizer Co., 1722 Missouri Avenue, St. Louis, Mo.					
Spec. Lawn and Floral Food.....	2.00		4.00		3.00
Truck Grower No. 1.....	2.00		6.75		3.75
Spec. Crop Grower.....	0.82		8.00		3.75
Pure Ground Burley Tobacco Stems.....	2.00				7.50
Nitrate of Soda.....	15.50				
Treated Phosphate.....			16.00		
Sulphate of Ammonia.....	20.00				

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (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	
Pulverized Sheep Manure.....	1.65		1.00		2.00
Wheat Corn and Clover Spec.....			10.00		4.00
Reenforced Sheep Manure.....	2.00		4.50		3.50
The Southern Cotton Oil Co., Little Rock, Arkansas Sco-Co Brands					
Carolina Special.....	2.47		9.00		3.00
Choice.....	3.30		10.00		4.00
Bre'r Rabbit.....	1.65		10.00		2.00
Cotton Hustler.....	1.65		10.00		1.00
Jasper Special.....	0.00		15.00		2.00
Corn Special.....	2.47		8.00		3.00
Grain Grower.....	1.65		8.00		3.00
Wheat Special.....	1.65		10.25		4.00
Quick Step.....	1.65		9.00		2.00
Acid and Potash.....	0.00		10.00		4.00
Special Mixture.....	0.82		10.00		1.00
Acid Phosphate.....	0.00		16.00		0.00
Springfield Seed Co., Springfield, Mo.					
Pulverized Sheep Guano.....	2.00		2.00	1.00	1.00
The Sterling Fertilizer Co., Union Stock Yards, Chicago, Illinois Sterling Brands					
Harvest Queen.....	1.65		12.00	2.00	6.00
Superior.....	1.65		12.00	2.00	2.00
Grain Grower.....	0.82		9.00	2.00	1.00
Universal.....	1.65		12.00	2.00	
Fourteen Four.....			14.00	0.50	4.00
16% Acid Phosphate.....			16.00	1.00	
18% Acid Phosphate.....			18.00	0.50	
Sterling Pure Bone Meal.....	1.85	28.00			
Bone and Acid Phosphate, Half and Half.....	0.82		12.00	*11.00	
Sterling Bone Base.....	1.65		14.00	* 4.00	2.00
Swift & Company, National Stock Yards, Illinois Swift's Brands					
Champion Wheat and Corn Grower.....	1.65	13.00	12.00	1.00	2.00
Special Grain Grower.....	1.65	11.00	10.00	1.00	2.00
Diamond "K" Grain Grower.....	0.82	12.50	12.00	0.50	1.00
Diamond "A" Fertilizer.....	2.47	9.00	8.00	1.00	3.00
Red Steer 3-8-6 Fertilizer.....	2.47	9.00	8.00	1.00	6.00
Red Steer 3-12-4 Fertilizer.....	2.47	13.00	12.00	1.00	4.00
Red Steer 2-12-6 Fertilizer.....	1.65	13.00	12.00	1.00	6.00
Red Steer 4-12-0 Fertilizer.....	3.29	13.00	12.00	1.00	
Blood and Phosphate Fertilizer.....	1.65	13.00	12.00	1.00	
Red Steer 0-14-4 Fertilizer.....			14.00		4.00
12-4 Phosphate and Potash Fertilizer.....			12.00		4.00
Bone Meal and Potash Fertilizer.....	0.82	18.00			4.00
Red Steer 2-16-2 Fertilizer.....	1.65	17.00	16.00	1.00	2.00
Bone Meal and Phosphate Fertilizer.....	0.82	20.00			
High Grade Acid Phosphate Fertilizer.....			16.00		
Red Steer 20% Acid Phosphate Fertilizer.....			20.00		
2 1/4-29 Bone Meal Fertilizer.....	1.85	29.00			
Bone Meal Fertilizer.....	2.47	24.00			
Raw Bone Meal Fertilizer.....	3.70	23.00			
Tennessee Chemical Co., Chicago, Illinois Ox Brands					
2-16-2 Fertilizer.....	1.65		16.00	0.50	2.00
2-12-2 Fertilizer.....	1.65		12.00	0.50	2.00
4-12 Fertilizer.....	3.30		12.00	0.50	
12-4 Fertilizer.....			12.00	0.50	4.00
16% Acid Phosphate.....			16.00	0.50	

*From Bone.

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Available	Insoluble	
		Per Cent	Per Cent	Per Cent	
20 % Phosphate.....			20.00	0.50	.....
2-12-6 Fertilizer.....	1.65		12.00	0.50	6.00
3-8-6 Fertilizer.....	2.47		8.00	0.50	6.00
Bone Meal and Acid Phosphate.....	0.82	20.00	11.00	9.00	.....
Bone Meal.....	2.47	24.00			.....
1-12-1 Fertilizer.....	0.82		12.00	0.50	1.00
Standard.....	1.65		8.00	0.50	2.00
The Toyah Valley Sulphur Company,					
New Orleans, La.					
Agricultural Sulphur Compound.....	None	None	None	Trace	None
	Free Sulphur %	Un-combined Sulphur tri-oxide %	Com-bined Sul-phur tri-oxide %		
	5.00	0.50	20.00		
Tri-State Fertilizer Co.,					
Memphis, Tennessee					
1 Missouri Wheat Manure.....	0.82		12.00	1.00	1.00
2 Ideal Grain Manure.....	1.65		12.00	1.00	1.00
3 Ideal Grain Fertilizer.....	1.65		14.00	1.00	1.00
4 Ideal Truckers Special.....	2.50		8.00	1.00	6.00
5 High Grade 16 % Acid Phosphate.....			16.00	1.00	.....
6 Tri-State Super Phosphate 18 %.....			18.00	1.00	.....
Tupelo Fertilizer Factory,					
Tupelo, Mississippi					
Tupelo Special High Grade 18 % Acid Phosphate.....			18.00	1.00	.....
Tupelo High Grade 16 % Acid Phosphate.....			16.00	1.00	.....
Tupelo Special H. G. Phosphate and Potash.....			12.00	1.00	4.00
T-F-F Potash Special.....			14.00	1.00	4.00
Wheat Belt High Grade Grain Fertilizer.....	1.65		12.00	2.00	2.00
Mo-Kansas Special Grain Manure.....	1.65		14.00	2.00	2.00
Wheat Belt High Grade Special Fertilizer.....	1.65		16.00	2.00	2.00
Tupelo Special High Grade Fertilizer.....	2.50		12.00	2.00	4.00
Tupelo High Grade Truckers Special.....	2.50		8.00	1.00	6.00
Tupelo Half and Half Bone and Phos. Mixture.....	1.25	20.00	11.00	9.00	from bone
Tupelo Pure Steam Bone Meal.....	2.50	24.00			.....
United States Gypsum Co.,					
Wilmington, Delaware					
"Ben Franklin Agricultural Gypsum" (Land Plaster)					
This product consists of gypsum, which contains the following:					
	Ca SO ₄ · 2H ₂ O.....	93.16 %			
	Ca CO ₃	2.54 %			
	Mg CO ₃.....	.70 %			
Virginia-Carolina Chemical Co.,					
Memphis, Tenn.					
V-C High Grade Top Dresser.....	6.17		4.00		2.50
V-C Garden Truck Special.....	4.94		6.00		4.00
Memphis Truck.....	3.30		10.00		4.00
Royal Vegetable Fertilizer.....	2.47		8.00		4.00
Eureka High Grade Guano.....	2.47		9.00		3.00
V-C Double Strength Money Saver.....	1.65		16.00		2.00
Good Luck Wheat Special.....	1.65		12.00		2.00
Good as Gold Standard Guano.....	0.82		12.00		1.00
Owl Brand Ammoniated Bone.....	0.82		10.00		1.00
Good Luck Guano.....	0.82		8.00		1.00
V-C Side Application.....	4.94		8.00		.....
V-C Dixie Special Without Potash.....	3.00		9.00		.....
Crescent Wheat Grower.....	1.65		12.00		.....
Capital Ammoniated Superphosphate.....	1.65		10.00		.....

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1923 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insolu- ble	
		Per Cent	Per Cent	Per Cent	
Tip Top Nitrogen Compound.....	13.16			2.00	
V-C Steamed Bone Meal.....	2.50	22.00			
V-C Raw Bone Meal.....	3.70	20.00			
V-C Half and Half Bone and Phosphate.....	1.23	20.00	11.00	9.00	
V-C Champion Ammoniated Superphosphate.....	3.30		12.00		
V-C Progressive Farmer Fertilizer.....	1.65		14.00		2.00
V-C Star Brand Fertilizer.....	1.65		12.00		6.00
V-C Special Phosphate and Potash.....			14.00		4.00
V-C Special Vegetable Grower.....	2.47		12.00		4.00
V-C Truck Fertilizer.....	2.47		8.00		6.00
V-C 1-12-4 Fertilizer.....	0.82		12.00		4.00
Muriate of Potash.....					48.00
V-C Plant Food for Vegetables, Lawns and Flowers.....	4.94		8.00		3.00
National Ammoniated Superphosphate.....	0.82		10.00		
Victor Bone and Potash Compound.....			15.00		3.00
Monarch Grain Grower.....			15.00		2.00
V-C Phosphate and Potash.....			10.00		4.00
V-C Grain Grower.....			12.00		2.00
Royal Phosphate and Potash Compound.....			12.00		1.00
Capital Phosphate and Potash Compound.....			10.00		2.00
Black Diamond Phosphate and Potash Compound.....			10.00		1.00
V-C 20% Superphosphate.....			20.00		
V-C 18% Superphosphate.....			18.00		
V-C 16% Superphosphate.....			16.00		
Victor 16% Superphosphate.....			16.00		
Victor 14% Acid Phosphate.....			14.00		
Genuine Imported Kaifnit.....					12.40
Wessel, Duval & Co.,					
25 Broad Street					
New York City, N. Y.					
Nitrate of Soda.....	14.87				
Nitrate of Soda containing Potash.....	12.00				8.00
Wilson & Co.,					
New Albany, Ind.					
Red "W" Brands					
Half Thirteen One.....	0.41	15.50	13.00	2.50	1.00
Special Grain Fertilizer.....	0.82	9.00	8.00	1.00	1.00
One Eight Three.....	0.82	9.00	8.00	1.00	3.00
One Eight Eight.....	0.82	9.00	8.00	1.00	8.00
Corn and Wheat Special.....	1.64	9.00	8.00	1.00	2.00
Two Eight Five.....	1.64	9.00	8.00	1.00	5.00
Two Twelve Two.....	1.64	13.00	12.00	1.00	2.00
Two Twelve Six.....	1.64	13.00	12.00	1.00	6.00
Two in One.....	1.64	17.00	16.00	1.00	2.00
Three Ten Four.....	2.46	11.00	10.00	1.00	4.00
Two Twelve.....	1.64	13.00	12.00	1.00	
Fourteen Four.....		15.00	14.00	1.00	4.00
Ten Five.....		11.00	10.00	1.00	5.00
Ten Ten Hummer.....		11.00	10.00	1.00	10.00
Twelve Twelve.....		13.00	12.00	1.00	12.00
Eight Twenty-four.....		9.00	8.00	1.00	24.00
Special Mixture (Bone and A. P.).....	0.62	20.00	12.00	8.00	
Special Bone Meal (Steamed Bone).....	0.82	30.00			
Half and Half.....	2.05	12.00	6.00	6.00	1.00
Raw Bone Meal.....	3.70	23.00			
Acid Phosphate 16%.....		17.00	16.00	1.00	
Acid Phosphate 18%.....		19.00	18.00	1.00	

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 1922			Fertilizers classified for 1922					Misc.
	Spring	Fall	Total	Bone	Acid Phosphate	Mixed Fertilizer			
						High grade	Med. grade	Low grade	
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Adair	56	63	119	5	38	66	10		
Andrew									
Atchison									
Audrain	114	1249	1363	135	600	280	184	111	53
Barton	140	1619	1759	296	834	536	73	10	10
Barry	210	284	494	57	81	189	153	14	
Bates		444	444	73	239	80	48		4
Benton	49	341	390	66	126	105	89	4	
Bollinger	51	187	238	10	55	72	56	45	
Boone	44	467	511	53	345	52	21		40
Buchanan	39	45	84	3	39	27	8		7
Butler		17	17	12	5				
Cape Girardeau	56	123	179	15	48	79	9	28	
Caldwell	15	134	149	33	58	58			
Callaway	60	577	637	78	362	84	80	13	20
Camden									
Carroll	15	106	121	37	26	50		8	
Carter		60	60			25	12	23	
Cass	5	162	167		131	27	9		
Cedar	19	398	417	70	274	37	28	6	2
Chariton	50	156	206	6	123	63	14		
Christian	91	369	460	32	215	122	87	4	
Clark									
Clay		26	26	10		16			
Clinton	15	60	75	12	27	32	4		
Cole	49	510	559	14	286	129	55	26	49
Cooper	17	476	493	13	207	254	19		
Crawford	40	143	183	40	61	42	17	8	15
Dade		615	615	173	190	199	30	23	
Dallas									
Daviess	2	55	57	14	43				
Dekalb		45	45		45				
Dent	10	83	93	13	37	16	5	2	20
Douglass	18	55	73	29	8	19	17		
Dunklin	151		151	4	13	65	69		
Franklin	111	1103	1214	143	481	384	126	64	16
Gasconade	16	518	534	8	243	117	73	75	18
Gentry	19	26	45		45				
Greene	193	885	1078	91	362	491	119		15
Grundy	9	115	124	10	100	13			1
Harrison	15	65	80	2	63	15			
Henry	25	252	277	14	193	48	18	4	
Hickory		91	91		68	5	18		
Holt									
Howell	119	223	342	7	145	84	59	47	
Howard		69	69	15	10	43	1		
Iron	2	67	69	3	32	23	10	1	
Jackson	56	49	105	63	28		1	4	9
Jasper	315	2171	2486	229	561	1310	298	85	3
Jefferson	1	188	189	9	65	52	28	20	15
Johnson	16	133	149		83	43	23		
Knox	1	248	249	59	163	9		18	
Laclede	85	358	443	11	154	96	169	13	
Lafayette		5	5	2	3				
Lawrence	310	1544	1854	214	699	532	325	82	2
Lincoln	331	2160	2491	205	771	764	603	116	32
Linn	90	61	151	6	78	19	48		
Lewis	103	721	824	61	490	167	77	2	27
Livingston	25	30	55	15	33	4	3		
McDonald	4	98	102	1	78	3	15	5	
Macon	2	311	313		14	255	40	4	
Madison	66	185	251	43	79	90	13	26	
Maries		90	90	16	9	44	19	2	
Marion		382	382	46	143	129	47	17	
Mercer									
Miller	19	420	439	17	261	87	66	8	
Mississippi	15	1	16			1	15		2
Monroe	37	855	892	170	337	303	57	23	2
Montgomery	296	1705	2001	157	1137	250	368	57	32
Morgan	32	668	700	70	260	181	184	5	
Moniteau	15	573	588	54	262	139	80	53	
Newton	242	1097	1339	85	753	380	90	31	

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

COUNTY	Sales in 1922			Fertilizers classified for 1922					Misc.
	Spring	Fall	Total	Bone	Acid Phosphate	Mixed Fertilizer			
						High grade	Med. grade	Low grade	
New Madrid.....	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Nodaway.....	2	68	70	...	1	...	...	...	1
Osage.....	17	228	245	9	72	65	81	18	...
Oregon.....	...	40	40	...	20	2	18	...	...
Ozark.....	...	...	...	...	...	...	...	...	...
Pemiscot.....	...	...	...	...	...	...	...	...	...
Perry.....	55	154	209	4	69	101	13	22	...
Pettis.....	81	450	531	37	292	116	74	1	11
Phelps.....	77	339	416	58	201	133	16	8	...
Pike.....	282	1126	1408	72	628	429	194	68	17
Platte.....	...	...	...	...	...	...	...	...	...
Polk.....	119	490	609	71	204	160	65	109	...
Pulaski.....	84	150	234	27	35	100	48	8	16
Putnam.....	...	...	...	...	...	...	...	...	...
Ralls.....	66	582	648	124	175	282	22	45	...
Randolph.....	40	34	74	1	33	40	...	...	...
Ray.....	...	78	78	17	17	39	5	...	...
Reynolds.....	4	...	4	...	...	1	...	...	3
Ripley.....	280	15	295	...	137	150	8	...	...
Saline.....	25	47	72	...	47	10	5	10	...
Schuyler.....	15	151	166	11	51	79	25	...	...
Scott.....	...	28	28	12	...	16	...	...	...
Scotland.....	...	20	20	20	...	...	...	...	...
Shannon.....	...	35	35	...	32	3	...	...	...
Shelby.....	40	844	884	99	476	253	42	14	...
St. Charles.....	128	1053	1181	128	720	223	57	38	15
St. Clair.....	15	208	223	2	100	105	16	...	...
St. Francois.....	114	705	819	67	306	318	104	23	1
Ste. Genevieve.....	...	24	24	...	14	10	...	...	...
St. Louis.....	198	100	298	20	50	32	4	13	179
Stoddard.....	...	101	101	44	13	30	14	...	...
Stone.....	18	43	61	23	20	1	17	...	...
Sullivan.....	...	68	68	13	26	14	15	...	...
Taney.....	...	...	...	...	...	...	...	...	...
Texas.....	115	294	409	3	269	87	5	44	1
Vernon.....	37	479	516	50	246	184	21	15	...
Warren.....	104	857	961	134	227	358	102	16	124
Washington.....	51	267	318	50	16	88	98	66	...
Wayne.....	17	90	107	1	80	26	...	...	...
Webster.....	337	258	595	33	166	174	167	50	5
Wright.....	81	217	298	22	95	119	50	12	...
Worth.....	...	...	...	...	...	...	...	...	...
Total.....	6,288	35,980	42,268	4,281	17,625	12,554	5,376	1,667	765

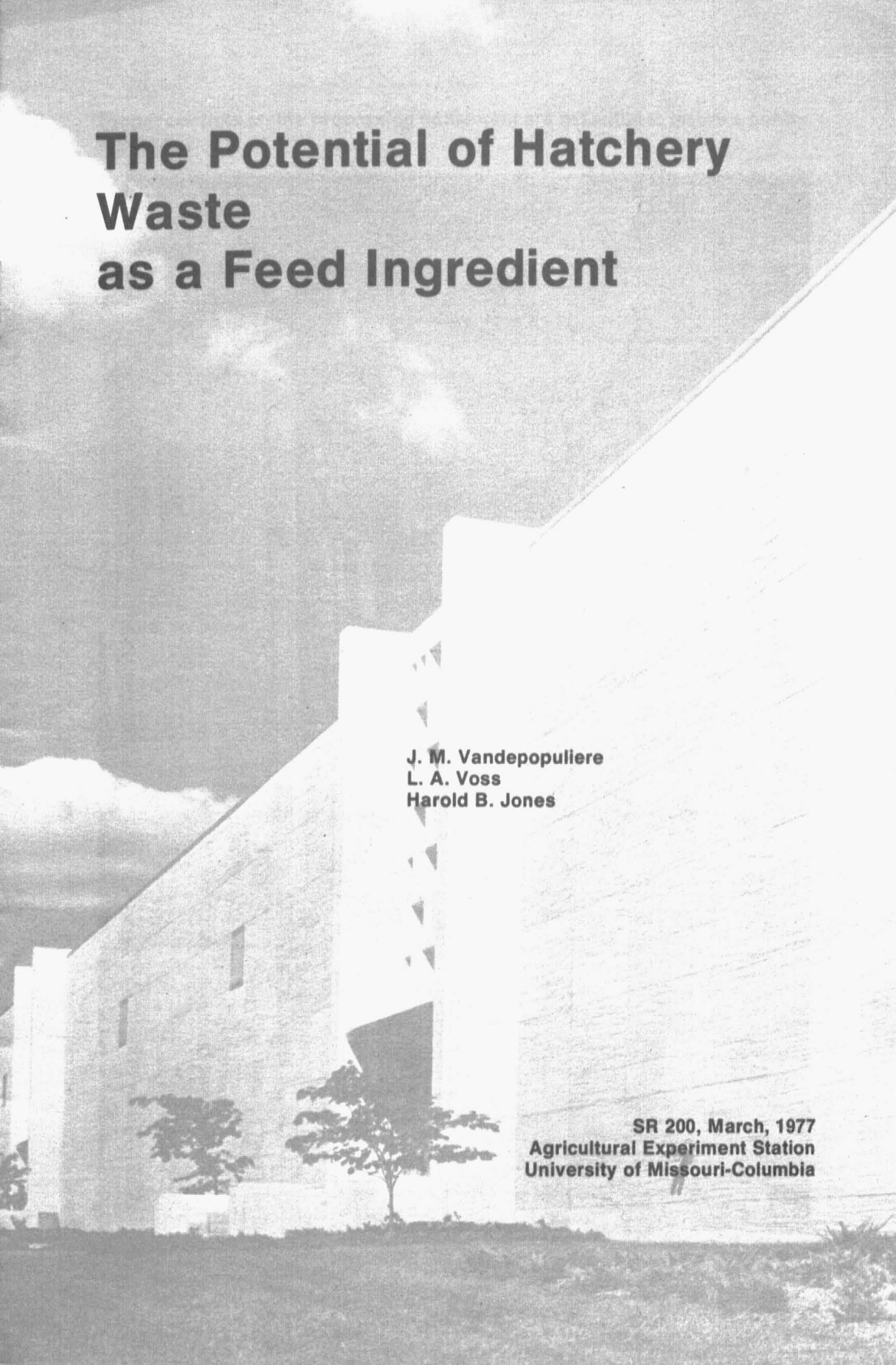
FINANCIAL STATEMENT

MISSOURI AGRICULTURAL EXPERIMENT STATION

in account with

FERTILIZER CONTROL FUND

For the Year 1922	Dr.	Cr.
RECEIPTS		
Jan. 1, 1922, Balance as shown by last report	\$ 9,789.45	.....
Receipts from sale of tags, 1922	22,641.09	.....
EXPENDITURES		
Salaries		\$13,886.24
Labor		1,668.60
Publications		4,594.50
Postage and Stationery		2,913.07
Freight and Express		737.52
Heat, Light and Water		221.57
Chemical Supplies		1,717.73
Seeds, Plants and Sundry Supplies		631.85
Fertilizers		553.83
Library		134.47
Feeding Stuffs		2,438.43
Tools, Implements and Machinery		305.30
Furniture and Fixtures		241.52
Contingent .....		.....
Scientific Apparatus		157.64
Livestock		2,191.79
Traveling Expense		1,125.95
Building and Repairs		100.27
Total Expenditures		\$33,620.28
Overdraft December 31, 1922	1,189.74	.....
	\$33,620.28	\$33,620.28



The Potential of Hatchery Waste as a Feed Ingredient

**J. M. Vandepopuliere
L. A. Voss
Harold B. Jones**

**SR 200, March, 1977
Agricultural Experiment Station
University of Missouri-Columbia**

Proper controls on the processing equipment are essential to insure a quality product.



Dehydrated and heated hatchery by-product meal.

