

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
BULLETIN 168

INSPECTION OF COMMERCIAL FERTILIZERS: 1919

COLUMBIA, MISSOURI
JANUARY, 1920

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Inspection of Commercial Fertilizers In Missouri: 1919

Report of the Director

The purchase and use of fertilizers in the State of Missouri is on a better basis than ever before in the history of the fertilizer industry. The fertilizers in general are more uniformly true to the guaranteed chemical composition submitted by the manufacturers at the time of registration. Because of the generally better quality of fertilizers sold and because of the more intelligent use, the application of fertilizers is more profitable.

In the State of Missouri fertilizing materials are chiefly applied to wheat, and the high price of this grain has stimulated larger use of fertilizers during the last two years. There is reason to believe that the increased use of fertilizers will continue in this state because the results from their use have been, in the main, very satisfactory.

The fertilizer inspection deals primarily with three classes: the farmers, dealers and manufacturers. It is important that each of these keep clearly in mind the provisions of the law and guard against violations.

ADVICE TO FARMERS

The farmers will protect their own interests by buying the products of manufacturers whose goods, on analysis, show uniformly that they contain as a minimum the plant food indicated by the guarantee. The suggestion is that farmers use this report as a guide from whom to buy in 1920.

The farmer should never buy a fertilizer which does not have printed on the sack, or on a label attached to the sack, the guaranteed chemical composition of the contents, the name of the manufacturer and a registration tag signed by the Director of the Experiment Station. Fertilizer packages which do not comply with these requirements are sold in violation of the law.

When a fertilizer package is accompanied by the name of the manufacturer, the guaranteed chemical composition and a regis-

tration tag furnished by the Experiment Station the farmer may feel reasonably certain that the contents of the package contain the fertilizing materials indicated on the package.

ADVICE TO DEALERS

There is no violation of the law when a farmer uses fertilizers which have not been properly registered and when the guaranteed chemical composition has not been printed on the package; but it is a definite violation of the law for a dealer to buy for sale or to sell fertilizers which have not been registered in the Experiment Station, and which do not have the guaranteed chemical composition printed on the package, and which are not accompanied by a registration tag. All fertilizers which are not so registered and labeled are sold in violation of the Missouri law.

ADVICE TO MANUFACTURERS

It is the duty of manufacturers to register their fertilizer brands with the Director of the Experiment Station before offering such brands for sale in this state.

It is also required of manufacturers that they shall print precisely the same guarantee on the fertilizer package that has been registered with the Director of the Experiment Station. It is a violation of the law to register a brand having a guaranteed chemical composition and selling the same brand with a different chemical composition printed on the package.

It is also a violation of the law to ship fertilizers into this state, unless there is attached to every package a registration tag supplied by the Experiment Station. It is important that manufacturers affix the registration tags before shipping the fertilizers from the factory.

Such violations of the law as have been observed on the part of manufacturers have been mainly due to the rush of filling final orders late in the season.

If the farmer, dealer and manufacturer will each scrupulously observe the requirements of the law as set forth in the above directions there will be an increased development in the use of fertilizers in this state and greater satisfaction on the part of farmers in connection with the purchase and use of fertilizing materials.

F. B. MUMFORD,
Director of the Experiment Station.

Report of the Chemist

L. D. HAIGH

INSPECTION

During the year 1919, 101 towns located in 48 counties were visited by the fertilizer inspectors. In all 426 samples were collected representing 187 brands. The impending railroad strike in August delayed the bulk of the fertilizer shipments until September whereas last year most of the fertilizer was in the hands of the farmer by September 1st.

It was expected that supplies of potash would be obtained for the fall fertilizer trade from Alsace-Lorraine. But these supplies failed to materialize in any quantity and while many brands were offered containing higher per cents of potash than last year, apparently only small amounts of such brands were sold as very few were found on the market by the inspectors. Table 8, in this report indicates the amount of fertilizer sold in the various counties of Missouri in the last four seasons. From this table it would appear that the tonnage of fertilizer shipped by the manufacturers is about the same as last year. The sale of registration tags in 1918 indicated sales of 85,000 tons to 90,000 tons, and the sales for 1919 indicate a like amount. The amount used on the land this year is evidently considerably less since the acreage sown to wheat this year is approximately sixty percent of last year. To interpret Table 8, therefore, we believe that the reports of shipments in 1918 were incomplete and should have indicated 20,000 tons more in the aggregate for that year. The reports for 1919 are probably more nearly correct as the cooperation of all the companies was especially solicited at the beginning of the year. The fertilizer companies evidently supplied themselves with registration tags in anticipation of a tonnage sale equal to that of last year, but the sum total of shipments made are probably short by about 20,000 tons.

The inspectors found some cases of failure to comply with the Missouri Fertilizer Law as follows:

1. *Cases where fertilizer brands had not been registered:*

Walker's Excelsior Plant Food, made by the Flower City Plant Food Company, Rochester, N. Y., and Red Snapper Plant Food made by the National Plant Food Company, Eau Claire, Wis., were found on sale at the store of the St. Louis Seed Com-

pany, St. Louis. Both of these manufacturers have since registered their goods with the Missouri Agricultural Experiment Station according to law.

Swift's Ammoniated Bone Phosphate found in the stock of Lipscomb Grain and Seed Company, Liberal; Swift's Pulverized Sheep Manure at the store of the St. Louis Seed Company; Swift's Special Bone Meal in the hands of Hert-Roth Company, California, and of Joe Edde, Weaubleau; Swift's Tankage and Bone Phosphate at the store of F. H. Kaase Hardware Company, Monett; and Swift's Pioneer Grain Grower No. 2 at the warehouse of Greene County Farmers' Sales Association, Springfield, had not been registered prior to above sales. All of these brands were registered by Swift and Company upon notification of their failure to comply with this provision of the law.

2. Cases where the registration tags of the Experiment Station had not been attached to the shipment:

The Schisler Seed Company, St. Louis, Missouri, had made up small packages of Bone Black Fertilizer No. 2, made by the American Agricultural Chemical Company, for the retail trade by weighing up small amounts out of the large sack purchased from the manufacturer.

In like manner the St. Louis Seed Company were retailing small packages of Swift's Bone Meal Fertilizer and of Swift's Pulverized Sheep Manure made up from the larger sacks purchased from the company. The Schisler Seed Company and the St. Louis Seed Company were notified by the inspection service to affix the registration tags of the Missouri Agricultural Experiment Station before selling the packages.

A number of sacks of Shin Bone Wheat Grower manufactured by the Bone and Potash Fertilizer Company, Carthage, were found with the People's Elevator Company, Reeds. It was claimed that the registration tags were torn off in the handling of the sacks. The dealer was ordered to affix these tags again to the sacks before sales were made.

A shipment of Missouri Grain Special Fertilizer, Soluble Bone Fertilizer and Pure Raw Bone Meal put out by Read Phosphate Company, Nashville, Tenn. was found without registration tags in the hands of the Peoples' Elevator Company, Reeds. Upon being notified the Read Phosphate Company supplied the tags to the dealer to be affixed to the sacks.

The Ostner Mercantile Company of Diehlstadt had on hand 200 sacks of Hummer Grain Grower manufactured by Hirsh Stein and Company, Chicago, which were without registration tags. Upon notification from the inspection service the necessary tags for the stock were provided by the United Chemical and Organic Products Company, successors to Hirsh Stein and Company.

The Schooler Grain Company of Jasper had on hand a stock of Interstate Raw Bone Fertilizer made by the Interstate Fertilizer Company of Webb City, which did not have registration tags attached. It was stated that tags had been sent separately by the company but had not been attached. The dealer was notified that these registration tags must be attached before sales of the fertilizer were made.

A shipment of two tons of Wizard Brand Sheep Manure to the Schisler-Corneli Seed Company and a carload of the same brand to the Stark Brothers Nurseries Company, Marionville, were without the registration tags of the Missouri Agricultural Experiment Station. Upon notification of this fact to the manufacturer, the Pulverized Manure Company, the necessary tags for these shipments were provided by them.

Packages of Red Snapper Plant Food manufactured by the National Plant Food Company were found on sale at the store of the Jackson Drug Company, Joplin, which did not have the registration tags of the Agricultural Experiment Station attached, altho these goods had been registered some two or three months previous. The company was notified to send tags at once to be affixed to the packages.

A quantity of Swift and Company's Raw Bone Meal was found at the warehouse of the Greene County Farmers' Sales Association, at Springfield, which was not provided with the registration tags of the Agricultural Experiment Station. The inspection service ordered the tags to be placed on the sacks at once.

3. *Cases where goods were incorrectly labeled:*

The packages of Bone Black Fertilizer No. 2 found at the store of the Schisler Seed Company and referred to under 2 above, were labeled as follows:

BONE BLACK

Nitrogen 2%,

Phosphoric Acid 2%,

Potash 1½%.

This is not a correct statement of the guaranteed composition of the above brand of fertilizer (see Table 5). Moreover the name and address of the manufacturer are not given on the label.

The packages of Swift's Bone Meal Fertilizer (2.47-24) found at the store of the St. Louis Seed Company were labeled as follows:

BONE MEAL

	Per cent
Nitrogen	1.65
(as ammonia).....	2.00
Phosphoric Acid	20.00
(as Bone Phosphate)	44.00

This is not a correct statement of the chemical composition of the fertilizer in the package (See Table 5). Moreover the name and address of the manufacturer does not appear thereon.

The packages of Pulverized Sheep Manure previously referred to, also found at the store of the St. Louis Seed Company were labeled as follows:

PULVERIZED SHEEP MANURE

	Per cent
Nitrogen	1.8
Ammonia	2.1
Available Phosphoric Acid.....	1.
Potash	1.

This is an incorrect statement of the guaranteed composition of the fertilizer contained therein. Ammonia should also be stated on the label as the equivalent of the nitrogen. Moreover the name and address of the manufacturer should appear upon the label.

A shipment of Cudahy's Blue Ribbon Steamed Bone Meal was found at the elevator of the J. A. Sellers Grain Company, Lathrop. This shipment bore labels prescribed by the laws of the State of Kansas guaranteeing phosphorus instead of total phosphoric acid.

The inspection service found a shipment of Acid Phosphate from the Thomas Ruddy Company, Kansas City, Kan., at the warehouse of Farmers' Exchange, Liberal, Missouri, whose only label consisted of the following words and figures stamped upon the back of the registration tag of the Missouri Agricultural Experiment Station affixed to the sack:

RUDDY'S ACID PHOSPHATE

O—17½—O

According to law the name and address of the manufacturer should be given and the name of the constituents guaranteed should be given. Moreover the above figures are not a statement of the guaranteed composition of this acid phosphate as filed with the Agricultural Experiment Station.

A stock of 1-8-1 and of 1-10-1 fertilizer manufactured by the Southern Cotton Oil Company, Little Rock, Ark., and registered by them under the names of Sco-Co Pure Gold and Sco-Co Missouri Mixture, respectively, were found at the warehouse of the Vogel Produce Company, Tipton, both bearing the brand name Special Mixture for Wheat, Oats and other Grains. This is a name used under the registration of the previous year. Another shipment of Sco-Co Pure Gold by the Southern Cotton Oil Company, to Nicely & Company, Aurora, was found labeled guaranteeing nitrogen 1.00 per cent. This brand as registered guarantees nitrogen as 0.82 per cent. The company was notified of these errors with instructions to correct the same.

Sacks of fertilizer, from Darling and Company, Swift and Company and the American Agricultural Chemical Company, bearing labels difficult or impossible to read were found in a number of places by the inspectors. The law provides that the statements of the label shall be plainly printed.

The attention of dealers and other purchasers of fertilizers is called to the fact that all shipments of fertilizer received by them should have affixed to each sack the registration tag of the Missouri Agricultural Experiment Station. Purchasers should refuse to accept shipments where tags are not attached unless a satisfactory explanation together with the necessary tags sent separately is forthcoming. In any case where a shipment of sacks and tags separate from each other has been accepted from the manufacturer, it becomes the duty of the purchaser to attach these tags to the sacks at once.

REGISTRATION

During the year 1919, 431 brands of fertilizers were registered for sale in Missouri by 37 manufacturers; in 1918 there were 437 brands registered by 26 manufacturers, and in 1917 there were 427 brands registered by 23 manufacturers.

Of the total number, 431, the fertilizer inspectors found and sampled 187 different brands. Purchasers sent in five brands not obtained by the inspectors making in all 192 brands obtained for analysis. The remaining brands probably found no sale in the state or at least in only very small quantities.

The names of manufacturers with their list of brands of fertilizer which will be offered for sale in 1920 will be found in Table 7. This is not a complete list as other registrations will be filed

after this bulletin goes to press. Fertilizers cannot be legally sold in the state unless registration of the brand name and guaranteed composition is filed with the Missouri Agricultural Experiment Station before sales are made. By this registration the manufacturer guarantees that he will offer for sale only those brands registered and that each brand will have the chemical composition stated in the registration.

The fertilizer law provides that every sack of fertilizer sold must be plainly labeled showing its brand name, guaranteed composition, and name and address of the manufacturer. There must also be attached to each sack a tag issued by the Missouri Agricultural Experiment Station stating that this fertilizer has been registered for the year of the sale by the manufacturer. This tag does not guarantee to the purchaser that the fertilizer contains the plant food indicated by the label but states merely that the fertilizer is registered and that its sale is permitted.

The Missouri fertilizer law makes provision for the inspection of fertilizers after delivery by the manufacturers in order to show that the requirements of the law have been met. Inspectors are sent out to examine shipments of fertilizer wherever found, noting if same has been properly labeled and if registration tags of the Missouri Agricultural Experiment Station have been placed on the sacks. Samples of these fertilizers are carefully drawn by the inspector and sent to the laboratories of the Experiment Station for analysis in order to determine if the composition of the fertilizer is in accord with the guarantee. These results are published annually in a bulletin entitled "Inspection of Commercial Fertilizers" and distributed thruout the state to purchasers and manufacturers and to all others interested.

Dealers and users of fertilizer should use the annual report of the chemist on fertilizer inspection in order to familiarize themselves with the legal requirements and to learn how well the goods handled by them agree with their guarantees. When purchasing goods from some manufacturer not mentioned in the report inquiry should be made if the goods have been registered with the Missouri Agricultural Experiment Station. This constitutes a protection to the purchaser and enables the chemist to answer inquiries regarding the fertilizer.

Brands of package fertilizer for use with flowers, plants and gardens are being offered for sale in increasing numbers. The large profits to the seller of these goods constitutes the main rea-

son for their sale. Purchasers are invited to inquire of the chemist concerning these brands which they are buying.

COMPARATIVE VALUATION

Market values on fertilizer materials have not been stable this year due to the unusual conditions following the cessation of war. There has been some drop in the high prices prevailing last year, for nitrogen. Accordingly, nitrogen has been changed from \$8.50 to \$7.00 per unit.

In anticipation of supplies of potash salts from Alsace-Lorraine, the price of potash fell considerably at first and the production of American potash decreased to a large extent. Failing to obtain adequate supplies from abroad manufacturers were confronted with a shortage and the price again advanced considerably but did not reach the high values of a year ago. The price of \$3.00 per unit selected for 1920 represents about an average cost this year.

Altho phosphoric acid has shown some tendency to advance in price it has not been deemed necessary to change these values. Total phosphoric acid from bone remains at \$1.00 per unit, insoluble phosphoric acid at \$0.50 per unit, and available phosphoric acid at \$1.50 per unit.

These values have been selected after consultation with the manufacturers of fertilizers sold in the state and represent average value for these materials. The basis of selection of these values is to show the average cost of manufacturing, selling and delivering a ton of high-grade fertilizer at the railroad station of the purchaser. For a low-grade fertilizer these values are much less than the actual cost since the cost of the manufacturing will be the same for all grades of fertilizer outside the value of the plant food contained therein. In buying high grade fertilizer therefore one receives a larger proportion of plant food or fertilizing value for the money expended than when purchasing low-grade fertilizer.

To explain the use of values, a unit value per ton means one per cent of 2,000 lbs., or 20 lbs. When we say that nitrogen is valued at \$7.00 per unit we mean \$7.00 for 20 lbs. of nitrogen, which is one per cent of nitrogen in the ton of fertilizer. The same statement applies to the explanation of the other units. Now considering Sample 9-92 in Table 5, we see that nitrogen is guaranteed at 0.82 per cent or that it contains 16.4 lbs. in one ton. At \$7.00 per

unit, the nitrogen in a ton of this fertilizer is guaranteed to be worth \$5.74. On analysis this was found to contain 0.86 per cent nitrogen or the nitrogen in a ton of the fertilizer was actually worth \$6.02, or 28 cents more than was guaranteed.

Of the phosphoric acid in the fertilizer there is guaranteed 0.50 per cent insoluble and 10 per cent available. The results of the analysis are 1.72 per cent insoluble and 9.78 per cent available. The guaranteed value of the insoluble is 25 cents and the found value is 86 cents, or a gain of 61 cents a ton. The guaranteed value of the available phosphoric acid is \$15.00 and the found value is \$14.67 which is a loss in value of 33 cents a ton.

Lastly, the potash guaranteed at 1.00 per cent has a guaranteed value of \$3.00 a ton and since on analysis it has been found to contain 1.01 per cent it shows an actual value of \$3.03 a ton or a gain of 3 cents a ton. Therefore, there is a gain of 28 cents a ton in the nitrogen, 61 cents a ton in the insoluble phosphoric acid, a loss of 33 cents a ton in the available phosphoric acid and a gain of 3 cents a ton in the potash.

The summary of these values is indicated in Table 1.

TABLE 1.—COMPARISON OF GUARANTEED AND ACTUAL VALUES IN FERTILIZER
Sample 9-92

Fertilizer Constituent	Guaranteed value	Found value
Nitrogen.....	\$ 5.74	\$ 6.02
Phosphoric Acid, Insoluble.....	.25	.86
Phosphoric Acid, Available.....	15.00	14.67
Potash.....	3.00	3.03
Total.....	\$23.99	\$24.58

In Table 2 will be found the summarized results in the variations in value from the guarantees of the manufacturers reported upon this year.

Out of 383 samples reported in this table, 64 give a valuation below the manufacturer's guarantee, which is 16.7 per cent of the samples analyzed. This is an improvement in conditions over the last two years as shown by the following:

In 1918, 30.6 per cent of the samples analyzed gave a valuation below the guarantee; in 1917, this value was 24.4 per cent; and in 1916, 15 per cent.

The total samples analyzed for 1919 show an average valuation

of \$1.43 a ton more than the manufacturer's guarantee. In other words, considering all brands analyzed, the consumer of fertilizer received this year on the average \$1.43 worth of plant food more in every ton than was guaranteed to him by the manufacturer.

In 1918, the purchaser received on the average \$1.07 a ton of plant food in excess of guarantee; in 1917, \$1.58 a ton; and in 1916, \$1.83 a ton.

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

Manufacturer	No. of samples analyzed	Below guarantee		Average loss ¹ per ton	Average gain or loss ² per ton
		No.	Per cent		
American Agricultural Chemical Co., Boar's Head Brands.....	17	0	0.0	0.0	\$1.72
American Agricultural Chemical Co., Bradley Brands.....	8	2	25.0	0.85	1.09
American Agricultural Chemical Co., Empire Brands.....	50	2	4.0	0.86	1.73
American Agricultural Chemical Co., Horsehoe Brands.....	28	3	10.7	0.96	1.73
Arkansas Fertilizer Co.....	6	1	66.6	4.95	1.32
Armour Fertilizer Works, Armour Brands.....	49	3	6.1	0.74	1.83
Armour Fertilizer Works, Tuscarora Brands.....	8	0	0.0	0.0	1.48
Bone and Potash Fertilizer Co.....	3	0	0.0	0.0	3.19
Commercial Fertilizer Co.....	5	2	40.0	3.06	-0.79
Cudahy Packing Co.....	4	0	0.0	0.0	4.46
Darling & Co.....	9	2	22.2	1.67	2.10
Gate City Fertilizer Co.....	6	4	66.6	2.24	-1.25
Interstate Fertilizer Co.....	14	10	71.4	1.53	-0.77
Morris & Co.....	17	2	11.8	0.68	2.08
Pulverized Manure Co.....	3	0	0.0	0.0	5.74
Read Phosphate Co.....	15	1	6.6	1.21	1.72
Southern Cotton Oil Co.....	5	1	20.0	1.64	0.98
Swift & Co., Swift's Brands.....	104	26	25.0	1.35	1.03
Swift & Co., Pioneer Brands.....	3	1	33.3	1.84	0.01
Tennessee Chemical Co.....	9	1	11.1	.44	1.88
Thomas Ruddy Co.....	5	2	40.0	1.83	0.46
Virginia-Carolina Chemical Co.....	11	1	9.1	1.24	2.18
Wilson & Co.....	4	0	0.0	0.0	1.64
Total.....	383	64	16.7	\$1.48	+\$1.43

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. When the minus sign stands in front of the figure it means that this average valuation is below the guaranteed valuation per ton by the amount indicated.

It must be remembered that Table 2 refers to the value of the plant-food units only and not to the price paid to the manufacturer or dealer. In the higher grade fertilizer this guaranteed value approximates closely the selling price but on the lower grade fertilizers it is distinctly lower than the selling price. As explained under "Comparative Valuation" it is business economy to buy fertilizer, the major part of the value of which consists of units of plant food rather than costs of manufacturing, handling, and selling.

CHEMICAL ANALYSIS

In Table 5, will be found the detailed report of the analysis of 383 samples of fertilizers. These are arranged alphabetically under the name of the manufacturer and the general brand name. Bold faced type has been used to indicate the values below the guarantee.

Each year the chemist is asked to analyze samples of fertilizer which the purchaser collects himself and sends to the laboratory. The report on the analyses of these samples will be found under "Miscellaneous Samples" at the end of Table 5. The most satisfactory results are obtained on analysis when the samples are drawn by the inspector experienced in such work. If we knew that the fertilizer in question was absolutely uniform in all the sacks, a handful could be taken from any sack for analysis with satisfactory results. But this is seldom if ever true and therefore a sample drawn in the proper way from a large number of sacks will be more truly representative of the average in composition. The Experiment Station is ready to accommodate all who desire to send in samples for analysis as long as this work can be done without interfering with the regularly inspected samples. When such samples are sent in they must be accompanied by the following information: Name and address of the sender, name and address of the manufacturer, the brand name and guaranteed composition of the fertilizer as it appears upon the label. Without this information a charge to cover the cost of the analysis must be made by the Experiment Station.

The results of testing samples of limestone which are to be used for agricultural purposes are reported in Table 6. Missouri

has a large amount of limestone deposits quite well distributed thru the state so that nearly every community is within reasonable distance of some natural source of this material. Missouri soils in most cases need limestone and to encourage the use of this material the Experiment Station will test free of charge samples of limestone which are to be used to correct soil acidity. All samples of limestone sent in for testing should be accompanied by information giving as accurately as possible the location of the rock bank, quarry or other source from which the sample was taken. The value reported is calcium carbonate equivalent and when this value reads 100 per cent or more it shows that a large amount of magnesium carbonate is present in the limestone. The presence of magnesium is not considered a detriment under usual conditions, and, moreover, the magnesium carbonate is equally good in correcting soil acidity.

The results of the analyses of the fertilizer samples of 1919, indicated in Tables 3 and 4, show that normal conditions in the manufacturing control of fertilizers have very nearly returned. Under the stress of war conditions in 1918 bringing heavy demands for fertilizer, difficulty in obtaining supplies of uniform basic material and a shortage of skilled and experienced labor, 37 per cent of the analytical determinations of fertilizer constituents gave results below the guarantee. This year with 26.1 per cent of the results below the guarantee we have more favorable comparison with the years 1917 and 1916 which showed corresponding results of 25.4 and 23 per cent, respectively. This improvement has obtained for all constituents except total phosphoric acid. Apparently the difficulties in keeping this constituent up to the guarantee are not yet eliminated.

TABLE 3.—SUMMARY OF DEFICIENCIES IN PLANT FOOD

Plant Food	Number of determinations, 1919	Determinations deficient				Improvement ¹ 1919		
		1919, per cent	1918, per cent	1917, per cent	1916, per cent	Over 1918, per cent	Over 1917, per cent	Over 1916, per cent
Nitrogen.....	334	26.0	36.2	26.6	29.9	10.2	0.6	3.9
Total Phosphoric Acid	73	39.7	40.0	10.4	9.9	0.3	-29.3	-29.8
Available Phosphoric Acid..	309	15.9	28.1	26.1	25.5	12.2	10.2	9.6
Potash.....	173	38.7	51.8	53.3	37.9	13.1	14.6	-0.6
Total.....	889	26.1	37.0	25.4	23.0	10.9	-0.7	-3.1

¹"—"Indicates an actual decrease as compared with the years 1918, 1917 and 1916.

TABLE 4.—SAMPLES ANALYZED GIVING RESULTS BELOW THE GUARANTEE

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Manufacturer	Nitrogen			Total Phosphoric Acid			Available Phosphoric Acid			Potash		All Analyses			
	Total	Deficient		Total	Deficient		Total	Deficient		Total	Deficient		Total	Deficient	
			Per Cent			Per Cent			Per Cent			Per Cent			Per Cent
American Agricultural Chemical Co., Boar's Head Brands.....	13	0	0.0	2	2	10.0	15	2	13.3	6	2	33.3	36	6	16.6
American Agricultural Chemical Co., Bradley Brands	7	1	14.3	4	1	25.0	4	0	0.0	2	2	100.0	17	4	23.5
American Agricultural Chemical Co., Empire Brands.....	40	3	7.5	4	2	50.0	46	2	4.4	22	10	45.5	112	17	15.3
American Agricultural Chemical Co., Horseshoe Brands	26	4	15.3	3	1	33.3	25	4	16.0	12	4	33.3	66	13	19.7
Arkansas Fertilizer Co.....	2	2	100.0	2	0	0.0	4	0	0.0	2	0	0.0	10	2	20.0
Armour Fertilizer Works, Armour Brands	45	13	28.8	6	2	33.3	43	3	7.0	26	3	11.5	120	21	17.5
Armour Fertilizer Works, Tuscarora Brands	7	0	0.0	0	0	.....	8	1	12.5	5	1	20.0	20	2	10.0
Bone and Potash Fertilizer Co.....	3	0	0.0	0	0	.....	3	2	66.6	3	0	0.0	9	2	22.2
Commercial Fertilizer Co.....	4	1	25.0	2	2	100.0	3	2	66.6	2	1	50.0	11	6	54.5
Cudahy Packing Co.	4	0	0.0	4	0	0.0	0	0	0	0	0	.....	8	0	0.0
Darling & Co.....	8	1	12.5	2	1	50.0	7	2	28.6	3	1	33.3	20	5	25.0
Gate City Fertilizer Co.....	4	2	50.0	3	1	33.3	3	2	66.6	3	3	100.0	13	8	61.5
Interstate Fertilizer Co.....	13	6	46.2	3	2	66.6	11	8	72.7	7	3	42.9	34	19	55.9
Morris & Co.....	17	1	5.9	9	1	11.1	8	4	50.0	6	3	50.0	40	9	22.5
Pulverized Manure Co.....	3	0	0.0	0	0	.....	3	1	33.3	3	0	0.0	9	1	11.1
Read Phosphate Co.....	13	8	61.5	2	1	50.0	13	1	7.7	9	4	44.4	37	14	37.8
Southern Cotton Oil Co.....	4	1	25.0	0	0	.....	5	3	60.0	4	1	25.0	13	5	38.0
Swift & Co., Swift's Brands.....	99	37	37.4	23	11	47.8	80	11	13.8	44	24	54.5	246	83	33.7
Swift & Co., Pioneer Brands.....	3	2	66.6	0	0	.....	3	0	0.0	3	1	33.3	9	3	33.3
Tennessee Chemical Co.....	8	1	12.5	2	1	50.0	7	1	14.3	3	1	33.3	20	4	20.0
Thomas Ruddy Co.....	3	2	66.6	1	0	0.0	4	0	0.0	1	1	100.0	9	3	33.3
Virginia-Carolina Chemical Co.....	4	1	25.0	1	1	100.0	10	0	0.0	5	2	40.0	20	4	20.0
Wilson & Co.....	4	1	25.0	0	0	.....	4	0	0.0	2	0	0.0	10	1	10.0
Total.....	334	87	26.0	73	29	39.7	309	49	15.9	173	67	38.7	889	232	26.1

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919

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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			
	American Agricultural Chemical Co., Empire Carbon Works, E. St. Louis, Ill. Boar's Head Brands													
9-63	16% Phosphate.....	A. L. Harris, Stark City.....				16.98	0.50	0.60	16.00	16.38			\$24.25	\$24.87
9-65	16% Phosphate.....	C. M. Qualles, Dudley.....				19.27	0.50	0.80	16.00	18.41			24.25	28.05
9-70	16% Phosphate.....	R. J. Ellis, Syracuse.....				17.69	0.50	0.67	16.00	17.02			24.25	25.87
9-71	16% Phosphate.....	J. Ed. Hall, La Monte.....				17.28	0.50	0.40	16.00	16.88			24.25	25.52
9-91	Ammoniated Bone and Potash.....	D. C. Hardy, Versailles.....	0.82	0.99		11.89	0.50	1.08	10.00	10.81	1.00	.99	23.99	26.66
9-92	Ammoniated Bone and Potash.....	Eldon Hardware Co., Eldon.....	0.82	0.86		11.50	0.50	1.72	10.00	9.78	1.00	1.01	23.99	24.58
9-93	Ammoniated Bone and Potash.....	R. J. Ellis, Syracuse.....	0.82	0.84		11.37	0.50	1.00	10.00	10.37	1.00	1.02	23.99	25.00
9-267	Ammoniated Bone and Potash.....	C. H. Honold, Beaufort.....	0.82	0.92		11.84	0.50	1.20	10.00	10.50	1.00	1.01	23.99	26.02
5-7	Ammoniated Phosphate.....	Perry Lee, Salisbury.....	1.65	1.81		14.65	0.50	1.05	12.00	13.58			29.80	33.57
9-94	Ammoniated Phosphate.....	C. M. Qualles, Dudley.....	1.65	1.66		13.15	0.50	1.18	12.00	11.97			29.80	30.17
9-108	Faultless Grain Grower.....	G. W. Rush, Mineral Point.....	0.82	0.84		8.02	0.50	0.64	7.00	7.39	1.00	1.03	19.49	20.38
9-279	Faultless Grain Grower.....	C. H. Honold, Beaufort.....	0.82	0.99		9.20	0.50	1.25	7.00	7.95	1.00	0.62	19.49	21.35
9-268	Good as Bone.....	C. H. Honold, Beaufort.....	1.65	1.67		13.25	0.50	2.12	10.00	11.12			26.80	29.30
9-58	Pure Raw Bone Meal.....	Henry F. Yancey, Perry.....	3.29	3.50	20.00	19.55							43.03	44.47
9-105	Special Bone Meal.....	Henry F. Yancey, Perry.....	1.65	1.78	20.00	19.54							31.55	32.40
9-97	Upland Special.....	C. M. Qualles, Dudley.....	0.82	0.88		11.87	0.50	1.02	10.00	10.84			20.99	22.94
9-98	Upland Special.....	D. C. Hardy, Versailles.....	0.82	0.92		11.69	0.50	0.92	10.00	10.77			20.99	23.06
	American Agricultural Chemical Co., Bradley Brands													
9-280	Corn and Wheat Phosphate 1916.....	L. H. Oltmann & Son, Gerald.....	0.82	1.00		9.67	0.50	0.97	8.00	8.70	1.00	0.97	20.99	23.45

5-2	Farm Mixture.....	John T. Millbank Chillicothe.....	0.82	0.99		11.63	0.50	0.84	10.00	10.79			20.99	23.54
5-1	High Grade Phosphate.....	John T. Millbank, Chillicothe.....				17.84	0.50	0.58	16.00	17.26			24.25	26.18
9-59	Pure Raw Bone Meal.....	L. F. Berge, California.....	3.29	3.44	20.00	18.12							43.03	42.20
9-274	Pure Raw Bone Meal.....	L. H. Oltmann & Son, Gerald.....	3.29	3.34	20.00	20.21							43.03	43.59
9-103	Special Bone Meal.....	J. T. Hall & Son, Clarence..	1.65	1.65	20.00	21.11							31.55	32.66
9-270	Special Bone Meal.....	L. H. Oltmann & Son, Gerald.....	1.65	1.34	20.00	21.31							31.55	30.69
9-278	Wheat and Clover Fertilizer.....	L. H. Oltmann & Son, Gerald.....	0.82	0.95		11.48	0.50	1.00	10.00	10.48	1.00	0.96	23.99	25.75
	American Agricultural Chemical Co., Empire Brands													
9-62	16% Phosphate.....	J. J. Culp Elevator Mills, Warrensburg.....				18.53	0.50	1.14	16.00	17.39			24.25	26.66
9-64	16% Phosphate.....	A. C. Wright, Rich Hill.....				17.81	0.50	0.43	16.00	17.38			24.25	26.29
9-66	16% Phosphate.....	Goodwin & Jean, Doniphan.....				18.35	0.50	0.78	16.00	17.57			24.25	26.75
9-67	16% Phosphate.....	J. T. Hall & Son, Clarence..				16.64	0.50	0.34	16.00	16.30			24.25	24.62
9-68	16% Phosphate.....	Farmers Elevator Co., Windsor.....				17.81	0.50	0.41	16.00	17.40			24.25	26.31
9-69	16% Phosphate.....	Beck Mercantile Co., Jefferson City.....				17.28	0.50	0.44	16.00	16.84			24.25	25.48
9-248	16% Phosphate.....	B. M. Atkinson, McCredie.....				17.86	0.50	0.70	16.00	17.16			24.25	26.09
5-3	Bone Black Fertilizer No. 2.	A. G. Barr Milling Co., Gault.....	2.06	2.24		9.65	0.50	0.67	8.00	8.98			26.67	29.49
9-76	Bone Black Fertilizer No. 2.	A. M. Watts, Sparta.....	2.06	2.14		9.56	0.50	0.75	8.00	8.81			26.67	28.58
5-66	Bone Black Fertilizer No. 2 ¹	Schisler Seed Co., St. Louis ..	2.06	2.14		9.71	0.50	1.81	8.00	7.90			26.67	27.74
9-75	Bone Black Fertilizer 1916..	A. M. Watts, Sparta.....	2.06	2.09		9.06	0.50	0.78	8.00	8.28	1.00	1.63	29.67	32.33
9-84	Complete Manure.....	P. Ratliff, Neosho.....	0.82	0.86		8.11	0.50	0.98	7.00	7.13	1.00	0.91	19.49	19.94
9-323	Complete Manure.....	J. E. Hendrickson, Bolivar..	0.82	1.04		8.70	0.50	1.64	7.00	7.06	1.00	0.78	19.49	21.03
9-95	Crop Grower 1916.....	Shelbina Milling Co., Shelbina.....	1.65	1.59		10.56	0.50	1.88	8.00	8.68	1.00	0.53	26.80	26.68
5-4	Dissolved Bone.....	Finlayson & Son, Carrollton.....				14.79	0.50	0.68	14.00	14.11			21.25	21.51
9-99	Dissolved Bone.....	A. L. Harris, Stark City.....				15.14	0.50	0.25	14.00	14.89			21.25	22.47
9-247	Dissolved Bone.....	Henry Kennett, Millersburg.....				16.08	0.50	2.04	14.00	14.04			21.25	22.08
5-5	Economy Mixture.....	W. P. Chatham, Kennett.....	0.82	0.93		11.48	0.50	1.05	10.00	10.43			20.99	22.69

*-Guaranteed. †-Found. ¹-In retail packages, incorrectly labeled and without registration tags.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (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	Per Cent	Per Cent
9-72	Economy Mixture.....	Goodwin & Jean, Doniphan.	0.82	0.94	.....	10.99	0.50	0.61	10.00	10.38	.....	.....	20.99	22.46
9-73	Economy Mixture.....	Shelbina Milling Co.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9-276	Economy Mixture.....	Shelbina Jos. Poettger, Freeburg.....	0.82	0.84	.....	11.62	0.50	1.98	10.00	9.64	.....	.....	20.99	21.33
9-277	Economy Mixture.....	Louis Ritterbusch, Bland.....	0.82	1.02	.....	11.40	0.50	0.62	10.00	10.84	.....	.....	20.99	23.78
9-78	Farmers Favorite	Hall Hardware Co., Leeton.....	0.82	0.92	.....	10.82	0.50	0.72	10.00	10.07	1.00	1.08	23.99	25.24
9-79	Farmers Favorite.....	J. Yoes, Barnett.....	0.82	1.12	.....	13.37	0.50	2.12	10.00	11.25	1.00	1.09	23.99	29.12
9.80	Farmers Favorite.....	Farmers Elevator Co., Windsor.....	0.82	0.97	.....	11.72	0.50	0.62	10.00	11.10	1.00	0.64	23.99	25.69
9-81	Farmers Favorite.....	L. F. Berge, California.....	0.82	1.30	.....	11.30	0.50	1.27	10.00	10.00	1.00	1.02	23.99	28.36
9-82	Farmers Favorite.....	J. J. Culp Elevator Mills Warrensburg.....	0.82	0.88	.....	11.45	0.50	1.28	10.00	10.12	1.00	0.91	23.99	24.76
9-110	Farmers Favorite.....	Scarcliff & Day, Holden.....	0.82	0.98	.....	11.80	0.50	1.00	10.00	10.80	1.00	1.03	23.99	26.74
9-281	Farmers Favorite.....	H. W. Koppelman, New Haven.....	0.82	0.92	.....	11.84	0.50	1.17	10.00	10.67	1.00	1.29	23.99	26.91
9-282	Farmers Favorite.....	Jos. Poettger, Freeburg.....	0.82	0.93	.....	11.12	0.50	0.39	10.00	10.74	1.00	1.01	23.99	25.85
9-320	Farmers Favorite.....	J. M. Woodard, Deepwater.....	0.82	0.85	.....	11.68	0.50	1.47	10.00	10.21	1.00	0.97	23.99	24.92
9-74	Nitrophos.....	J. T. Hall & Son, Clarence.....	1.65	1.83	.....	14.47	0.50	1.35	12.00	13.12	.....	.....	29.80	33.17
9-250	Nitrophos.....	B. M. Atkinson, McCredie.....	1.65	1.74	.....	13.98	0.50	1.42	12.00	12.56	.....	.....	29.80	31.73
9-61	Pure Raw Bone Meal.....	P. Ratliff, Neosho.....	3.29	3.79	20.00	18.17	.....	.....	.....	.....	.....	.....	43.03	44.70
9-275	Pure Raw Bone Meal.....	Louis Ritterbusch, Bland.....	3.29	3.52	20.00	18.94	.....	.....	.....	.....	.....	.....	43.03	43.58
9-102	Special Bone Meal.....	Shubert Mercantile Co., Russellville.....	1.65	1.34	20.00	20.57	.....	.....	.....	.....	.....	.....	31.55	29.95
9-104	Special Bone Meal.....	Shelbina Milling Co., Shelbina.....	1.65	1.35	20.00	23.27	.....	.....	.....	.....	.....	.....	31.55	32.72
5-8	Steamed Bone Substitute.....	I. N. Fehr Milling Co., Trenton.....	1.65	1.82	.....	11.81	0.50	1.00	10.00	10.81	.....	.....	26.80	29.46

5-9	Steamed Bone Substitute.....	A. G. Barr Milling Co., Gault.....	1.65	1.85	11.89	0.50	0.84	10.00	11.05	26.80	29.95
9-249	Steamed Bone Substitute.....	B. M. Atkinson, McCredie.....	1.65	1.66	11.68	0.50	1.50	10.00	10.18	26.80	27.64
9-321	Steamed Bone Substitute.....	Farmers Elevator Co.,.....	1.65	1.72	12.48	0.50	1.53	10.00	10.95	26.80	29.24
9-85	Wheat and Clover 1916.....	Clinton.....	0.82	0.84	11.02	0.50	1.85	8.00	9.17	1.00	1.07
9-86	Wheat and Clover 1916.....	A. C. Wright, Rich Hill.....	0.82	0.85	9.65	0.50	1.47	8.00	8.18	1.00	1.02
9-87	Wheat and Clover 1916.....	Goodwin & Jean, Doniphan. Shelbina Milling Co., Shelbina.....	0.82	0.90	9.69	0.50	1.69	8.00	8.00	1.00	0.97
9-88	Wheat and Clover 1916.....	Beck Mercantile Co.,, Jefferson City.....	0.82	0.85	9.87	0.50	1.68	8.00	8.19	1.00	1.55
9-89	Wheat and Clover 1916.....	S. F. Glover, Russellville.....	0.82	0.85	9.34	0.50	1.20	8.00	8.14	1.00	1.00
9-90	Wheat and Clover 1916.....	L. F. Berge, California.....	0.82	0.86	9.53	0.50	1.44	8.00	8.09	1.00	0.95
9-271	Wheat and Clover 1916.....	H. W. Koppelman, New Haven.....	0.82	0.99	9.84	0.50	1.43	8.00	8.41	1.00	1.01
9-272	Wheat and Clover 1916.....	Owensville Roller Mills, Owensville.....	0.82	0.93	9.79	0.50	1.13	8.00	8.66	1.00	0.84
9-273	Wheat and Clover 1916.....	Jos. Poetiger, Freeburg.....	0.82	0.96	9.64	0.50	1.48	8.00	8.16	1.00	0.87
	American Agricultural Chemical Co., Horseshoe Brands.										
9-55	Acidulated Bone and Potash.....	Weighmeyer Produce Co., Tipton.....	0.82	0.87	11.65	0.50	1.55	10.00	10.10	1.00	0.99
9-56	Acidulated Bone and Potash.....	Shubert Mercantile Co., Russellville.....	0.82	0.89	11.40	0.50	1.05	10.00	10.35	1.00	1.05
9-269	Acidulated Bone and Potash.....	Owensville Roller Mills, Owensville.....	0.82	1.11	12.30	0.50	1.97	10.00	10.33	1.00	1.03
9-329	Acidulated Bone and Potash.....	Thompson & Sutter Machine Co., Springfield.....	0.82	0.90	10.82	0.50	0.97	10.00	9.85	1.00	1.60
9-96	Animal Bone Manure.....	W. H. Smith, Pierce City.....	0.82	1.00	10.49	0.50	0.89	7.00	9.60	1.00	0.76
9-100	Corn and Wheat Grower 1916.....	Henry T. Yancy, Perry.....	1.65	1.70	10.27	0.50	1.70	8.00	8.57	1.00	0.95
9-328	Corn and Wheat Grower 1916.....	Thompson & Sutter Machine Co., Springfield.....	1.65	1.79	9.71	0.50	1.29	8.00	8.42	1.00	1.02
9-83	Economy Phosphate.....	Shubert Mercantile Co., Russellville.....			18.22	0.50	0.78	16.00	17.44		24.25
9-322	Economy Phosphate.....	Thompson & Sutter Ma- chine Co., Springfield.....			17.95	0.50	1.31	16.00	16.64		24.25

*—Guaranteed. †—Found.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 22)

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
9-109	National Bone Dust No. 2...	Henry T. Yancy, Perry.....	2.06	2.25		9.59	0.50	0.71	8.00	8.88			26.67	29.43
9-327	National Bone Dust No. 2...	Thompson & Sutter Machine Co., Springfield.....	2.06	2.30		9.83	0.50	0.70	8.00	9.13			26.67	30.15
9-326	Pioneer Grain Grower 1916...	Thompson & Sutter Machine Co., Springfield.....	1.65	1.71		11.62	0.50	1.48	10.00	10.14	1.00	0.20	29.80	28.52
9-60	Pure Raw Bone Meal.....	A. M. Watts, Sparta.....	3.29	3.74	20.00	18.30							43.03	44.48
9-106	Reliable Wheat Grower 1916	Farmers Union Store, De Soto.....	0.82	0.85		9.90	0.50	1.00	8.00	8.90	1.00	1.05	20.99	22.95
9-107	Reliable Wheat Grower 1916	Shubert Mercantile Co., Russellville.....	0.82	0.82		8.97	0.50	1.17	8.00	7.80	1.00	1.04	20.99	21.15
9-330	Reliable Wheat Grower 1916	Thompson & Sutter Machine Co., Springfield.....	0.82	1.09		9.57	0.50	1.22	8.00	8.35	1.00	1.29	20.99	24.64
9-324	Soil Builder.....	Monroe & Shockley Weaubleau.....	1.65	1.74		11.36	0.50	0.56	10.00	10.80			26.80	28.66
9-325	Soil Builder.....	Thompson & Sutter Machine Co., Springfield.....	1.65	1.71		11.87	0.50	1.33	10.00	10.54			26.80	28.45
9-101	Special Bone Meal.....	Phil Ratliff, Neosho.....	1.65	1.37	20.00	22.95							31.55	32.54
9-331	Special Bone Meal.....	Thompson & Sutter Machine Co., Springfield.....	1.65	1.28	20.00	21.59							31.55	30.55
9-57	Special Tomato Grower..... 1918.....	A. M. Watts, Sparta.....	1.65	1.43		9.10	0.50	0.83	8.00	8.27	1.00	1.12	26.80	26.20
9-52	Thinland Special.....	Henry T. Yancy, Perry.....	0.82	1.18		11.84	0.50	2.22	10.00	9.62			20.99	23.80
9-53	Thinland Special.....	W. H. Smith, Pierce City.....	0.82	1.06		11.47	0.50	0.99	10.00	10.48			20.99	23.64
9-54	Thinland Special.....	Weighmeyer Produce Co., Tipton.....	0.82	0.85		10.95	0.50	1.11	10.00	9.84			20.99	21.27
9-283	Thinland Special.....	Owensville Roller Mills, Owensville.....	0.82	0.92		10.57	0.50	0.55	10.00	10.02			20.99	21.75

9-50	War Brand.....	Hunter Merc. Co., Bismarck	1.65	1.62		13.98	0.50	1.08	12.00	12.90			29.80	31.23
9-51	War Brand.....	Farmers Union Store, Desoto.....	1.65	1.65		14.09	0.50	1.14	12.00	12.95			29.80	31.55
9-332	War Brand.....	Thompson & Sutter Mach- ine Co., Springfield.....	1.65	1.88		14.93	0.50	2.29	12.00	12.64			29.80	33.27
	Arkansas Fertilizer Co., Little Rock, Arkansas White Diamond Brands													
9-2	Acid Phosphate.....	Beeney & Son, Sheldon.....				19.48		1.63	16.00	17.85			24.00	27.59
9-3	Acid Phosphate.....	Forsyth-Miller Elevator Co., Fairview.....				19.22		1.26	16.00	17.96			24.00	27.57
9-358	Acid Phosphate.....	Taylor-Estes Lbr. Co..... Columbia.....				18.51		2.00	16.00	16.51			24.00	25.77
9-4	Raw Bone Meal.....	Forsyth-Miller Elevator Co. Fairview.....	3.29	2.56	20.00	20.16							43.03	38.08
9-1	Special Raw Bone and Potash	Beeney & Son, Sheldon.....	1.65	1.49	18.00	19.40					1.00	1.11	32.55	33.16
5-10	Superphosphate with Potash.....	Kennett Feed Store, Co., Kennett.....				12.02	1.00	1.16	10.00	10.86	2.00	2.65	21.50	24.82
	Armour Fertilizer Works., E. St. Louis, Illinois. Armour Brands.													
9-24	16% Acid Phosphate.....	Schooler Grain Co., Jasper...				18.35	0.50	0.63	16.00	17.72			24.25	26.90
9-262	16% Acid Phosphate.....	Owensville Roller Mills, Owensville.....				17.59	0.50	0.28	16.00	17.31			24.25	26.11
5.15	Ammoniated Phosphate.....	Hogue Bros., Holcomb.....	1.65	1.63		11.44	0.50	0.29	10.00	11.15			26.80	28.29
9-8	Ammoniated Phosphate.....	U. L. Coleman, Marionville	1.65	1.62		11.61	0.50	0.63	10.00	10.98			26.80	28.13
9-9	Ammoniated Phosphate.....	Whitewell-Moore Merc. Co., Doniphan.....	1.65	1.36		10.94	0.50	0.48	10.00	10.46			26.80	25.45
9-243	Ammoniated Phosphate.....	B. M. Atkinson, McCredie...	1.65	1.74		10.95	0.50	0.58	10.00	10.37			26.80	28.03
9-10	Ammoniated Phosphate Special.....	Goodwin & Jean, Doniphan.....	0.82	0.95		13.66	0.50	0.70	12.00	12.96			23.99	26.44
9-11	Ammoniated Phosphate Special.....	J. R. Helfrick, Enon.....	0.82	0.84		15.16	0.50	0.88	12.00	14.28			23.99	27.74
9-241	Ammoniated Phosphate Special.....	Callaway Hardware Co., Fulton.....	0.82	0.80		13.02	0.50	0.80	12.00	12.22			23.99	24.33
9-261	Ammoniated Phosphate Special.....	Owensville Roller Mills, Owensville.....	0.82	0.91		13.25	0.50	0.31	12.00	12.94			23.99	25.94
9-26	Bone Meal.....	J. R. Helfrick, Enon.....	2.47	2.74	24.00	26.93							41.29	46.11

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 24)

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			
9-27	Bone Meal.....	Archias Seed Store, Sedalia..	2.47	3.03	24.00	26.23							41.29	47.44
9-28	Bone Meal.....	Schooler Grain Co., Jasper..	2.47	2.60	24.00	23.38							41.29	41.58
9-239	Bone Meal.....	Callaway Hardware Co., Fulton.....	2.47	2.91	24.00	25.78							41.29	46.15
9-316	Bone Meal.....	Thompson & Sutter Mach- ine Co., Springfield.....	2.47	2.75	24.00	23.00							41.29	42.25
9-260	Grain Grower.....	Louis Ritterbusch, Bland.....	1.65	1.59		8.91	0.50	0.25	8.00	8.66	2.00	1.96	29.80	30.13
9-311	Grain Grower.....	F. M. Shoffner, Bolivar.....	1.65	1.97		8.80	0.50	0.78	8.00	8.02	2.00	2.16	29.80	32.68
9-258	New Record Brand.....	H. J. Tiemann, Gerald.....	0.82	0.91		11.04	0.50	0.47	10.00	10.57	1.00	1.05	23.99	25.62
9-259	New Record Brand.....	Louis Ritterbusch, Bland.....	0.82	0.86		10.85	0.50	0.25	10.00	10.60	1.00	1.08	23.99	25.29
9-315	New Record Brand.....	Knight Hardware Co.,..... Weableau.....	0.82	0.94		9.42	0.50	0.15	10.00	9.27	1.00	1.14	23.99	23.99
9-25	Raw Bone Meal.....	Neosho Milling Co., Wheaton.....	3.71	3.96	22.00	24.09							47.97	51.81
5-14	Special Grain Grower.....	Hogue Bros., Holcomb.....	1.65	1.73		10.15	0.50	0.38	8.00	9.77	1.00	1.06	26.80	30.14
9-5	Special Grain Grower.....	Steffens Dry Goods Co., Russellville.....	1.65	1.55		10.02	0.50	1.70	8.00	8.32	1.00	1.23	26.80	27.87
9-6	Special Grain Grower.....	Farmers Elevator Co., Silex.....	1.65	1.65		8.55	0.50	0.30	8.00	8.25	1.00	1.19	26.80	27.65
9-7	Special Grain Grower.....	Neosho Milling Co., Wheaton.....	1.65	1.46		8.35	0.50	0.31	8.00	8.04	1.00	1.18	28.60	25.98
9-263	Star Phosphate.....	Owensville Roller Mills, Owensville.....				14.75	0.50	0.19	14.00	14.56			21.25	21.94
9-314	Star Phosphate.....	Knight Hardware Co.,..... Weableau.....				16.01	0.50	0.58	14.00	15.43			21.25	23.44
5-12	Wheat, Corn and Oats Special.....	McAfee Mill & Commission Co., Moberly.....	0.82	0.94		8.96	0.50	0.35	8.00	8.61	1.00	1.14	20.99	23.10

9-17	Wheat, Corn and Oats Special.....	Chris Jacobs, Jefferson City.....	0.82	0.92	8.96	0.50	0.76	8.00	8.20	1.00	0.85	20.99	21.67
9-18	Wheat, Corn and Oats Special.....	Steffens Dry Goods Co., Russellville.....	0.82	0.79	10.22	0.50	1.12	8.00	9.10	1.00	1.21	20.99	23.37
9-19	Wheat, Corn and Oats Special.....	Archias Seed Store, Sedalia.....	0.82	0.86	9.24	0.50	0.53	8.00	8.71	1.00	1.03	20.99	22.45
9-20	Wheat, Corn and Oats Special.....	Neosho Milling Co., Wheaton.....	0.82	0.80	9.01	0.50	0.67	8.00	8.34	1.00	0.89	20.99	21.12
9-21	Wheat, Corn and Oats Special.....	Aurora Lumber & Manu- facturing Co., Aurora.....	0.82	1.20	10.35	0.50	0.69	8.00	9.66	1.00	1.14	20.99	26.66
9-22	Wheat, Corn and Oats Special.....	B. E. Wetherell Implement House, Carthage.....	0.82	0.79	9.62	0.50	1.08	8.00	8.54	1.00	1.01	20.99	21.91
9-23	Wheat, Corn and Oats Special.....	Goodwin & Jean, Doniphan.....	0.82	0.81	9.21	0.50	0.59	8.00	8.62	1.00	1.01	20.99	21.93
9-255	Wheat, Corn and Oats Special.....	Owensville Roller Mills, Owensville.....	0.82	0.82	8.84	0.50	0.18	8.00	8.66	1.00	1.01	20.99	21.85
9-256	Wheat, Corn and Oats, Special.....	Louis Ritterbusch, Bland.....	0.82	0.84	8.90	0.50	0.42	8.00	8.48	1.00	1.05	20.99	21.96
9-310	Wheat, Corn and Oats Special.....	F. M. Shoffner, Bolivar.....	0.82	1.13	8.74	0.50	0.39	8.00	8.35	1.00	1.15	20.99	24.09
5-11	1-10 Fertilizer.....	McAfee Mill & Commission Co., Moberly.....	0.82	0.94	10.78	0.50	0.37	10.00	10.41			20.99	22.39
9-12	1-10 Fertilizer.....	Steffens Dry Goods Co., Russellville.....	0.82	1.13	10.78	0.50	1.20	10.00	9.58			20.99	22.88
9-257	1-10 Fertilizer.....	H. J. Tiemann, Gerald.....	0.82	0.91	11.13	0.50	0.56	10.00	10.57			20.99	22.51
9-312	1-10 Fertilizer.....	Knight Hardware Co., Weaubleau.....	0.82	0.98	10.72	0.50	0.10	10.00	10.62			20.99	22.84
9-13	1-12-1 Fertilizer.....	Schooler Grain Co., Jasper.....	0.82	0.84	13.91	0.50	1.30	12.00	12.61	1.00	1.19	26.99	29.02
9-14	1-12-1 Fertilizer.....	Neosho Milling Co., Wheaton.....	0.82	0.86	13.25	0.50	0.59	12.00	12.66	1.00	1.22	26.99	28.9
9-15	1-12-1 Fertilizer.....	U. L. Coleman Hardware... Co., Marionville.....	0.82	0.79	12.79	0.50	0.58	12.00	12.21	1.00	1.11	26.99	27.47
9-16	1-12-1 Fertilizer.....	B. E. Wetherell Implement House, Carthage.....	0.82	1.12	14.04	0.50	1.40	12.00	12.64	1.00	1.08	26.99	30.74
9-313	1-12-1 Fertilizer.....	Knight Hardware Co., Weaubleau.....	0.82	1.12	12.56	0.50	0.38	12.00	12.18	1.00	1.07	26.99	29.51
9-308	2-12 Fertilizer.....	Speed Farmer's Elevator Co Speed.....	1.65	1.53	13.30	0.50	0.90	12.00	12.40			29.80	29.76

*.-Guaranteed. †.-Found.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 26)

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	Per Cent
9-309	2-12-2 Fertilizer..... Armour Fertilizer Works Tuscarora Brands	F. M. Shoffner, Bolivar.....	1.65	2.03	.....	12.86	0.50	1.48	12.00	11.38	2.00	2.21	\$35.80	\$38.65
5-13	New Ammoniated Phosphate.....	McAfee Mill Commission Co., Moberly.....	0.82	0.94	.....	13.41	0.50	0.48	12.00	12.93	.....	.....	23.99	26.22
9-31	New Ammoniated Phosphate.....	Whitwell-Moore Mercantile Co., Doniphan.....	0.82	0.91	.....	13.37	0.50	0.57	12.00	12.80	.....	.....	23.99	25.86
9-266	New Standard.....	Ferdinand L. Bock, Bland....	1.65	1.72	.....	9.28	0.50	0.37	8.00	8.91	1.00	1.25	26.80	29.35
9-265	Special Phosphate and Potash.....	Ferdinand L. Bock, Bland....	.....	.....	.....	11.02	0.50	0.46	10.00	10.56	1.00	1.14	18.25	19.49
9-29	Wheat, Corn and Oats Special.....	H. B. Cole, Lutesville.....	0.82	0.85	.....	8.23	0.50	0.35	8.00	7.88	1.00	1.13	20.99	21.34
9-30	Wheat, Corn and Oats Special.....	Whitwell-Moore Mercantile Co., Doniphan.....	0.82	0.82	.....	9.25	0.50	0.41	8.00	8.84	1.00	1.16	20.99	22.69
9-264	Wheat, Corn and Oats Special.....	Ferdinand L. Bock, Bland....	0.82	0.88	.....	9.03	0.50	0.37	8.00	8.66	1.00	0.87	20.99	21.95
9-32	1-10 Fertilizer..... Bone and Potash Fertilizer Co., Carthage, Missouri Shin Bone Brands	H. B. Cole, Lutesville.....	0.82	0.84	.....	11.01	0.50	0.47	10.00	10.54	.....	.....	20.99	21.93
9-34	Special Wheat Grower.....	Frank Giddings, Neosho.....	0.82	1.10	.....	9.06	1.00	0.34	9.00	8.72	1.00	1.61	22.74	25.78
9-35	Special Wheat Grower.....	Peoples Elevator Co., Reeds	0.82	1.16	.....	8.93	1.00	0.36	9.00	8.57	1.00	1.68	22.74	26.20
9-317	Special Wheat Grower..... Cochrane Packing Co., Kansas City, Kansas. Cochrane's Brands.	Archias Seed Co., Sedalia.....	0.82	1.06	.....	9.83	1.00	0.68	9.00	9.15	1.00	1.44	22.74	25.81
9-318	Available Bone.....	Archias Seed Co., Sedalia.....	0.75	0.09	30.10	28.33	.....	1.90	29.35	26.43	.....	.....	49.65	41.23
9-319	Champion Grain Grower.....	Archias Seed Co., Sedalia.....	1.65	0.88	11.00	9.70	1.00	0.52	10.00	9.18	1.00	0.84	30.05	22.71

	Commercial Fertilizer Co.														
	Little Rock, Ark.														
	Commercial Brands														
9-39	Acid Phosphate.....	J. F. Self, Syracuse.....				18.00		1.53	16.00	16.47				\$24.00	\$25.48
9-37	All Crop Fertilizer.....	J. F. Self, Syracuse.....	0.82	1.05		6.94		0.90	7.00	6.04	0.50	0.50		17.74	18.36
9-40	Raw Bone Meal.....	J. L. Estes, Marble Hill.....	3.29	3.31	20.00	19.94								43.03	43.11
9-38	Special Grain Grower.....	J. F. Self, Syracuse.....	1.65	1.49		10.58	2.00	1.37	10.00	9.21	2.00	1.77		33.55	30.25
9-245	Steamed Bone Meal.....	J. H. Rogers, Fulton.....	0.82	0.85	29.00	25.98								34.74	31.93
	Cudahy Packing Co.,														
	Kansas City, Kansas.														
	Blue Ribbon Brand.														
5-16	Steamed Bone Meal.....	J. A. Sellers, Lathrop.....	2.47	2.81	24.00	26.49								41.29	46.16
9-42	Steamed Bone Meal.....	Peoples Milling Co., Butler..	2.47	2.52	24.00	27.31								41.29	44.95
9-43	Steamed Bone Meal.....	Schooler Grain Co., Jasper..	2.47	2.83	24.00	25.29								41.29	45.10
9-44	Steamed Bone Meal.....	Farmers Exchange, Liberal ..	2.47	2.95	24.00	26.13								41.29	46.78
	Darling & Co.,														
	Chicago, Illinois.														
	Darling's Brands.														
9-47	16% Acid Phosphate.....	W. E. Files, LaMonte.....				16.59		0.63	16.00	15.96				24.00	24.26
9-49	General Crop.....	W. E. Files, LaMonte.....	1.60	1.25		14.12	2.00	1.82	12.00	12.30				30.20	28.11
9-285	General Crop.....	Aug. Holtmeier, Jeffriesburg	1.60	1.72		12.86	2.00	2.39	12.00	10.47				30.20	28.95
5-18	Grain Grower.....	G. V. Castleman, Browns.....	0.80	0.99		12.29	2.00	2.70	9.00	9.59	1.00	1.07		23.10	25.8
9-284	Grain Grower.....	Aug. Holtmeier, Jeffriesburg	0.80	1.28		11.99	2.00	2.87	9.00	9.12	1.00	0.72		23.10	26.24
9-45	Little Giant.....	Stockton & Lampkin, Warrensburg.....	0.80	1.02		14.15	2.00	2.84	10.00	11.31				21.60	25.53
9-48	Pure Ground Bone.....	W. E. Files, LaMonte.....	1.80	2.40	28.00	28.07								40.60	44.87
9-286	Pure Ground Bone.....	Aug. Holtmeier, Jeffriesburg.....	1.80	2.74	28.00	26.62								40.60	45.80
9-46	Sure Winner.....	Stockton & Lampkin, Warrensburg.....	0.80	0.94		12.57	2.00	1.77	10.00	10.80	0.50	0.70		23.10	25.77
	Drovers Packing Co.,														
	(See Thomas Ruddy Co.)														
	Empire Guano Co.,														
	Nashville, Tenn.														
9-333	Bone and Potash.....	W. A. Holstein, Bolivar.....			18.00	20.19	8.00	9.52	10.00	10.67	2.00	1.55		25.00	25.42
	Fertile Chemical Co.,														
	Cleveland, Ohio														
5-19	Lime Fertilizer.....	Bourdet Floral Co., St. Louis					3.00	2.26						1.50	1.13

*.-Guaranteed. †.-Found.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 28)

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			
5-65	Flower City Plant Food Co., Rochester, N. Y. Walker's Excelsior Plant Food ² Gate City Fertilizer Co., Little Rock, Arkansas. Red Ball Brands.	St. Louis Seed Co., St. Louis.....	5.00	4.09		12.47		1.62	7.00	10.85	3.00	0.38	\$54.50	\$46.86
9-112	Extra Acid Phosphate.....	H. B. Gordon Grain Co., Sheldon.....				17.59		1.29	16.00	16.30			24.00	25.10
9-116	Phosphate and Potash.....	H. B. Gordon Grain Co., Sheldon.....				10.90	1.00	1.88	11.00	9.02	3.00	2.51	26.00	22.00
9-115	Raw Bone Fertilizer.....	H. B. Gordon Grain Co., Sheldon.....	3.29	3.24	20.00	20.72							43.03	43.40
9-113	Raw Bone and Potash.....	H. B. Gordon Grain Co., Sheldon.....	1.65	1.37	18.00	19.44					1.00	0.79	32.55	31.39
9-334	Steamed Bone Meal.....	Farmers Exchange, Bolivar..	0.82	0.85	29.00	27.08							34.74	33.03
9-114	Arkmo Wheat Grower.....	H. B. Gordon Grain Co., Sheldon.....	0.82	0.98		8.23	1.00	2.43	8.00	5.80	1.00	0.79	21.24	19.15
	Interstate Fertilizer Co., Webb City, Mo., Interstate Brands.													
9-123	Phosphate and Potash.....	Factory Sample.....				11.51	0.50	0.80	12.00	10.71	2.00	1.90	24.25	22.17
9-127	Raw Bone Meal.....	Schooler Grain Co., Jasper..	3.70	3.73	22.00	20.49							47.90	46.60
9-128	Raw Bone Meal.....	Factory Sample.....	3.70	3.78	22.00	20.24							47.90	46.70
9-130	Raw Bone Mixture.....	Factory Sample.....	1.65	1.54	16.00	15.86		6.96	8.00	8.90			27.55	27.61
9-129	Raw Bone and Potash.....	Forsyth-Miller Elevator Co., Fairview	1.65	1.60	16.00	14.93		6.63	8.00	8.30	1.00	1.35	30.55	31.02
9-131	Steamed Bone Meal.....	H. B. Beoney, Sheldon.....	0.82	1.07	29.00	30.40							34.74	37.89

9-117	1-8-1.....	In Car at Factory for Ship- ment.....	0.82	0.82	9.64	0.50	1.56	8.00	8.08	1.00	1.07	20.99	21.85
9-126	1-10-0.....	Factory Sample.....	0.82	0.72	11.28	0.50	1.91	10.00	9.37			20.99	20.06
9-124	1-12-1.....	Schooler Grain Co., Jasper...	0.82	0.96	11.97	0.50	1.16	12.00	10.81	1.00	0.97	26.99	26.43
9-125	1-12-1.....	Factory Sample.....	0.82	0.80	13.25	0.50	2.65	12.00	10.60	1.00	1.19	26.99	26.40
9-118	2-8-2.....	In Car at Factory for Ship- ment.....	1.65	1.58	8.67	0.50	2.50	8.00	6.17	2.00	2.01	29.80	27.60
9-119	2-10-0.....	Factory Sample.....	1.65	1.71	11.28	0.50	3.07	10.00	8.21			26.80	25.83
9-121	2-10-0.....	Farmers Elevator Co., Butler	1.65	1.70	12.25	0.50	4.32	10.00	7.93			26.80	25.96
9-122	2-12-2.....	In Car at Factory for Ship- ment.....	1.65	1.31	13.40	0.50	2.28	12.00	11.12	2.00	1.41	35.80	31.22
		C. A. Kuehn, St. Louis, Mo.											
5-151	Evergreen Brand Flower and Lawn Fertilizer.....	C. A. Kuehn, St. Louis.....	8.00	8.17	16.01		3.01	14.50	13.00	15.00	14.68	122.75	122.24
	Meridian Fertilizer Fact. Shreveport, La. Meridian Brands.												
9-336	Great Western.....	P. A. Neuenschwander, Deepwater.....	1.65	1.47	14.04		1.26	12.00	12.78	2.00	1.49	35.55	34.56
9-335	Wheat Grower.....	P. A. Neuenschwander, Deepwater.....	1.65	1.54	15.05		1.23	12.00	13.82			29.55	32.13
		Morris & Co., Kansas City, Kansas. Big Brands.											
9-132	Big One-Ground Raw Bone.....	C. E. Fletcher, Neosho.....	3.30	3.48	24.00	25.40						47.10	49.76
9-133	Big Two-Pure Bone Meal....	Farmers Co-operative Ele- vator Co., Jasper.....	2.00	2.15	28.00	28.68						42.00	43.73
9-134	Big Two-Pure Bone Meal....	C. E. Fletcher, Neosho.....	2.00	2.19	28.00	29.94						42.00	45.27
9-135	Big Two-Pure Bone Meal....	Monsees & Kreisler, Cole Camp.....	2.00	2.08	28.00	29.02						42.00	43.58
9-136	Big Two-Pure Bone Meal....	Morgan County Milling Co., Versailles.....	2.00	2.55	28.00	27.59						42.00	45.44
9-137	Big Two-Pure Bone Meal....	Farmers Mill, Eldon.....	2.00	2.03	28.00	29.25						42.00	43.46
9-287	Big Two-Pure Bone Meal....	Franklin County Farmers' Association, Union.....	2.00	2.06	28.00	29.22						42.00	43.64

*.-Guaranteed. †.-Found. ²Package goods, incompletely labeled and without registration tags.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 30)

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		
9-138	Special Big Three.....	C. E. Fletcher, Neosho.....	0.41	0.42		13.91	2.00	3.41	11.00	10.50	3.00	2.77	\$29.37	\$28.71	
9-288	Special Big Three.....	Co-operative Shipping Association, New Haven.....	0.41	0.42		12.96	2.00	0.88	11.00	12.08	3.00	2.87	29.37	30.11	
9-139	Special Big Seven-Bone Meal.....	C. E. Fletcher, Neosho.....	0.82	1.15	22.00	24.60							27.74	32.65	
9-140	Special Big Seven-Bone Meal.....	Morgan County Milling Co., Versailles.....	0.82	1.01	22.00	22.10							27.74	29.17	
9-141	Big Eight Phosphate and Potash.....	Morgan County Milling Co., Versailles.....	0.82	1.12	8.00	9.82	1.00	2.60	7.00	7.22	1.00	1.04	19.74	23.09	
9-142	Special Big Nine-Manure and Potash.....	Morgan County Milling Co., Versailles.....	0.41	0.52	13.00	14.80	2.00	4.04	11.00	10.76	1.00	1.10	23.37	25.10	
9-143	Big Ten-Manure and Potash.....	C. E. Lane, Cassidy.....	1.65	2.09		16.58	2.00	5.33	8.00	11.25	2.00	0.26	30.55	34.96	
9-144	Big Ten-Manure and Potash.....	Morgan County Milling Co., Versailles.....	1.65	1.65		13.35	2.00	4.56	8.00	8.79	2.00	2.14	30.55	33.44	
9-145	Special Big Eleven-Phosphated Manure.....	Morgan County Milling Co., Versailles.....	0.82	1.01	11.00	12.22	1.00	2.71	10.00	9.51			21.24	22.70	
9-359	Special Big Eleven-Phosphated Manure.....	Taylor Estes Lumber Co., Columbia.....	0.82	0.77	11.00	11.38	1.00	1.93	10.00	9.45			21.24	20.54	
	National Plant Food Co., Eau Claire, Wis.														
5-67	Red Snapper Plant Food.....	St. Louis Seed Co., St. Louis.....	5.00	5.52	12.00	13.72	8.00	6.74	4.00	6.98	1.25	1.31	48.75	56.41	
9-146	Red Snapper Plant Food.....	Jackson Drug Co., Joplin.....	5.00	4.65	12.00	10.95	8.00	3.04	4.00	7.91	1.25	1.40	48.75	50.14	
	Pulverized Manure Co., E. St. Louis, Ill.														
	Wizard Brands.														
5-22	Pulverized Sheep Manure.....	Schisler-Corneli Seed Co., St. Louis.....	1.80	1.87		2.02		0.66	1.00	1.36	1.00	2.91	17.10	24.19	

9-147	Phosphated Manure.....	E. M. Darby, Boonville.	0.82	1.29	10.02	1.35	9.00	8.67	1.00	1.73	\$22.24	\$27.91		
9-148	Phosphated Manure.....	Bingham Hdwre. Co., Ozark	0.82	1.12	10.39	1.05	9.00	9.34	1.00	1.44	22.24	26.70		
	Read Phosphate Co., Nashville, Tenn.													
5-26	Blood and Bone No. 1.	Sapp Implement & Motor Co., Columbia.....	1.65	1.55	13.00	14.05	5.00	4.21	8.00	9.84	2.00	1.92	32.05	33.48
9-291	Blood and Bone No. 1.....	H. J. Tiemann, Gerald.....	1.65	1.64	13.00	13.35	5.00	4.44	8.00	8.91	2.00	2.11	32.05	33.40
9-292	Bone Meal Mixture.....	H. J. Tiemann, Gerald.....	1.65	1.47	17.00	22.57	10.00	15.30	7.00	7.27			27.05	28.85
9-151	Challenge Formula.....	Farmers Elevator Co., Silex.	0.41	0.44	18.00	18.66	5.00	5.30	13.00	13.36			24.87	25.77
9-293	Corn, Wheat and Oat Grower.....	H. J. Tiemann, Gerald.....	0.82	0.84	17.00	17.97	10.00	10.50	7.00	7.47	1.00	1.02	24.24	25.40
9-294	Corn, Wheat and Oat Grower.....	Farmers Union Cooperative Association, Bland.....	0.82	0.77	17.00	18.77	10.00	11.61	7.00	7.16	1.00	1.11	24.24	25.30
9-337	Corn, Wheat and Oat Grower.....	Ozark Exchange, Bolivar.....	0.82	0.82	17.00	20.59	10.00	13.12	7.00	7.47	1.00	1.06	24.24	26.69
9-149	Missouri Grain Special.....	Farmers Elevator Co., Silex.	0.41	0.28	15.00	18.27	3.00	4.89	12.00	13.38	1.00	0.68	25.37	26.52
9-150	Missouri Grain Special.....	Peoples Elevator Co., Reeds	0.41	0.64	15.00	17.35	3.00	5.41	12.00	11.94	1.00	1.07	25.37	28.31
9-200	Missouri Grain Special.....	Farmers Union Co-operative Association, Bland.....	0.41	0.40	15.00	19.76	3.00	6.44	12.00	13.32	1.00	0.72	25.37	28.16
9-152	Pure Raw Bone Meal.....	Farmers Elevator Co., Silex	3.70	3.75	21.00	21.31							46.90	47.56
9-289	Pure Raw Bone Meal.....	H. J. Teimann, Gerald.....	3.70	3.64	21.00	20.21							46.90	45.69
9-154	Soluble Bone.....	Peoples Elevator Co., Reeds	0.82	0.80	12.00	16.03	4.00	5.69	8.00	10.34	2.00	1.73	25.74	29.15
5-24	Special High Grade Phos- phate.....	Sapp Implement & Motor Co., Columbia.....			18.00	21.68	2.00	4.70	16.00	16.98			25.00	27.82
9-155	Spec. High Grade Phosphate	Farmers Elevator Co., Silex			18.00	21.33	2.00	3.95	16.00	17.38			25.00	28.05
	Southern Cotton Oil Co., Little Rock, Ark. Sco-Co Brands.													
9-156	Acid Phosphate.....	Vogel Produce Co., Tipton..			18.20		1.13	16.00	17.07				24.00	26.18
9-158	Missouri Mixture.....	Vogel Produce Co., Tipton..	0.82	0.92	7.95		0.27	10.00	7.68	1.00	1.00		23.74	21.10
9-157	Pure Gold ³	Vogel Produce Co., Tipton..	0.82	1.34	6.27		0.26	8.00	6.01	1.00	1.09		20.74	21.60
9-36	Pure Gold ⁴	Nicely & Co., Aurora.....	0.82	0.85	10.97		0.54	8.00	10.43	1.00	0.42		20.74	23.13
9-159	Missouri Special ³	Vogel Produce Co., Tipton..	1.65	1.34	8.87		0.30	10.00	8.57	1.00	1.15		23.74	25.84
	Swift & Co., E. St. Louis, Illinois Swift Brands.													
9-176	Ammoniated Bone Phos- phate.....	Lipscomb Grain & Seed Co., Liberal.....	0.82	1.53	10.50	10.87	0.50	1.50	10.00	9.37			20.99	25.52

*.-Guaranteed. †.-Found. ³.-Goods wrongly labeled under old registration name. ⁴.-Labeled with wrong guarantee for nitrogen.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (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†
9-177	Ammoniated Bone Phosphate.....	Lipscomb Grain Co., Bronaugh.....	0.82	0.87	10.50	12.53	0.50	1.57	10.00	10.96			\$20.99	23.32
9-178	Ammoniated Bone Phosphate.....	Farmers Elevator Co., Smithton.....	0.82	1.39	10.50	12.10	0.50	1.52	10.00	10.58			20.99	26.36
5-27	Ammoniated Bone Phosphate and Potash.....	Davis Mill & Feed Co., Plattsburg.....	1.65	1.71	11.00	10.98	1.00	0.81	10.00	10.17	0.50	0.68	28.55	29.68
5-28	Ammoniated Bone Phosphate and Potash.....	Scrubby Bros., Chillicothe.....	1.65	1.73	11.00	10.96	1.00	0.71	10.00	10.25	0.50	0.52	28.55	29.41
5-29	Ammoniated Bone Phosphate and Potash.....	D. H. Clark & Son, Gault.....	1.65	1.82	11.00	10.29	1.00	0.72	10.00	9.57	0.50	0.58	28.55	29.20
5-30	Blood and Phosphate.....	Huntsville Flour & Feed Co. Huntsville.....	1.65	1.17	13.00	13.86	1.00	1.45	12.00	12.41			30.05	27.54
5-31	Blood and Phosphate.....	J. J. Wiggins, Carrollton.....	1.65	1.45	13.00	12.70	1.00	0.79	12.00	11.91			30.05	28.42
9-205	Blood and Phosphate.....	Missouri Reform School, Boonville.....	1.65	1.51	13.00	15.44	1.00	1.58	12.00	13.86			30.05	32.15
9-206	Blood and Phosphate.....	E. Heffelman, Sedalia.....	1.65	1.41	13.00	14.27	1.00	1.55	12.00	12.72			30.05	29.3
9-207	Blood and Phosphate.....	W. E. Files, LaMonte.....	1.65	1.70	13.00	13.40	1.00	1.26	12.00	12.14			30.05	30.74
9-208	Blood and Phosphate.....	Farmers Elevator Co., Smithton.....	1.65	1.92	13.00	14.12	1.00	1.93	12.00	12.19			30.05	32.70
9-209	Blood and Phosphate.....	Leslie Berry, Sarcxie.....	1.65	1.48	13.00	13.91	1.00	1.85	12.00	12.06			30.05	29.38
9-210	Blood and Phosphate.....	F. H. Kaase Hdwre. Co., Monett.....	1.65	1.47	13.00	13.93	1.00	1.55	12.00	12.38			30.05	29.64
9-211	Blood and Phosphate.....	Bingham Hardware Co., Ozark.....	1.65	1.52	13.00	13.88	1.00	1.85	12.00	12.03			30.05	29.62
9-194	Bone Meal Fertilizer.....	Chris Jacobs, Jefferson City	2.47	2.86	24.00	25.04							41.29	45.06
9-195	Bone Meal Fertilizer.....	Bingham Hdwre. Co., Ozark	2.47	2.85	24.00	20.84							41.29	40.79
9-304	Bone Meal Fertilizer.....	O. Granneman & Co., New Haven.....	2.47	3.02	24.00	21.13							41.29	42.27

5-63	Bone Meal Fertilizer ⁵	St. Louis Seed Co., St. Louis.....	2.47	2.68	24.00	25.86									41.29	44.62
5-49	1½-20 Bone Meal Fer- tilizer.....	Berryman-Kennedy Mer- cantile Co., Poplar Bluff....	1.23	1.56	20.00	20.37									28.61	31.29
9-172	1½-20 Bone Meal Fertilizer	Thos. Egger, Lamar.....	1.23	1.40	20.00	20.96									28.61	30.76
5-40	1¼-30 Bone Meal Fertilizer	C. M. Powell, Laredo.....	1.02	1.65	30.00	29.24									37.14	40.79
5-39	1½-30 Bone Meal Fertilizer	Davis Mill & Feed Co., Plattsburg.....	1.23	1.23	30.00	30.11									38.61	38.72
5-55	Bone Meal and Phosphate....	H. H. Burks, Hallsville.....	0.82	0.68	20.00	21.31		7.60	13.00	13.71					28.74	29.13
5-56	Bone Meal and Phosphate....	Crump & Humphreys, Centralia.....	0.82	0.83	20.00	21.67		7.87	13.00	13.80					28.74	30.45
9-187	Bone Meal and Phosphate....	Aurora Hdwre. Co., Aurora	0.82	1.01	20.00	21.57		9.38	13.00	12.19					28.74	30.05
9-188	Bone Meal and Phosphate....	Leslie Berry, Sarcoxie.....	0.82	1.03	20.00	21.06		8.77	13.00	12.29					28.74	30.04
9-189	Bone Meal and Phosphate....	J. A. Taylor, Marble Hill....	0.82	0.91	20.00	21.54		8.27	13.00	13.27					28.74	30.42
9-190	Bone Meal and Phosphate....	W. H. Tenny, Shelbina.....	0.82	0.90	20.00	21.21		7.58	13.00	13.63					28.74	30.54
9-191	Bone Meal and Phosphate....	W. E. Files, LaMonte.....	0.82	0.90	20.00	22.27		9.19	13.00	13.08					28.74	30.52
9-201	Bone Meal and Phosphate....	Soell & Blockberger, Lohman	0.82	1.12	20.00	21.54		8.29	13.00	13.25					28.74	31.87
9-202	Bone Meal and Phosphate....	Thos. Egger, Lamar.....	0.82	0.86	20.00	21.5		9.40	13.00	12.14					28.74	28.93
9.203	Bone Meal and Phosphate....	W. J. Livingston, Windsor...	0.82	1.12	20.00	21.28		8.20	13.00	13.08					28.74	31.56
9-204	Bone Meal and Phosphate....	Rock Island Elevator Co., Eldon.....	0.82	0.66	20.00	20.01		6.52	13.00	13.49					28.74	28.12
9-297	Bone Meal and Phosphate....	O. Granneman & Co., New Haven.....	0.82	1.00	20.00	19.23		6.20	13.00	13.03					28.74	29.65
9-298	Bone Meal and Phosphate....	Farmers Cooperative Ele- vator Ass'n., Union.....	0.82	0.78	20.00	19.60		6.47	13.00	13.13					28.74	28.40
9-173	Champion Wheat and Corn Grower.....	Leslie Berry, Sarcoxie.....	1.6	1.73	13.00	13.78	1.00	1.38	12.00	12.40	2.00	2.02			36.05	37.46
9-174	Champion Wheat and Corn Grower.....	Farmers Elevator Co., Silex..	1.65	1.47	13.00	13.63	1.00	1.63	12.00	12.00	2.00	1.44			36.05	33.43
9-340	Champion Wheat and Corn Grower.....	Farmers Exchange, Bolivar..	1.65	1.26	13.00	14.22	1.00	1.83	12.00	12.39	2.00	2.39			36.05	35.50
5-45	Complete Fertilizer.....	Shelton-Riggs Hardware Co. Kennett.....	0.82	0.80	8.50	9.98	0.50	1.18	8.00	8.80	1.00	1.10			20.99	22.69
9-212	Complete Fertilizer.....	Lipscomb Gr'n Co., Bronaugh	0.82	0.81	8.50	9.87	0.50	1.69	8.00	8.18	1.00	0.78			20.99	21.03
9-213	Complete Fertilizer.....	Lipscomb Grain & Seed Co., Liberal.....	0.82	0.63	8.50	9.54	0.50	1.35	8.00	8.19	1.00	1.02			20.99	20.44
9-214	Complete Fertilizer.....	Farmers Union, Milo.....	0.82	0.84	8.50	9.50	0.50	1.15	8.00	8.35	1.00	1.04			20.99	22.11
9-215	Complete Fertilizer.....	Lopez Store Co., Ironton....	0.82	0.85	8.50	9.65	0.50	1.45	8.00	8.20	1.00	1.09			20.99	22.25
9-216	Complete Fertilizer.....	J. O. Bayer & Son, Potosi....	0.82	0.70	8.50	9.68	0.50	0.85	8.00	8.83	1.00	0.83			20.99	21.07

*.-Guaranteed. †.-Found. ⁵In retail packages, incorrectly labeled and without registration tags.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 34)

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†
9-217	Complete Fertilizer.....	Farmers Elevator Co., Silex	0.82	0.88	8.50	9.78	0.50	1.43	8.00	8.35	1.00	0.76	\$20.99	\$21.69
9-218	Complete Fertilizer.....	Soell & Blockberger, Lohman	0.82	0.86	8.50	9.29	0.50	1.23	8.00	8.06	1.00	0.87	20.99	21.34
9-219	Complete Fertilizer.....	Rock Island Elevator, Eldon	0.82	0.85	8.50	10.12	0.50	1.12	8.00	9.00	1.00	0.84	20.99	22.53
9-220	Complete Fertilizer.....	Russellville Hardware Co., Russellville.....	0.82	0.85	8.50	9.53	0.50	1.30	8.00	8.23	1.00	1.00	20.99	21.95
9-221	Complete Fertilizer.....	Hert-Roth Co., California	0.82	0.60	8.50	12.33	0.50	4.10	8.00	8.23	1.00	1.02	20.99	21.66
9-300	Complete Fertilizer.....	Strehlman & Gerken, Leslie	0.82	0.92	8.50	10.78	0.50	1.01	8.00	9.77	1.00	1.06	20.99	24.79
9-301	Complete Fertilizer.....	Farmers Grain Elevator As- sociation, Owensville.....	0.82	0.78	8.50	12.76	0.50	2.49	8.00	10.27	1.00	0.90	20.99	24.82
9-344	Complete Fertilizer.....	W. H. Hurley Grain Co., Clinton.....	0.82	0.85	8.50	9.74	0.50	1.25	8.00	8.49	1.00	0.82	20.99	21.78
9-345	Complete Fertilizer.....	Newton Grain & Seed Co., Springfield.....	0.82	0.72	8.50	8.89	0.50	0.93	8.00	7.96	1.00	1.14	20.99	20.87
5-42	Corn and Oats Special.....	Salisbury Milling Co., Salisbury.....	1.65	1.45	11.00	12.29	1.00	2.28	10.00	10.01			27.05	26.31
5-44	Corn and Oats Special.....	Crump & Humphreys Centralia.....	1.65	1.43	11.00	12.89	1.00	1.47	10.00	11.42			27.05	27.88
9-161	Corn and Oats Special.....	Beeny & Son, Sheldon.....	1.65	1.31	11.00	12.29	1.00	2.10	10.00	10.19			27.05	25.51
9-162	Corn and Oats Special.....	Farmers Exchange, Milo.....	1.65	1.61	11.00	12.84	1.00	1.58	10.00	11.26			27.05	28.95
9-163	Corn and Oats Special.....	W. J. Livingston, Windsor...	1.65	1.84	11.00	10.69	1.00	0.88	10.00	9.81			27.05	28.04
9-164	Corn and Oats Special.....	Rock Island Elevator, Eldon	1.65	1.76	11.00	12.30	1.00	1.54	10.00	10.76			27.05	29.23
5-33	Diamond K Grain Grower....	Berryman-Kennedy Mer- cantile Co., Poplar Bluff....	0.82	1.13	12.50	13.90	0.50	1.49	12.00	12.41	1.00	1.07	26.99	30.49
5-35	Diamond K Grain Grower....	H. H. Burks, Hallsville.....	0.82	0.94	12.50	13.77	0.50	1.26	12.00	12.51	1.00	0.87	26.99	28.59
5-38	Diamond K Grain Grower....	C. M. Powell, Laredo.....	0.82	1.20	12.50	13.08	0.50	0.69	12.00	12.39	1.00	0.89	26.99	30.01
9-166	Diamond K Grain Grower....	Farmers Elevator Co., Silex	0.82	0.91	12.50	14.22	0.50	1.45	12.00	12.77	1.00	0.70	26.99	28.6
9-167	Diamond K Grain Grower....	W. Buchner & Son, Pierce City	0.82	0.86	12.50	14.39	0.50	1.90	12.00	12.49	1.00	0.68	26.99	27.75

9-193	Diamond K Grain Grower...	W. H. Tenny, Shelbina.....	0.82	0.97	12.50	13.42	0.50	1.13	12.00	12.29	1.00	0.94	26.99	28.62
9-302	Diamond K Grain Grower...	O. Granneman & Co., New Haven.....	0.82	0.84	12.50	13.15	0.50	1.05	12.00	12.10	1.00	1.04	26.99	27.68
9-303	Diamond K Grain Grower...	Farmers Co-operative Elevator Ass'n., Union.....	0.82	0.92	12.50	14.73	0.50	1.89	12.00	12.84	1.00	0.73	26.99	28.84
9-338	Diamond K Grain Grower...	C. M. Farrer, Deepwater.....	0.82	1.31	12.50	14.04	0.50	1.74	12.00	12.30	1.00	0.48	26.99	29.93
9-339	Diamond K Grain Grower...	W. H. Hurley Grain Co., Clinton.....	0.82	0.92	12.50	14.07	0.50	2.14	12.00	11.93	1.00	1.05	26.99	28.56
9-168	Diamond L Grain Grower...	Lipscomb Grain & Seed Co., Libera!.....	1.65	1.48	10.00	10.50	1.00	1.25	9.00	9.25	.....	.....	25.55	24.87
9-169	Diamond L Grain Grower...	Lipscomb Grain & Seed Co., Bronaugh.....	1.65	1.74	10.00	13.50	1.00	2.36	9.00	11.14	.....	.....	25.55	30.07
9-170	Diamond L Grain Grower...	C. W. Youngblood, Sparta...	1.65	1.30	10.00	10.72	1.00	1.99	9.00	8.73	.....	.....	25.55	23.20
9-296	Diamond M Grain Grower...	Farmers Union Co-operative Association, Union.....	1.65	1.75	12.00	13.63	1.00	2.15	11.00	11.48	1.00	0.70	31.55	32.65
9-196	Diamond N Grain Grower...	Leslie Berry, Sarcoxie.....	1.65	1.41	10.00	10.35	1.00	1.32	9.00	9.03	1.00	1.83	28.55	29.57
9-197	Diamond N Grain Grower...	C. W. Youngblood, Sparta...	1.65	1.26	10.00	11.79	1.00	1.87	9.00	9.92	1.00	0.69	28.55	26.71
9-198	Diamond N Grain Grower...	Aurora Hardware Co., Aurora.....	1.65	1.60	10.00	10.59	1.00	1.50	9.00	9.09	1.00	1.07	28.55	28.0
9-199	Diamond N Grain Grower...	Thos. Egger, Lamar.....	1.65	1.58	10.00	9.77	1.00	1.25	9.00	8.52	1.00	0.92	28.55	27.23
5-53	Diamond W Tomato and Vegetable Grower.....	Taylor-Estes Lumber Co., Columbia.....	1.65	1.35	9.00	12.39	1.00	3.64	8.00	8.75	3.00	2.72	33.05	32.56
5-47	Ground Beef Bone.....	W. A. Rowe, Kirkwood.....	2.06	3.13	27.00	25.04	.....	.....	.....	.....	.....	.....	41.42	46.95
5-48	Ground Beef Bone.....	Salisbury Milling Co., Salisbury.....	2.06	2.29	27.00	28.47	.....	.....	.....	.....	.....	.....	41.42	44.50
9-179	Ground Beef Bone.....	Thos. Egger, Lamar.....	2.06	2.10	27.00	27.03	.....	.....	.....	.....	.....	.....	41.42	41.73
9-180	Ground Beef Bone.....	W. Buchner & Son, Pierce City.....	2.06	2.17	27.00	27.97	.....	.....	.....	.....	.....	.....	41.42	43.16
9-181	Ground Beef Bone.....	W. E. Files, Lamonte.....	2.06	2.43	27.00	24.65	.....	.....	.....	.....	.....	.....	41.42	41.66
9-295	Ground Beef Bone.....	O. Granneman & Co., New Haven.....	2.06	2.79	27.00	26.93	.....	.....	.....	.....	.....	.....	41.42	46.46
9-185	High Grade Acid Phosphate	E. Heffelman, Sedalia.....	.....	.....	.....	17.48	.....	1.09	16.00	16.39	.....	.....	24.00	25.14
9-186	High Grade Acid Phosphate	Beeny & Son, Shelton.....	.....	.....	.....	17.74	.....	1.50	16.00	16.24	.....	.....	24.00	25.11
9-305	High Grade Acid Phosphate	O. Granneman & Co., New Haven.....	.....	.....	.....	16.45	.....	0.37	16.00	16.08	.....	.....	24.00	24.31
9-341	High Grade Acid Phosphate	W. H. Hurley Grain Co., Clinton.....	.....	.....	.....	17.03	.....	0.48	16.00	16.55	.....	.....	24.00	25.07
9-192	(14-2) Phosphate and-Potash	Leslie Berry, Sarcoxie.....	.....	.....	.....	15.57	.....	0.75	14.00	14.82	2.00	1.68	27.00	27.65

*.-Guaranteed. †.-Found.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 36)

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			
5-50	Pulverized Sheep Manure.....	St. Louis Seed Co. St.Louis	1.65	1.85	2.00	1.95									
5-64	Pulverized Sheep Manure ^f	St. Louis Seed Co. St.Louis	1.65	2.00	2.00	1.96					2.00	2.23	\$19.55	\$22.09	
9-182	Raw Bone Meal Fertilizer.....	C. W. Youngblood, Sparta...	3.75	4.10	23.00	23.53					2.00	2.79	19.55	24.33	
9-183	Raw Bone Meal Fertilizer.....	W. Buchner & Son, Pierce City.....	3.75	2.98	23.00	22.56							49.25	52.23	
9-184	Raw Bone Meal Fertilizer.....	Farmers Elevator Co., Silex	3.75	3.59	23.00	23.20							49.25	43.42	
9-342	Raw Bone Meal Fertilizer...	Farmers Exchange, Bolivar..	3.75	3.79	23.00	22.45							49.25	48.98	
9-343	Raw Bone Meal Fertilizer.....	Green County Farmers Sales Association, Springfield.....	3.75	4.03	23.00	22.84							49.25	51.05	
9-175	Special Bone Meal Fertilizer	Hert-Roth Co., California....	0.82	0.69	29.00	31.72							34.74	36.55	
9-349	Special Bone Meal Fertilizer	Joe Edde, Weaubleau.....	0.82	0.82	29.00	30.23							34.74	35.97	
9-350	Special Grain Fertilizer.....	C. M. Farrer, Deepwater.....	1.65	1.45	11.00	11.82	1.00	1.80	10.00	10.02	2.00	1.97	33.05	31.99	
5-51	Special Super-Phosphate.....	Allen Store Co., Malden.....	1.65	1.30	9.00	9.90	1.00	0.96	8.00	8.94	1.00	0.91	27.05	25.72	
9-200	Special Super-Phosphate.....	U. L. Coleman, Marionville..	1.65	0.81	9.00	10.86	1.00	2.70	8.00	8.16	1.00	0.76	27.05	21.54	
9-171	Tankage and Bone Phosphate.....	F. H. Kaase Hardware Co., Monett.....	0.82	0.97	12.50	13.91	0.50	1.03	12.00	12.88			23.99	26.63	
9-299	Tomato Grower.....	Farmers Cooperative Elevator Ass'n, Union.....	1.65	1.44	9.00	11.43	1.00	1.74	8.00	9.69	1.00	0.53	27.05	27.08	
	Swift & Co., Pioneer Brands.														
9-346	No. 1 Grain Grower.....	Greene Co.Farmers Sales Association, Springfield	1.65	1.47	10.00	10.49	1.00	1.45	9.00	9.04	1.00	0.71	28.55	26.71	
9-347	No. 2 Grain Grower.....	Greene Co.Farmers Sales Association, Springfield.....	0.82	0.82	12.50	13.83	0.50	1.75	12.00	12.08	1.00	1.07	26.99	27.95	
9-348	Wheat and Corn Grower	Greene Co.Farmers Sales Association, Springfield.....	1.65	1.62	11.00	12.10	1.00	1.96	10.00	10.14	2.00	2.14	33.05	33.95	

	Tennessee Chemical Co., Chicago, Ill nois. Ox Brands.																			
9-225	16% Acid Phosphate.....	Farmers Elevator Co. Jasper				18.91	0.50	0.68	16.00	18.23					24.25	27.69				
9-222	Bone Meal.....	Farmers Elevator Co. Jasper	2.47	2.79	24.00	24.89									41.29	44.43				
9-351	Bone Meal.....	Springfield.....	2.47	2.82	24.00	23.46									41.29	43.20				
5-58	New Ammoniated Phosphate	R. L. Robinson, Jackson.....	0.82	0.96		12.86	0.50	0.50	12.00	12.36					23.99	25.51				
9-352	New Ammoniated Phosphate	Newton Grain & Seed Co. Springfield.....	0.82	1.04		12.79	0.50	0.56	12.00	12.23					23.99	25.91				
9-226	New Grain Grower.....	Farmers Cooperative Ele- vator Co., Jasper.....	1.65	1.70		9.65	0.50	1.49	8.00	8.16	1.00	1.04			26.80	28.01				
9-224	Wheat, Corn and Oats Fer- tilizer.....	Farmers Cooperative Ele- vator Co., Jasper.....	0.82	0.84		8.65	0.50	0.77	8.00	7.88	1.00	0.82			20.99	20.55				
9-353	1-10 Fertilizer.....	Newton Grain & Seed Co. Springfield.....	0.82	0.79		11.72	0.50	0.92	10.00	10.80					20.99	22.19				
9-223	1-12-1 Fertilizer.....	Farmers Cooperative Ele- vator Co., Jasper.....	0.82	1.15		13.88	0.50	1.86	12.00	12.02	1.00	1.00			26.99	30.01				
	Thomas Ruddy Co., (Succeeded by Drivers Pack Kansas City, Kansas. Ruddy's Brand .		ing Co.,)																	
9-227	16% Acid Phosphate ⁶	Farmers Exchange, Liberal.				16.57		0.23	16.00	16.34					24.00	24.63				
9-357	16% Acid Phosphate.....	J. E. Ryland, Harrisonville.				19.07		2.10	16.00	16.97					24.00	26.51				
9-355	Ammoniated Bone Fertilizer	J. E. Ryland, Harrisonville	0.82	1.06	23.00	24.14									28.74	31.56				
9-354	Corn and Wheat Special.....	Farmers Elevator & Supply Co., Archie.....	0.82	0.30		15.57	0.50	1.96	12.00	13.61	1.00	0.85			26.99	26.05				
9-356	2-12 Fertilizer.....	J. E. Ryland, Harrisonville.	1.65	1.02		15.01	0.50	2.58	12.00	12.43					29.80	27.08				
	Virginia-Carolina Chem- ical Co., Memphis, Tenn.																			
9-229	Champion Corn and Wheat Grower.....	Ozark Lumber & Hardware Co., Ozark.....	0.82	0.89		12.24		2.86	9.00	9.38	1.00	1.06			22.24	24.91				
9-230	Champion Corn and Wheat Grower.....	James Tompkins, Windsor.....	0.82	0.95		12.34		3.10	9.00	9.24	1.00	1.05			22.24	25.21				
9-307	Good as Gold Standard Guano.....	F. H. Mittendorf, Hermann.....	0.82	0.82		13.71		0.74	12.00	12.97	1.00	1.23			26.74	29.26				
9-253	Ground Animal Bone.....	B. P. Beamer, McCredie.....	3.30	3.27	20.00	18.97								43.10	41.86					

*.-Guaranteed. †.-Found. ⁵.-In retail packages incorrectly labeled and without registration tags. ⁶.-Incorrectly and incompletely labeled.

TABLE 5.—FERTILIZER ANALYSES AND GUARANTEES: 1919 (Continued)

(Page 38)

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	Pre Cent	Per Cent	Per Cent	Per Cent			
9-231	Monarch Grain Grower.....	Farmers Elevator Co.,Butler				17.51		1.09	15.00	16.42	2.00	1.86	28.50	30.76
9-232	V-C Champion Super-phosphate.....	Farmers Elevator Co.,Butler				20.60		0.74	18.00	19.86			27.00	30.16
9-228	V-C Grain Grower.....	James Tompkins, Windsor				14.09		2.90	10.00	11.19	2.00	1.99	21.00	24.21
9-233	V-C Super-phosphate.....	N. Johannes & Son, Lamar..				18.00		0.65	16.00	17.35			24.00	26.36
9-234	V-C Super-phosphate.....	McIntosh Hardware & Implement Co., Liberal.....				18.99		0.77	16.00	18.22			24.00	27.72
9-251	V-C Super-phosphate.....	B. P. Beamer, McCredie.....				17.08		0.56	16.00	16.52			24.00	25.06
9-306	V-C Super-phosphate.....	F. H. Mittendorf, Hermann				18.48		2.46	16.00	16.02			24.00	25.26
	Wilson & Co., Kansas City, Kansas. Red W Brands.													
9-237	Bone Meal and Acid Phosphate.....	Schooler Grain Co., Jasper..	0.82	1.00		24.89	10.50	10.65	12.50	14.24			29.74	33.69
9-238	Bone Meal and Acid Phosphate.....	J. H. Crawford, California....	0.82	0.86		25.66	10.50	10.46	12.50	15.20			29.74	34.05
9-235	Grain Grower.....	Schooler Grain Co., Jasper....	0.82	0.82		14.39	2.00	2.37	12.00	12.02	1.00	1.01	27.74	27.99
9-236	Special Grain Fertilizer	J. H. Crawford, California....	0.82	0.81		9.25	2.00	0.85	8.00	8.40	1.00	1.03	21.74	21.79
3-18	Miscellaneous Samples													
4-13	Ste med Bone Meal (Arkansas Fertilizer Co.).....	Zeron Lawson, Seneca.....	0.82	0.89	29.00	27.76							34.74	33.99
4-41	Nitrophos (American Agricultural Chemical Co.).....	Bernie Hardware & Implement Co., Bernie.....	1.65	1.80		14.04	0.50	1.03	12.00	13.01			29.80	32.64
4-41	Wizard Brand Manure (Pulverized Manure Co.).....	Stark Bros., Marionville.....	1.80	1.67		1.24		0.39	1.00	0.85	1.00	1.21	17.10	16.80
4-42	Super-phosphate (Swift & Co.).....	Marshall Land & Merc. Co., Blodgett.....	1.65	2.54	9.00	9.76	1.00	1.43	8.00	8.33	2.00	3.23	30.05	40.69

5-72	XXX Fertilizer (Cameron Fertilizer Factory).....	Williams Grocer Co., Cameron.....										2.00	3.05	6.00	9.15
6-39	1 1/4-30 Bone Meal (Swift & Co.).....	Clem Meyers, Conception....	1.02	2.87	30.00	24.54								37.14	44.63
6-40	Diamond K Grain Grower (Swift & Co.).....	Clem Meyers, Conception....	0.82	1.38	12.50	11.88	0.50	0.73	12.00	11.15	1.00	1.06	26.99	29.94	
8-36	Raw Bone Meal (Swift & Co.).....	Farmers Elevator Co., Silex	3.75	4.04	23.00	24.79								49.25	53.07
9-459	Wheat Grower, (Bone & Potash Fertilizer Co.).....	O. F. Frost, Carthage.....	0.82	1.01		9.99	1.00	0.64	9.00	9.35	1.00	1.33	22.74	25.41	
9-482	Acid Phosphate, (Douglass Fertilizer Co.).....	Clay Thornton, Sedalia.....				19.64		1.39	16.00	18.25			24.00	28.08	
10-4	Raw Bone Meal, (Armour Fertilizer Works).....	C. A. Hausmann, Sullivan.....	3.71	3.45	22.00	26.68								47.97	50.83
10-7	Special Bone Meal (Wilson & Co.).....	J. E. Albertin, California.....	0.82	1.93	30.00	29.40								35.74	42.91
10-8	Grain Grower (Wilson & Co.).....	J. E. Albertin, California.....	0.82	0.63		14.44	2.00	0.92	12.00	13.52	1.00	1.05	27.74	28.30	
10-9	Purity Bone Meal (Jacksonville Reduction Co.).....	W. W. Merritt, New London	4.10	4.14	22.56	16.20	7.15	6.08	15.41	10.12	0.14	0.47	55.82	48.61	
10-15	Available Bone Phosphate, (Kansas City Feed & Fertilizer Co.).....	Chas. S. Ray, Montevallo..	0.82	0.03	30.00	30.68		1.95	26.00	28.73			46.74	44.29	
11-13	Special Bone Meal Fertilizer (Swift & Co.).....	A. J. Lewisoder, Bowers Mill	0.82	0.72	29.00	32.66								34.74	37.70

*.-Guaranteed. †.-Found.

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	C. L. White, Clinton.....	Limestone No. 1.....	85.59
1- 2	C. L. White, Clinton.....	Limestone No. 2.....	92.74
1- 3	C. L. White, Clinton.....	Limestone No. 3.....	96.95
1- 4	C. L. White, Clinton.....	Limestone No. 4.....	92.67
1- 5	C. L. White, Clinton.....	Limestone No. 5.....	94.70
1- 6	C. L. White, Clinton.....	Limestone No. 1 crushed.....	79.50
1-18	W. L. Flanery, Fredericktown.....	Chat, St. Catherine Mine.....	64.80
2-16	T. J. Matthews, Marquand.....	Soil Material.....	48.14
2-18	W. L. Flanery, Fredericktown.....	Chat, Hickory Nut Mine.....	57.87
3- 3	L. C. Roberts, Mingo.....	Limestone No. 1.....	98.11
3- 4	L. C. Roberts, Mingo.....	Limestone No. 2.....	103.00
3- 5	L. C. Roberts, Mingo.....	Limestone No. 3.....	98.66
4-21	W. D. Griggs, Bowling Green.....	Limestone No. 1.....	96.28
4-22	W. D. Griggs, Bowling Green.....	Limestone No. 2.....	94.97
4-23	S. H. Sullivan, Sr., Sullivan.....	Limestone and Tiff.....	77.82
4-24	F. L. Bock, Bland.....	Limestone.....	100.14
4-25	F. L. Bock, Bland.....	Limestone.....	99.05
4-26	F. L. Bock, Bland.....	Limestone.....	97.52
4-27	F. L. Bock, Bland.....	Limestone.....	98.26
4-28	F. L. Bock, Bland.....	Rock from wall No. 1.....	94.94
4-29	F. L. Bock, Bland.....	Rock from wall No. 2.....	95.44
4-33	Ross De Ford, Altamont.....	Limestone.....	61.68
5-82	P. H. Brewer, Perryville.....	Limestone No. 1.....	78.76
5-83	P. H. Brewer, Perryville.....	Limestone No. 2.....	101.55
5-84	Mrs. V. Prost, Perryville.....	Limestone.....	92.07
5-85	J. G. Williams, Perryville.....	Limestone No. 1.....	94.71
5-86	J. G. Williams, Perryville.....	Limestone No. 2.....	96.18
5-87	A. Raut, Brewerville.....	Limestone.....	73.66
6- 8	Emmett Prost, Perryville.....	Limestone.....	102.17
6- 9	A. G. Farrar, Menfro.....	Limestone.....	98.29
6-10	Henry Kemp, Perryville.....	Limestone.....	103.39
6-11	Theodore Lohman, Perryville.....	Limestone.....	99.56
6-12	Carl J. Brewer, Perryville.....	Limestone No. 1.....	23.02
6-13	Carl J. Brewer, Perryville.....	Limestone No. 2.....	98.55
6-14	Wm. Hotop, Perryville.....	Limestone No. 2.....	98.22
6-15	Wm. Hotop, Perryville.....	Limestone No. 4.....	100.81
6-19	L. C. Roberts, Mingo.....	Limestone No. 1.....	99.66
6-20	L. C. Roberts, Mingo.....	Limestone No. 2.....	102.46
6-21	L. C. Roberts, Mingo.....	Limestone No. 3.....	101.46
6-22	L. C. Roberts, Mingo.....	Limestone No. 4.....	100.21
6-25	A. J. Moneghan, Perryville.....	Limestone No. 1.....	88.11
6-26	A. J. Moneghan, Perryville.....	Limestone No. 2.....	86.74
6-27	A. J. Moneghan, Perryville.....	Limestone No. 3.....	97.45
6-28	A. J. Moneghan, Perryville.....	Limestone No. 4.....	26.11
6-29	A. J. Moneghan, Perryville.....	Limestone No. 5.....	26.06
6-30	A. J. Moneghan, Perryville.....	Limestone No. 6.....	0.0
6-31	P. Cashion, Menfro.....	Limestone.....	96.38
6-32	W. J. Cashion, Menfro.....	Limestone.....	95.91
6-35	Clem Schlatman, Perryville.....	Limestone No. 1.....	93.35
6-26	Clem Schlatman, Perryville.....	Limestone No. 2.....	93.25
6-37	Clem Schlatman, Perryville.....	Limestone No. 3.....	91.45
6-38	L. D. Halfacre, Bourbon.....	Limestone.....	100.67
6-43	Jesse Welker, Perryville.....	Limestone No. 1.....	103.35
6-44	Jesse Welker, Perryville.....	Limestone No. 2.....	92.92
6-45	Joseph F. Fenwick, Perryville.....	Limestone.....	99.57
6-46	John Dunker, Perryville.....	Limestone.....	80.58

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
6-49	A. J. Lungwitz, Altenburg.....	Limestone.....	93.82
7- 1	Aug. P. Beckman, Perryville.....	Limestone No. 1.....	102.37
7- 2	Aug. P. Beckman, Perryville.....	Limestone No. 2.....	83.32
7- 3	A. G. Abernathy, Menfro.....	Limestone.....	95.50
7- 4	Henry J. Biehle, Biehle.....	White Rock.....	0.0
7- 5	Henry J. Biehle, Biehle.....	Dark Rock.....	41.14
7- 6	Henry J. Biehle, Biehle.....	Limestone Rock.....	78.06
7-28	Daniel Lukefair, Perryville.....	Limestone No. 1.....	66.03
7-29	Daniel Lukefair, Perryville.....	Limestone No. 2.....	65.95
7-30	T. J. Lukefair, Perryville.....	Limestone No. 1.....	93.99
7-31	T. J. Lukefair, Perryville.....	Limestone No. 2.....	97.58
7-32	T. J. Lukefair, Perryville.....	Limestone No. 3.....	103.81
7-33	T. J. Lukefair, Perryville.....	Limestone No. 4.....	91.08
7-34	R. H. Hudson, St. Mary's.....	Limestone No. 1.....	95.39
7-35	R. H. Hudson, St. Mary's.....	Limestone (Screening from crusher)	88.36
8- 2	Martin Bergman, Menfro.....	Limestone.....	100.55
8- 3	John Monaghan, Perryville.....	Limestone No. 1.....	80.16
8- 4	John Monaghan, Perryville.....	Limestone No. 2.....	97.23
8- 5	John Monaghan, Perryville.....	Limestone No. 3.....	95.29
8- 6	John Monaghan, Perryville.....	Limestone No. 4.....	100.52
8- 7	Leonard Moll, Perryville.....	Limestone No. 1.....	92.87
8- 8	Leonard Moll, Perryville.....	Limestone No. 2.....	99.18
8- 9	F. G. Rush, Menfro.....	Limestone No. 1.....	100.27
8-10	F. G. Rush, Menfro.....	Limestone No. 2.....	102.07
8-11	Thos. Moore, Perryville.....	Limestone.....	78.29
8-12	John V. Bergman, Perryville.....	Limestone No. 1.....	99.13
8-13	John V. Bergman, Perryville.....	Limestone No. 2.....	96.14
8-14	James Moranville, Perryville.....	Limestone No. 1.....	100.60
8-15	James Moranville, Perryville.....	Limestone No. 2.....	100.85
8-16	James Moranville, Perryville.....	Limestone No. 3.....	96.24
8-17	Harry Goldsmith, Perryville.....	Limestone.....	86.86
8-18	H. J. Rauh, Perryville.....	Limestone No. 1.....	89.68
8-19	H. J. Rauh, Perryville.....	Limestone No. 2.....	89.58
8-20	H. J. Rauh, Perryville.....	Limestone No. 3.....	84.85
8-21	A. Raut, Perryville.....	Rock.....	3.07
8-22	P. H. Brewer, Perryville.....	Limestone No. 1.....	83.03
8-23	P. H. Brewer, Perryville.....	Limestone No. 2.....	81.88
8-24	A. J. Huber, Perryville.....	Limestone No. 3.....	98.88
8-25	A. J. Huber, Perryville.....	Limestone No. 2.....	98.18
8-26	A. J. Huber, Perryville.....	Limestone No. 3.....	96.31
8-27	J. H. Zoellner, Perryville.....	Limestone No. 1.....	90.60
8-28	J. H. Zoellner, Perryville.....	Limestone No. 2.....	96.76
8-29	J. H. Zoellner, Perryville.....	Limestone No. 3.....	96.66
8-30	Davis Feed and Coal Co., Plattsburg.....	Limestone.....	82.53
8-33	C. P. Springer, Menfro.....	Limestone No. 1.....	98.63
8-34	C. P. Springer, Menfro.....	Limestone No. 2.....	101.37
8-35	C. P. Springer, Menfro.....	Limestone No. 3.....	98.86
8-37	P. A. Fassold, Perryville.....	Limestone.....	99.83
8-38	Eugene Krause, Menfro.....	Limestone.....	102.35
8-39	John Renaud, Perryville.....	Limestone No. 1.....	101.30
8-40	John Renaud, Perryville.....	Limestone No. 2.....	101.02
8-41	B. A. Buchheit, Biehle.....	Limestone.....	98.03
9-456	W. F. Hoffman, Perryville.....	Limestone No. 1.....	98.08
9-457	W. F. Hoffman, Perryville.....	Limestone No. 2.....	22.16
9-458	W. F. Hoffman, Perryville.....	Limestone No. 3.....	96.68

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
9-483	C. W. Kennon, Perryville.....	Limestone.....	97.91
9-484	W. J. Schremp, Lithium.....	Limestone.....	91.40
9-485	Barto Katt, Brazeau.....	Limestone.....	98.98
9-486	W. A. Difani, Perryville.....	Limestone.....	91.73
9-487	Jos. F. Fenwick, Perryville.....	Limestone.....	95.59
9-488	Anton Lukefair, Perryville.....	Limestone.....	92.91
9-493	Leo H. Meyer, Biehle.....	Limestone No. 1.....	95.14
9-494	Leo H. Meyer, Biehle.....	Limestone No. 2.....	101.27
9-495	Leo H. Meyer, Biehle.....	Limestone No. 3.....	100.32
9-496	Leo H. Meyer, Biehle.....	Limestone No. 4.....	89.81
9-497	Leo H. Meyer, Biehle.....	Limestone No. 5.....	99.46
9-498	Leo H. Meyer, Biehle.....	Limestone No. 6.....	96.78
9-499	Hugo J. Meyer, Biehle.....	Limestone No. 1.....	104.39
9-500	Hugo J. Meyer, Biehle.....	Limestone No. 2.....	98.38
9-501	Hugo J. Meyer, Biehle.....	Limestone No. 3.....	100.05
9-502	Hugo J. Meyer, Biehle.....	Limestone No. 4.....	95.94
9-503	D. W. Norrington, Menfro.....	Limestone.....	95.29
9-504	C. F. Weinrich, Perryville.....	Limestone.....	100.02
9-767	J. F. Geils, Perryville.....	Limestone No. 1.....	100.85
9-768	J. F. Geils, Perryville.....	Limestone No. 2.....	91.68
9-769	Lawrence Renaud, Perryville.....	Limestone.....	99.16
10-13	Gottlob Schuetz, Hermann.....	Limestone (block).....	49.09
10-14	Gottlob Schuetz, Hermann.....	Limestone (fragment).....	87.98
10-16	Clem Schindler, Perryville.....	Limestone No. 1.....	91.82
10-17	Clem Schindler, Perryville.....	Limestone No. 2.....	91.24
10-18	Clem Schindler, Perryville.....	Limestone No. 4.....	99.61
11-10	Jos. J. Ernst, Perryville.....	Limestone No. 1.....	102.43
11-11	Jos. J. Ernst, Perryville.....	Limestone No. 2.....	98.88
11-14	Jacob Greburg, Altenburg.....	Limestone.....	92.88
11-20	Schmidt Bros., Wittenburg.....	Limestone No. 1.....	97.52
11-21	Schmidt Bros., Wittenburg.....	Limestone No. 2.....	97.76
12-7	J. G. Williams, Perryville.....	Limestone.....	98.18

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920

Fertilizer	Nitro- gen	Phosphoric Acid (P_2O_5)			Potash (K_2O)
		Total	Avail- able	Insol- uble	
	Per cent	Per cent	Per cent	Per cent	Per cent
The American Agricultural Chemical Co.					
Empire Carbon Works, East St. Louis, Ill					
Boar's Head Brands					
16% Phosphate.....			16.00	0.50	.....
Faultless Grain Grower.....			12.00	0.50	2.00
Good as Bone.....	1.65		10.00	0.50	.....
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
Special Bone Meal.....	1.65	20.00			.....
Pure Raw Bone Meal.....	3.29	20.00			.....
Bradley Brands					
High Grade Phosphate.....			16.00	0.50	.....
All But Straw.....			12.00	0.50	2.00
Binfiller.....	1.65		10.00	0.50	.....
Bradley's 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
Special Bone Meal.....	1.65	20.00			.....
Pure Raw Bone Meal.....	3.29	20.00			.....
Empire Carbon Works Brands					
16% Phosphate.....			16.00	0.50	.....
Phosphate and Potash.....			12.00	0.50	2.00
Steam Bone Substitute.....	1.65		10.00	0.50	.....
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
Special Bone Meal.....	1.65	20.00			.....
Pure Raw Bone Meal.....	3.29	20.00			.....
Horseshoe Brands					
Economy Phosphate.....			16.00	0.50	.....
Grain Maker.....			12.00	0.50	2.00
Soil Builder.....	1.65		10.00	0.50	.....
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
Special Bone Meal.....	1.65	20.00			.....
Pure Raw Bone Meal.....	3.29	20.00			.....

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (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
Armour Fertilizer Works, Chicago, Illinois					
"Big Crop" Brands					
12-2 Fertilizer.....	.....	.....	12.00	0.50	2.00
12-4 Fertilizer.....	.....	.....	12.00	0.50	4.00
2-12-2 Fertilizer.....	1.65	.....	12.00	0.50	2.00
2-10-4 Fertilizer.....	1.65	.....	10.00	0.50	4.00
High Grade Ammoniated Phosphate.....	1.65	.....	12.00	0.50	.....
Acid Phosphate.....	.....	.....	16.00	0.50	.....
1-12-1 Fertilizer.....	0.82	.....	12.00	0.50	1.00
Bone Meal.....	2.47	24.00	.....	.....	.....
Armour Brands					
1-10 Fertilizer.....	0.82	.....	10.00	0.50	.....
Ammoniated Phosphate Special.....	0.82	.....	12.00	0.50	.....
Wheat, Corn and Oats Special.....	0.82	.....	8.00	0.50	1.00
New Record Brand.....	0.82	.....	10.00	0.50	1.00
Ammoniated Phosphate.....	1.65	.....	10.00	0.50	.....
Special Grain Grower.....	1.65	.....	8.00	0.50	1.00
Grain Grower.....	1.65	.....	8.00	0.50	2.00
Tuscarora Brands					
Acid Phosphate.....	.....	.....	14.00	0.50	.....
16% Acid Phosphate.....	.....	.....	16.00	0.50	.....
1-10 Fertilizer.....	0.82	.....	10.00	0.50	.....
New Ammoniated Phosphate.....	0.82	.....	12.00	0.50	.....
Wheat, Corn and Oats Special.....	0.82	.....	8.00	0.50	1.00
1-12-1 Fertilizer.....	0.82	.....	12.00	0.50	1.00
Ammoniated Phosphate.....	1.65	.....	10.00	0.50	.....
New Standard.....	1.65	.....	8.00	0.50	1.00
Bone Meal.....	2.47	24.00	.....	.....	.....
Arkansas Fertilizer Co., Little Rock, Arkansas					
White Diamond Brands					
Special Acid Phosphate.....	.00	.....	16.00	.....	.00
Blood, Bone and Potash.....	2.00	.....	12.00	.....	1.50
Early Potato and Truck, W. P.....	2.50	.....	12.00	.....	.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	.....	.00
Arkansas Standard.....	1.65	.....	10.00	.....	1.00
Blood and Bone Fertilizer.....	1.50	.....	11.00	.....	1.50
Queen of the South.....	1.65	.....	12.00	.....	.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	.....	.00
20th Century.....	1.65	.....	9.00	.....	2.00
"20th Century 1916".....	1.65	.....	10.60	.....	.40
Vegetable Fertilizer.....	2.00	.....	7.50	.....	3.00
Economy.....	.82	.....	10.00	.....	2.00
Number 39.....	.82	.....	10.00	.....	1.00
"Gro-Fast" Fertilizer.....	1.65	.....	8.00	.....	2.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Continued)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Percent	Percent	Percent	Percent	Percent
New South.....	1.65	.....	10.00	.....	.00
Kali Superphosphate.....	.00	.....	11.00	.....	3.00
Commonwealth Wheat Grower.....	.82	.....	8.00	.....	1.00
Commonwealth Corn Grower.....	.82	.....	8.00	.....	2.00
Superphosphate, with Potash.....	.00	.....	10.00	.....	2.00
Superphosphate, with Ammonia.....	.82	.....	12.00	.....	.00
Early Harvest.....	1.65	.....	10.50	.....	.50
Special Wheat Grower "B".....	1.00	.....	7.00	.....	1.00
Special Raw Bone and Potash.....	1.65	18.00	.....	.....	1.00
Raw Bone Meal Fertilizer.....	3.29	20.00	.....	.....	.00
Steamed Bone Meal.....	.82	29.00	.....	.....	.00
The Bone and Potash Fertilizer Co., Carthage, Missouri					
Shin Bone Brands					
Complete Corn, Cotton and Truck Grower....	0.92	.....	9.00	1.00	1.25
Special Wheat Grower.....	0.92	.....	9.00	1.00	1.25
Pure Bone Meal.....	0.82	30.00	.....	.....	.....
Pulverized Sheep Guano.....	1.64	3.00	1.00	.....	1.00
Calumet Fertilizer Co., New Albany, Indiana					
Calumet Brands					
High Grade Manure.....	1.23	10.00	9.00	1.00	1.00
Missouri Wheat Grower.....	0.61	9.50	8.50	1.00	0.50
Corn and Wheat Special.....	1.64	11.00	10.00	1.00	2.00
Onion and Potato Grower.....	1.64	9.00	8.00	1.00	8.00
Grain Grower.....	1.64	9.00	8.00	1.00	2.00
Special Crop Grower.....	0.41	13.00	12.00	1.00	.....
Extra Ammoniated Bone Phosphate.....	1.64	13.00	12.00	1.00	.....
High Grade Tobacco and Truck Grower.....	2.46	11.00	10.00	1.00	4.00
Half Thirteen One.....	0.41	15.50	13.00	2.50	1.00
Half Ten Two.....	0.41	11.00	10.00	1.00	2.00
Half Seven Ten.....	0.41	8.00	7.00	1.00	10.00
Ten Ten Hummer.....	.....	11.00	10.00	1.00	10.00
Twelve Two.....	.....	13.00	12.00	1.00	2.00
Ten Four.....	.....	11.00	10.00	1.00	4.00
Onion and Tobacco Grower.....	0.82	9.00	8.00	1.00	3.00
Half Eight Three.....	0.41	9.00	8.00	1.00	3.00
Bone Meal Mixture with Phosphate.....	1.23	20.00	12.00	8.00	.....
Bone Meal Tankage and Potash.....	1.23	16.00	(BO NE)	.....	1.00
Bone Phosphate and Potash Mixture.....	0.41	11.00	10.00	1.00	1.00
Acid Phosphate 14%.....	.....	15.00	14.00	1.00	.....
Acid Phosphate 16%.....	.....	17.00	16.00	1.00	.....
Special Pure Bone Meal.....	0.82	30.00	(BO NE)	.....	.....
Raw Bone Meal.....	3.77	20.00	(BO NE)	.....	.....
The Cochrane Packing Co., Kansas City, Kansas					
Cochrane's Brands					
Available Bone.....	0.50	.....	27.00	.....	.....
Champion Grain Grower.....	1.65	11.00	10.00	.....	1.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Continued)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Percent	Percent	Percent	Percent	Percent
Special Wheat Grower.....	0.40	11.00	10.00	.....	2.00
Super-Phosphate.....	0.82	16.00	15.00	.....	1.00
Corn and Wheat Grower.....	1.00	9.00	8.00	.....	1.00
Pulverized Sheep Guano.....	2.00	2.00	1.50	.....	0.75
Corn and Wheat Special.....	0.82	12.50	12.00	.....	1.00
2-14 Fertilizer.....	1.65	.....	14.00	.....	0.00
16% Acid Phosphate.....	0.00	.....	16.00	.....	0.00
Commercial Fertilizer Co.,					
North Little Rock, Arkansas					
Commercial Brands					
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
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
All-Crop Fertilizer.....	1.65	.....	9.00	.....	2.00
Economy.....	0.82	.....	10.00	.....	2.00
Farmers' Friend.....	0.82	.....	10.00	.....	1.00
Bove-All Cotton Grower.....	1.65	.....	8.00	.....	2.00
Square Deal Fertilizer.....	0.82	.....	8.00	.....	1.00
Phospho-Potash.....	0.00	.....	10.00	.....	2.00
Early Harvest.....	1.65	.....	10.50	.....	0.50
Special Wheat Grower "B".....	1.00	.....	7.00	.....	1.00
Raw Bone and Potash.....	1.65	18.00	.....	.....	1.00
Raw Bone.....	3.29	20.00	.....	.....	0.00
Steamed Bone Meal.....	0.82	29.00	.....	.....	0.00
The Cudahy Packing Co.					
Kansas City, Kan.					
Cudahy's Blue Ribbon Steamed Bone Meal ..	2.47	24.00	.....	.....	.....
Darling and Company,					
Chicago, Illinois					
Darling Brands					
Farmer's Favorite.....	2.40	.....	8.00	2.00	1.00
Chicago Brand.....	1.60	.....	8.00	2.00	2.00
Bip Harvest.....	0.80	.....	8.00	2.00	3.00
Sure Winner.....	0.80	.....	10.00	2.00	0.50
Grain Grower.....	0.80	.....	9.00	2.00	1.00
General Crop.....	1.60	.....	12.00	2.00	.....
Bone and Acid Phosphate Half and Half	0.80	.....	12.00	11.00	.....
Little Giant.....	0.80	.....	10.00	2.00	.....
Big Potash.....	.....	.....	10.00	.....	5.00
16% Acid Phosphate.....	.....	.....	16.00	.....	.....
Pure Ground Bone.....	1.80	28.00	.....	.....	.....
Ground Raw Bone.....	3.70	22.00	.....	.....	.....
Blood and Bone.....	4.94	12.00	.....	.....	.....

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Continued)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Percent	Percent	Percent	Percent	Percent
Nitrate of Soda.....	14.80	.....	.....	.....	.....
Pulverized Sheep Manure.....	1.85	.....	1.00	.....	1.00
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
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
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
Economy.....	0.82	.....	10.00	.....	2.00
Douglass Acidulated Bone.....	0.82	.....	10.00	.....	1.00
Complete.....	1.65	.....	8.00	.....	2.00
Douglass Universal.....	1.65	.....	10.00	.....	0.00
Phosphate and Potash.....	0.00	.....	11.00	.....	3.00
Wheat Grower.....	0.82	.....	8.00	.....	1.00
Corn Grower.....	0.82	.....	8.00	.....	2.00
Phospho-Potash.....	0.00	.....	10.00	.....	2.00
Early Harvest.....	1.65	.....	10.50	.....	0.50
Special Wheat Grower "B".....	1.00	.....	7.00	.....	1.00
Raw Bone and Potash.....	1.65	18.00	.....	.....	1.00
Douglass Raw Bone Meal.....	3.29	20.00	.....	.....	0.00
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	15.00	8.00	7.00	4.00
Red Banner Manure.....	0.82	14.00	10.00	4.00	3.00
Missouri Grain Grower.....	0.41	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	0.00
Premium Formula.....	0.41	18.00	13.00	5.00	0.00
Bone and Potash.....	.....	15.00	10.00	5.00	2.00
High Grade Potash Phosphate.....	.....	14.00	10.00	4.00	4.00
Premium Phosphate.....	.....	20.00	10.00	10.00	.....
High Grade Phosphate.....	.....	18.00	14.00	4.00	.....
Climax Phosphate.....	.....	18.00	16.00	2.00	.....
Falls City Fertilizer Co. New Albany, Indiana					
Falls City Brands					
High Grade Manure.....	1.23	10.00	9.00	1.00	1.00
Missouri Wheat Grower.....	0.61	9.50	8.50	1.00	0.50

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Continued)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Percent	Percent	Percent	Percent	Percent
Corn and Wheat Special.....	1.64	11.00	10.00	1.00	2.00
Onion and Potato Grower.....	1.64	9.00	8.00	1.00	8.00
Grain Grower.....	1.64	9.00	8.00	1.00	2.00
Special Crop Grower.....	0.41	13.00	12.00	1.00	.....
Extra Ammoniated Bone Phosphate.....	1.64	13.00	12.00	1.00	.....
High Grade Tobacco and Truck Grower.....	2.46	11.00	10.00	1.00	4.00
Half Thirteen One.....	0.41	15.50	13.00	2.50	1.00
Half Ten Two.....	0.41	11.00	10.00	1.00	2.00
Half Seven Ten.....	0.41	8.00	7.00	1.00	10.00
Ten Ten Hummer.....	.....	11.00	10.00	1.00	10.00
Twelve Two.....	.....	13.00	12.00	1.00	2.00
Ten Four.....	.....	11.00	10.00	1.00	4.00
Onion and Tobacco Grower.....	0.82	9.00	8.00	1.00	3.00
Half Eight Three.....	0.41	9.00	8.00	1.00	3.00
Bone Meal Mixture with Phosphate.....	1.23	20.00	12.00	8.00	.....
Bone Meal Tankage and Potash.....	1.23	16.00	(BO NE)	.....	1.00
Bone Phosphate and Potash Mixture.....	0.41	11.00	10.00	1.00	1.00
Acid Phosphate 14%.....	.....	15.00	14.00	1.00	.....
Acid Phosphate 16%.....	.....	17.00	16.00	1.00	.....
Special Pure Bone Meal.....	0.82	30.00	(BO NE)	.....	.....
Raw Bone Meal.....	3.77	20.00	(BO NE)	.....	.....
Gate City Fertilizer Co.,					
Little Rock, Arkansas					
Red Ball Brands					
Extra 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
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
Economy.....	0.82	.....	10.00	.....	2.00
Acidulated Bone Fertilizer.....	0.82	.....	10.00	.....	1.00
Old Reliable Fertilizer.....	1.65	.....	8.00	.....	2.00
Soluble Bone Fertilizer.....	1.65	.....	10.00	.....	0.00
Phosphate and Potash.....	0.00	.....	11.00	.....	3.00
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
Early Harvest.....	1.65	.....	10.50	.....	0.50
Special Wheat Grower "B".....	1.00	.....	7.00	.....	1.00
Raw Bone and Potash.....	1.65	18.00	.....	.....	1.00
Raw Bone Fertilizer.....	3.29	20.00	.....	.....	0.00
Steamed Bone Meal.....	0.82	29.00	.....	.....	0.00
Jacob Cohen and Son and Jacksonville					
Reduction Co.,					
Jacksonville, Illinois					
Purity Bone Meal Fertilizer.....	4.10	22.56	15.41	7.15	0.14

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Continued)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Percent	Percent	Percent	Percent	Percent
Meridian Fertilizer Factory, Shreveport, Louisiana					
Meridian Brands					
Union Special Acid Phosphate.....	.....	.....	16.00	.....	.....
Farm Special.....	1.65	.....	10.00	.....	.....
Grain Grower.....	1.65	.....	10.00	.....	2.00
Wheat Grower.....	1.65	.....	12.00	.....	.....
Western Special.....	1.65	.....	12.00	.....	1.00
Great Western.....	1.65	.....	12.00	.....	2.00
Morris and Co., Chicago, Illinois					
Big Brands					
Big One—Ground Raw Bone.....	3.30	24.00	.....	.....	.....
Big Two—Pure Bone Meal.....	2.00	28.00	.....	.....	.....
Special Big Three.....	0.41	.....	11.00	2.00	3.00
Special Big Four—Half and Half.....	0.41	.....	13.00	5.00	.....
Big Four.....	3.30	.....	7.00	5.00	6.50
Big Five—Bone, Tankage and Potash.....	2.50	10.00	7.00	3.00	1.00
Big Six—Special Bone Meal and Potash.....	0.82	16.00	.....	.....	3.00
Special Big Seven—Bone Meal.....	0.82	22.00	.....	.....	.....
Big Eight—Phosphate and Potash.....	0.82	8.00	7.00	1.00	1.00
Special Big Nine—Manure and Potash.....	0.41	13.00	11.00	2.00	1.00
Big Ten—Manure and Potash.....	1.65	.....	8.00	2.00	2.00
Special Big Eleven—Phosphated Manure.....	0.82	11.00	10.00	1.00	.....
Special Big Twelve—Phosphated Manure.....	1.65	14.00	12.00	2.00	.....
National Plant Food Company, Eau Claire, Wisconsin					
Red Snapper Plant Food.....	5.00	12.00	4.00	8.00	1.25
The Pulverized Manure Co., East St. Louis, Illinois					
Wizard Brand Manure.....	1.80	.....	1.00	.....	1.00
Wizard Brand Phosphated Manure.....	0.82	.....	9.00	.....	1.00
Read Phosphate Co., Nashville, Tennessee					
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	15.00	8.00	7.00	4.00
Farmers Special Manure.....	0.82	15.00	10.00	5.00	3.00
Missouri Grain Special.....	0.41	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	16.00	12.00	4.00	0.00
Challenge Formula.....	0.41	18.00	13.00	5.00	0.00
High Grade Potash Mixture.....	.....	14.00	10.00	4.00	4.00
High Grade Bone and Potash.....	.....	14.00	12.00	2.00	2.00
50-50 Phosphate.....	.....	20.00	10.00	10.00	.....
High Grade Phosphate.....	.....	18.00	14.00	4.00	.....
Special High Grade Phosphate.....	.....	18.00	16.00	2.00	.....

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Continued)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Percent	Per cent	Per cent	Per cent	Per cent
Southern Cotton Oil Co., Little Rock, Arkansas					
SCO-CO Brands					
Fruit and Truck Special.....	2.47	.....	10.00	.....	4.00
Columbia High Grade.....	2.47	.....	10.00	.....	2.00
Truck Mixture.....	2.47	.....	8.00	.....	2.00
Red Bull Wheat Special.....	1.65	.....	12.00	.....	2.00
Bre'r Rabbit.....	1.65	.....	10.00	.....	2.00
Grain Hustler.....	1.65	.....	10.00	.....	1.00
Quick Step.....	1.65	.....	9.00	.....	2.00
Missouri Mixture.....	0.82	.....	10.00	.....	1.00
Pure Gold.....	0.82	.....	8.00	.....	1.00
Missouri Special.....	1.00	.....	13.00	.....	.00
Raccoon Wheat Grower.....	2.00	.....	12.00	.....	.00
Full Moon Grain Grower.....	0.00	.....	12.00	.....	2.00
Acid Phosphate.....	0.00	.....	16.00	.....	.00
The Sterling Fertilizer Co., Chicago, Illinois					
Sterling Brands					
Harvest King.....	2.40	.....	8.00	2.00	1.00
Harvest Queen.....	1.60	.....	8.00	2.00	2.00
Wonder Yield.....	0.80	.....	8.00	2.00	3.00
Special Grain Grower.....	0.80	.....	9.00	2.00	1.00
Universal.....	1.60	.....	12.00	2.00	.....
Golden Harvest.....	0.80	.....	10.00	2.00	0.50
16% Acid Phosphate.....	.....	.....	16.00	.....	.....
Pure Bone Meal.....	1.80	28.00	.....	.....	.....
Raw Bone Meal.....	3.70	22.00	.....	.....	.....
Bone and Acid Phosphate Half and Half	0.80	.....	12.00	11.00	.....
Little Giant.....	0.80	.....	10.00	2.00	.....
Ten-Five.....	.....	.....	10.00	.....	5.00
Swift & Company, National Stock Yards, Illinois					
Swift's Brands					
Blood and Phosphate.....	1.65	13.00	12.00	1.00	0.00
Corn and Oats Special.....	1.65	11.00	10.00	1.00	0.00
Standard Cotton and Corn Grower.....	1.65	12.00	11.00	1.00	0.00
Ammoniated Bone Phosphate.....	0.82	10.50	10.00	0.50	0.00
14-2 Phosphate and Potash.....	0.00	14.00	14.00	0.00	2.00
12-4 Phosphate and Potash.....	0.00	12.00	12.00	0.00	4.00
High Grade Acid Phosphate.....	0.00	16.00	16.00	0.00	0.00
Ground Steam Bone Fertilizer.....	1.65	20.00	.....	.....	0.00
Bone Meal and Phosphate.....	0.82	20.00	13.00	.....	.....
Bone Meal Fertilizer.....	2.47	24.00	.....	.....	.....
Ground Beef Bone Fertilizer.....	2.06	27.00	.....	.....	.....
2 1/4-29 Bone Meal Fertilizer.....	1.85	29.00	.....	.....	.....
Raw Bone Meal Fertilizer.....	3.70	23.00	.....	.....	.....
Complete Fertilizer.....	0.82	8.50	8.00	0.50	1.00
Champion Wheat and Corn Grower.....	1.65	13.00	12.00	1.00	2.00
Superphosphate.....	1.65	9.00	8.00	1.00	2.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Continued)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Special Grain Grower.....	1.65	11.00	10.00	1.00	2.00
Diamond "B" Fertilizer.....	2.47	9.00	8.00	1.00	5.00
Diamond "M" Grain Grower.....	1.65	12.00	11.00	1.00	1.00
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
Tomato and Vegetable Grower.....	1.65	9.00	8.00	1.00	3.00
Tomato Grower.....	0.82	8.50	8.00	.50	3.00
Diamond "L" Grain Grower.....	1.65	10.00	9.00	1.00	0.00
Tankage and Bone Phosphate.....	0.82	12.50	12.00	0.50	0.00
Tennessee Chemical Co., Chicago, Illinois					
Ox Brands					
14% Acid Phosphate.....	.....	.....	14.00	0.50	.....
16% Acid Phosphate.....	.....	.....	16.00	0.50	.....
1-10 Fertilizer.....	0.82	.....	10.00	0.50	.....
New Ammoniated Phosphate.....	0.82	.....	12.00	0.50	.....
Wheat, Corn and Oats Fertilizer.....	0.82	.....	8.00	0.50	1.00
1-12-1 Fertilizer.....	0.82	.....	12.00	0.50	1.00
Ammoniated Phosphate.....	1.65	.....	10.00	0.50	.....
New Grain Grower.....	1.65	.....	8.00	0.50	1.00
Bone Meal.....	2.47	24.00	.....	.....	.....
Tupelo Fertilizer Factory, Tupelo, Mississippi					
Cotton Belt High Grade 16% Acid Phosphate.....	.....	.....	16.00	1.00	.....
Tupelo Special High Grade 18% Acid Phosphate.....	.....	.....	18.00	1.00	.....
Cotton Belt High Grade Fertilizer.....	1.65	.....	12.00	2.00	.....
Cotton Belt High Grade Corn Grower.....	2.50	.....	12.00	2.00	.....
Tupelo Special High Grade Fertilizer.....	2.50	.....	9.00	2.00	3.00
Cotton Belt H. G. Fertilizer with Potash.....	1.65	.....	10.00	2.00	2.00
Cotton Belt H. G. Vegetable Producer.....	3.30	.....	8.00	1.00	5.00
Cotton Belt H. G. Phosphate and Potash.....	.....	.....	12.00	1.00	2.00
Tupelo Special H. G. Phosphate and Potash.....	.....	.....	12.00	1.00	4.00
Virginia-Carolina Chemical Co., Memphis, Tennessee					
V-C Plant Food for Vegetables, Lawns and Flowers.....	4.92	.....	8.00	.....	2.00
V-C Grain Grower.....	.....	.....	12.00	.....	2.00
Royal Phosphate and Potash Compound.....	.....	.....	12.00	.....	1.00
Black Diamond Phosphate and Potash.....	.....	.....	10.00	.....	1.00
V-C Champion Super-Phosphate.....	.....	.....	18.00	.....	0.00
V-C Superphosphate.....	.....	.....	16.00	.....	0.00
Victor High Grade Superphosphate.....	.....	.....	16.00	.....	0.00
Victor High Grade Acid Phosphate.....	.....	.....	14.00	.....	0.00
Ground Animal Bone.....	3.30	20.00	.....	.....	.....
Good Luck Wheat Special.....	1.65	.....	12.00	.....	2.00
Champion High Grade Fertilizer.....	2.47	.....	10.00	.....	2.00
V-C Fruit and Truck Special.....	2.47	.....	10.00	.....	4.00
V-C Side Application.....	4.94	.....	8.00	.....	0.00

TABLE 7.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI: 1920 (Concluded)

Fertilizer	Nitro- gen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total	Avail- able	Insol- uble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Game Cock High Grade Guano.....	1.65	.....	10.00	.....	1.00
Good as Gold Standard Guano.....	0.82	.....	12.00	.....	1.00
Owl Brand Ammoniated Bone.....	0.82	.....	10.00	.....	1.00
Champion Corn and Wheat Grower.....	0.82	.....	9.00	.....	1.00
Good Luck Guano.....	0.82	.....	8.00	.....	1.00
Crescent Wheat Grower.....	1.65	.....	12.00	.....	0.00
Capital Ammoniated Superphosphate.....	1.65	.....	10.00	.....	0.00
National Ammoniated Superphosphate.....	0.82	.....	10.00	.....	0.00
Monarch Grain Grower.....	.....	.....	15.00	.....	2.00
Capital Phosphate and Potash Compound.....	.....	.....	10.00	.....	2.00
Vita-Flora Co.,					
Joplin, Missouri					
Vita-Flora.....	5.62	.....	10.98	.....	6.65
Wilson and Co.,					
Kansas City, Kansas					
Red "W" Brands					
Special Bone Meal.....	0.82	30.00	.....	.....	.....
Bone Meal and Acid Phosphate.....	0.82	.....	12.50	10.50	.....
Corn and Wheat Special.....	1.65	.....	8.00	2.00	2.00
Special Grain Fertilizer.....	0.82	.....	8.00	2.00	1.00
Two-Ten Fertilizer.....	1.65	.....	10.00	2.00	.....
Acid Phosphate.....	.....	.....	16.00	.....	.....
Kali-Phosphate.....	.....	.....	12.00	1.00	1.00
Grain Grower.....	0.82	.....	12.00	2.00	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*	1918		1919	
	Spring	Fall	Spring	Fall
	Tons	Tons	Tons	Tons
Adair.....	23.5	33	15	237
Andrew.....			15	
Audrain.....	220	1426	302	1541
Barry.....	324	723	291.2	866
Barton.....	176	2157	553	2377
Bates.....	121	1945	111.5	1317.5
Benton.....	.5	457	115	716
Boone.....	303	756	168	389
Bollinger.....	130	223	282	250
Buchanan.....			15	75
Butler.....	24		27	66
Cape Girardeau.....	25	130	66	98.5
Caldwell.....	10.2	156	15.5	102
Callaway.....	235	1227.5	184.1	1321
Camden.....	18	79	43	90
Carroll.....	130	34	110	137
Carter.....		110	153	
Cass.....	153.5	699	101	397
Chariton.....	120	287	91	47
Christian.....	123	776	204	684
Cedar.....	100	207	201	318
Clark.....	2	.5	1	15
Clinton.....	25.5	55	65	109.5
Clay.....		4	3.5	151
Cole.....	54	583	73	711
Cooper.....	32.5	754	48	563
Crawford.....	195	88.5	109	323.5
Dade.....		396	81	671
Dallas.....		25		
Daviess.....		126	15	95.5
DeKalb.....		71	15	52
Dent.....	95	209	103	111
Douglass.....		47	79	51
Dunklin.....	183	8	176	
Franklin.....	90	924	83.5	1258
Gasconade.....	30	404	3	533
Greene.....	413	1118	593	1787
Gentry.....			14	
Grundy.....	20		116	175
Harrison.....	16		65	30
Henry.....	85	1393	183	328
Hickory.....	20	395	93	310
Holt.....		1.4		
Howell.....	323	589	277	382
Howard.....		204	30	153
Iron.....	63	142	93	291
Jackson.....		137	38.2	46.1
Jasper.....	489	3424	465	4045.5
Jefferson.....		419	15	266
Johnson.....	61	578	38.5	415
Knox.....	1	41.5		89
Laclede.....	428	522	321.5	747
LaFayette.....		3	45	35
Lawrence.....	547	218	484	1866
Lewis.....	165	736	301	427
Lincoln.....	547	2733	607	1822.5
Linn.....	24	82.5	93	1
Livingston.....		90	20	25

* No reports received of any Shipments to Atchison County.

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

COUNTY	1918		1919	
	Spring	Fall	Spring	Fall
	Tons	Tons	Tons	Tons
McDonald.....	20	121	80	141
Madison.....	80	583	94	120
Macon.....	30	185	84.2	267
Maries.....	15	65	15	121
Marion.....	56	520	.....	176
Mercer.....	.....	25	70	.....
Miller.....	72	943	56	652
Mississippi.....	16	.....	.....	135
Monroe.....	150	1154	304	604
Montgomery.....	289	2065	327	1263.5
Moniteau.....	80	753	60	995
Morgan.....	74	1454	214	1062
Newton.....	337	2257	153	1900
New Madrid.....	54	.....	.....	15
Nodaway.....	.....	.....	16	55
Osage.....	89	612	112	616
Oregon.....	15	59	22	45
Ozark.....	.....	25	.....	.....
Pemiscott.....	.....	.....	1.2	4
Perry.....	16	117	41	177
Pettis.....	89	1318	132	765
Phelps.....	95	636	155	1222
Pike.....	402	1437	514	1101
Platt.....	.....	.....	.....	16.2
Polk.....	183	1277	606	752
Pulaski.....	266.5	766	270.1	568
Putnam.....	.....	.....	63	.....
Ralls.....	30	487	57	513
Ray.....	51	323	101	162
Randolph.....	277	182.1	164	356
Reynolds.....	15	1	.....	41
Ripley.....	.....	.....	.....	140
Saline.....	20	61	43	101
Schuyler.....	54	85	94	87
Scott.....	7.5	84	.....	37
Scotland.....	.....	1.3	2.2	16
Shannon.....	20	98	20	30
Shelby.....	60	894	173	443
Stoddard.....	7.5	123	15	169
Stone.....	.....	74	30	30
St. Charles.....	38.2	1298	185.2	1140
St. Clair.....	91	660	123	537
St. Francois.....	150	900	370	804
St. Genevieve.....	.....	.....	.....	20
St. Louis.....	4.5	36	30.9	20
Stone.....	32	42	.....	.....
Sullivan.....	.....	65	50.2	.....
Taney.....	.....	.....	.5	.....
Texas.....	132	889	182	351
Vernon.....	345	1504	333	959
Washington.....	50	668	15	420
Warren.....	149	868	334	580.2
Wayne.....	.....	167	1	87
Webster.....	543	1115	610	647
Wright.....	158	521	340	454
Worth.....	.....	.....	.....	15
Total.....	10808.9	55465.3	14336.8	49846.5

FINANCIAL STATEMENT

MISSOURI AGRICULTURAL EXPERIMENT STATION

in account with

FERTILIZER CONTROL FUND

For the Year 1919	Dr.	Cr.
RECEIPTS		
Jan. 1, 1919, Balance on Hand.....	\$23,537.59	
Receipts from Sale of Tags, 1919.....	40,091.31	
EXPENDITURES		
Salaries		\$15,799.07
Labor		7,654.07
Publications		3,686.38
Postage and Stationery		3,879.50
Freight and Express		399.99
Heat, Light and Water		410.45
Chemical Supplies		2,257.78
Seeds, Plants and Sundry Supplies		841.86
Fertilizers		3.00
Library		8.80
Feeding Stuffs		3,664.87
Tools, Implements and Machinery		1,291.39
Furniture and Fixtures		277.75
Contingent		7.00
Scientific Apparatus		167.50
Live Stock		
Traveling Expenses		1,043.25
Buildings and Repairs		1,006.88
Total Expenditures		\$42,399.54
Balance on Hand, Dec. 31, 1919		\$21,229.36
	\$63,628.90	\$63,628.90