

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

F. B. MUMFORD, *Director*

Registration, Labeling and
Inspection of Commercial
Fertilizers; 1936

F. B. MUMFORD, *Director*

L. D. Haigh and E. W. Cowan, *Chemists*

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Registration, Labeling and Inspection of Commercial Fertilizers; 1936

F. B. MUMFORD, *Director*

L. D. HAIGH AND E. W. COWAN, *Chemists*

The sale of fertilizer in the state of Missouri is regulated by statute, which prescribes conditions under which the goods may be placed before the buyer. It is difficult for a purchaser to judge accurately the value of many commodities through the use of his physical senses alone, and this is especially true of materials for fertilization of the soil. Chemical analysis of the material can alone furnish a figure which indicates quantitatively the values residing in the material. If there were no law covering the sale of fertilizer in the state, every buyer would find it necessary to employ a chemist every time he purchased fertilizer. The provisions of the Missouri Fertilizer Law provide for labels showing the analysis of the material as a fertilizer expressed in the form of a guarantee to the buyer. Furthermore the law provides that the Missouri Experiment Station shall provide for registration of these fertilizers by the manufacturers or others responsible for their sale, and shall check the correctness of the guarantees, and the presence of labels and registration tags, by inspection of stocks of fertilizer on hand in the state. The registration tags are placed on the sacks or packages by the seller in order that the buyer may know these are registered goods.

All users of fertilizers should be guided by the following directions when buying fertilizer.

Purchase goods carrying labels showing name and address of the manufacturer, name of the fertilizer, and its guaranteed analysis. In addition the goods must carry a registration tag or label which states that the goods are registered in the year stamped upon said tag. All goods complying with above conditions are inspected to insure the correctness of all statements carried on the labels and tags; therefore the buyer is fully protected when these conditions prevail concerning his purchase.

Fertilizers without labels or tags should be avoided by the purchaser. When there is no guarantee on the package there is no assurance of value and since the name of the manufacturer is absent, no one knows who is liable, and since there is no registration

tag the goods are not registered and there has been no declaration of its composition before sale. Buyers frequently ask the Missouri Experiment Station to examine unlabeled and untagged fertilizer for buyers. Please note that the Experiment Station has no authority to deal with unregistered and unlabeled fertilizer goods. It is a violation of the law to sell anyone fertilizer which is unlabeled and not tagged with registration tags. Every buyer must insist that these be furnished when he makes a purchase. When this is done, the state inspection service is ready to examine and pass upon his purchase. Any buyer who accepts unlabeled and untagged fertilizer has denied himself the protection which the law provides, and therefore buys at his own risk.

A WORD TO FERTILIZER MANUFACTURERS

The Missouri Fertilizer Law requires a statement of Available Phosphoric Acid for all fertilizers in the registration and on the label. Undissolved, untreated bone, unmixed with any other phosphoric acid carrier is the only material excepted. Some manufacturers have been lax in this respect. We would name especially the brand, Half and Half which is frequently found without the statement of the percentage of Available Phosphoric Acid on the labels. All such labels represent violations of the law and are so reported.

Special attention is called to the fact that the requirements of the law regarding statements to be made in the registration, and on the label, read exactly the same. Failure of labels to agree with registered statements constitute the main reason for report of violations in the matter of labels.

INSPECTION FOR 1936

Stocks of fertilizer placed in the hands of dealers and consumers during 1936, were inspected during the spring and fall season in the usual manner; 139 dealers, farmers and other consumers in 63 localities were visited in the spring and 171 dealers and consumers in 72 towns and communities were visited in the fall. The samples collected in the spring inspection totalled 155; in the fall, the number was 258. In addition there were five unofficial samples sent in for information.

Violations of the law respecting registration, labeling, and the affixing of registrations are listed below. All the samples were submitted to analysis and the results reported in comparison with their

guarantees, Table 3. Other data of interest and value to fertilizer users will be found in the tables and discussed in the paragraphs below.

VIOLATIONS OF THE MISSOURI FERTILIZER LAW

Violations with respect to registration.—Registration of the brands had not been made prior to sale in the cases indicated below:

Armours Special Tree Food sold to Palmer Seed Co., St. Louis; Armours Special Florists Mixture and Armours Bone, Blood and Sulphate of Potash sold to A. H. Hummert Co., St. Louis; Big Crop 2-12-4 sold to Signer and Signer, Arcadia; Big Crop Pulverized Sheep Manure sold to Springfield Seed Co., Springfield by Armour Fertilizer Works, Chicago Heights, Ill. Scotts Turf Builder sold to Stix, Baer, and Fuller by O. M. Scott and Sons Co., Maryville, Ohio; Master Natural Bone Meal sold to S. S. Kresge Store, St. Louis, by Master Meat Products Co., Detroit; A. A. Gilt Edge 2-16-2 Fertilizer sold to Richards Bros., West Plains, by American Agricultural Chemical Co.; Moocow Natural Fertilizer sold to McGroary 10c Store, St. Louis, by Rynveld and Sons, New York, N. Y.; V-C 2-14-4 fertilizer sold to Carthage Cash Mercantile Co., Carthage, Mo.

Violations with respect to labeling: No labels were found on the following shipments:

Kainit shipped to D. M. Rigdon, Kennett, from Newhouse Chemical and Supply Co.; Steamed Bone Meal and also Kainit shipped to F. Kinsolving, Hornersville by Swift and Co. Fertilizer Works; Raw Bone Meal Fertilizer sold to E. H. Vieth, Monett, by Erickson Bros., Verona.

Statements of the guaranteed percentage of Available Phosphoric Acid were missing from the labels of A. A. Half and Half Fertilizer sold to Farmers Elevator and Exchange, Monroe City, by the American Agricultural Chemical Co., St. Louis, and from Red Steer Half and Half Fertilizer sold to Jacobs Hardware Co., Stoutland, by Swift and Company Fertilizer Works, National Stock Yards, Illinois.

Violations with respect to registration tags.—In the following cases the manufacturer had furnished the tags but the dealer had not attached same to the packages.

Nature's Plant Food sold by Palmer Seed Co., St. Louis, A. A. 3-8-6 and Sulphate of Ammonia sold by the Marshfield Supply Co., Red Steer 20 per cent Superphosphate and 2-12-2 sold by Shel-

bina Milling Co., Shelbina and Farmers Elevator and Supply Co., Palmyra.

Registration tags or stickers were missing from the following stocks of fertilizer: Ford Ammonium Sulphate from Ford Motor Co. was being sold by Rieselmeyer Motor Co., Webster Groves, Rynveld Bone Meal, Rynveld and Sons, New York, sold by Woolworth Stores, St. Louis; Driconure, Atkins and Durbrow, New York, sold by Woolworth Stores, St. Louis; Sulphate of Ammonia, and Armour's Bone Meal 2-26 Armour Fertilizer Works, sold by Springfield Seed Co., Springfield; Muriate of Potash, Swift and Company sold by Stokes Bros., Malden; A. A. Half and Half, American Agricultural Chemical Co. sold by Farmers Elevator and Exchange, Monroe City; Erickson's Raw Bone, Erickson Bros., Verona, sold to E. H. Vieth, Monett; Nitrophoska 15-30-15 Synthetic Nitrogen Products Co. sold to Palmer Seed Co., St. Louis.

SUMMARY OF RESULTS OF CHEMICAL ANALYSIS

The varied figures obtained as results in the chemical analysis of the different kinds of fertilizer from the different companies make it difficult to draw any conclusions as to whether these represent improvement or falling off of value in the fertilizers offered for sale as compared with other years. It is necessary to reduce these figures to a single index figure called a Ratio Number in order to make comparisons. In Table 1 this has been calculated for the plant food in Superphosphate, Bone Fertilizer, and Mixed Fertilizers and then summarized for all the fertilizers of the company. In turn the summary figures for each company is combined to get the summary figure for all samples handled. This is obtained in the following manner:

For the first company mentioned in Table 1 there are listed eleven samples of Superphosphate, three samples of bone fertilizer, and forty-five samples of mixed fertilizer. Of the eleven samples of Superphosphate there were eight samples of 16 per cent and three samples of 20 per cent. Eight samples of 16 per cent total a guarantee of 128 in Available Phosphoric Acid and three samples of 20 per cent total a guarantee of 60 in Available Phosphoric Acid. Total of all eleven samples is 188 guaranteed value. The sum of all the found percentage values of available phosphoric acid in these fifteen samples total up to a figure of 201.22. Dividing this figure by 188 we have 1.07. Expressed as per cent of 188 the result is 107.0.

Similarly the corresponding figure may be figured for total nitrogen and total phosphoric acid in the bone fertilizer, and for

TABLE 1.—SUMMARY OF AVERAGE VARIATIONS FROM MANUFACTURER'S GUARANTEE—SPRING AND FALL SAMPLES, 1936

Manufacturer	Superphosphate		Bone Fertilizer			Mixed Fertilizer				All Fertilizers	
	No. Samples	Available P ₂ O ₅	No. Samples	Total Nitrogen	Total P ₂ O ₅	No. Samples	Total Nitrogen	Available P ₂ O ₅	Potash	No. Samples	All Constituents
		Ratio No. of found value		Ratio No. of found value	Ratio No. of found value		Ratio No. of found value	Ratio No. of found value	Ratio No. of found value		
American Agr. Chemical Co.	11	107.0	3	111.4	105.2	45	104.0	107.7	110.9	59	107.6
Arkansas Fertilizer Co.	3	108.4	1	108.7	109.1	4	110.4	100.7	111.5	8	104.8
Armour Fertilizer Works.....	4	104.1	2	128.7	111.5	32	102.9	104.9	112.0	38	106.5
Crocker Packing Co.	4	107.5	2	95.6	126.5	3	93.9	114.9	113.8	9	113.6
Cudahy Packing Co.	1	111.2	1	154.8	97.9	5	136.5	135.7	107.2	7	122.6
Darling and Co.											
Darling's Brands.....	12	107.4	4	127.0	102.6	15	106.3	106.4	111.2	31	106.7
Darling and Co.											
M. F. A. Brands.....	16	108.9	2	109.0	109.3	30	104.0	108.2	110.9	48	108.4
Federal Chemical Co.											
Globe & Daybreak Brands...	8	107.1	1	135.0	90.0	15	110.1	103.9	113.8	24	105.8
Federal Chemical Co.											
Floyd Money Maker Brands..	5	114.2	--	-----	-----	9	102.0	106.9	110.4	14	109.6
A. H. Hoffman, Inc.	--	-----	--	-----	-----	2	102.3	132.6	99.8	2	113.6
W. J. Largent.....	--	-----	2	102.8	108.6	--	-----	-----	-----	2	107.7
Newhouse Chem. & Supply Co..	3	111.5	--	-----	-----	6	105.3	104.5	106.4	9	107.2
Pulverized Manure Co.....	--	-----	--	-----	-----	3	99.8	135.3	161.7	3	127.0
Rauh and Sons Fertilizer C.	6	108.5	1	137.5	105.7	5	104.3	128.9	111.5	12	114.0
Read Phosphate Co.....	7	108.7	--	-----	-----	7	103.6	105.3	117.5	14	107.9
Swift & Co. Fertilizer Works...	10	106.5	7	99.2	111.5	40	103.7	107.3	114.1	57	108.2
Virginia-Carolina Chem. Corp...	11	110.1	3	112.4	109.6	27	104.4	107.4	116.3	41	109.2
Totals.....	101	108.2	29	111.8	108.4	248	104.7	107.9	112.4	378	108.4

total nitrogen, available phosphoric acid and potash in the mixed fertilizer. The sum of the guaranteed and found percentage values of all the constituents in all the different kinds of fertilizer of any company gives us the figure for figuring the final ratio number for the company in the column to the extreme right and in like manner the final figure in the bottom row of totals is figured for all the companies taken together. Thus the standing for each company in relation to the guarantees is indicated (1) by each kind of fertilizer and (2) by all the different kinds considered together. The relation in money values for any kind of fertilizer can also be figured by using this ratio number in connection with any accepted price.

These results indicate that on the average there are no deficiencies in fertilizer plant food in any of the kinds of material sold. There are some deficiencies noted for bone constituents for certain companies but this has been frequently observed for bone as it is more subject to variation than other materials.

Table 2 gives the number of deficiencies of each fertilizer constituent for each company. The summarized values expressed in percentages indicate a large improvement in the results for phosphoric acid in bone and only slight changes in the results for other

TABLE 2.—SUMMARY OF TOTAL AND DEFICIENT FERTILIZER CONSTITUENTS
1936 SAMPLES

Manufacturer	Nitrogen			Total Phosphoric Acid (from bone)			Available Phosphoric Acid			Potash			All Analyses		
	Total	Deficient		Total	Deficient		Total	Deficient		Total	Deficient		Total	Deficient	
	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%
American Agricultural Chemical Co.	48	2	---	3	0	---	56	1	---	44	0	---	151	3	---
American Cyanamid Co.	2	0	---	0	0	---	2	0	---	0	0	---	4	0	---
Arkansas Fertilizer Co.	5	0	---	1	0	---	7	2	---	4	0	---	17	2	---
Armour Fertilizer Works.	34	8	---	2	0	---	36	2	---	33	1	---	105	11	---
Crocker Packing Co.	5	3	---	2	0	---	7	0	---	2	0	---	16	3	---
Cudahy Packing Co.	6	0	---	1	1	---	6	0	---	3	1	---	16	2	---
Darling and Co.															
Darling's Brands.	20	1	---	4	0	---	28	2	---	15	0	---	67	3	---
Darling and Co.															
M. F. A. Brands.	30	3	---	2	0	---	46	0	---	30	0	---	108	3	---
Federal Chemical Co.															
Globe and Daybreak Brands.	16	3	---	1	1	---	23	0	---	15	0	---	55	4	---
Federal Chemical Co.															
Floyd Money Maker Brands.	8	2	---	0	0	---	14	0	---	9	1	---	31	3	---
A. H. Hoffman, Inc.	2	1	---	0	0	---	2	1	---	2	1	---	6	3	---
W. J. Largent.	2	0	---	2	0	---	0	0	---	0	0	---	4	0	---
Newhouse Chemical & Supply Co.	6	1	---	0	0	---	9	0	---	7	1	---	22	2	---
Pulverized Manure Co.	3	1	---	0	0	---	3	1	---	3	0	---	9	2	---
Rauh and Sons Fertilizer Co.	5	0	---	1	0	---	11	0	---	3	0	---	20	0	---
Read Phosphate Co.	7	4	---	0	0	---	14	1	---	7	0	---	28	5	---
Swift & Co. Fertilizer Works.	47	10	---	7	0	---	50	2	---	40	1	---	144	13	---
Virginia-Carolina Chemical Corp.	27	4	---	3	0	---	38	0	---	27	0	---	95	4	---
Totals.	273	43	15.7	29	2	6.9	352	12	3.4	244	7	2.9	898	64	7.1

constituents. The total results represent a relatively low percentage of deficiencies being less than eight per cent of all the determinations made.

CHEMICAL ANALYSIS OF INSPECTION SAMPLES

Table 3 gives in detail the results obtained by analysis of the samples of fertilizer collected by the fertilizer inspectors in the spring and fall seasons of 1936. The number at the extreme left is a serial number,—spring samples are indicated by the number 6 and fall samples by the number 11. When more than one sample of any brand is given the average analysis of all the samples is also given directly above the guaranteed analysis of the brand. Any analysis figure which is lower than the guaranteed figure is printed in bold faced type to call attention to the deficiency. Many of these deficiencies are practically negligible in themselves, and call for the exercise of judgment in deciding whether this means any loss to the buyer or not.

The total nitrogen present in the fertilizer samples is indicated in the first column to the right of "dealer or purchaser." The figure in the next column indicates what per cent of this total nitrogen is soluble in water. When this figure is 66.66 or higher the total nitrogen per cent is regarded as satisfactory in quality. If it falls below this value, tests are applied to the water insoluble portion to determine the activity of the nitrogen it contains. All such samples tested were found satisfactory with the exception of the following numbered samples,—6-43, 6-47, 6-85, 6-90, 6-101, 6-102, 6-103, 6-216. The tests on these indicate the presence of nitrogen of inferior quality.

Analysis of fertilizer samples not collected by the inspectors is occasionally requested by buyers. The analysis of these is found at the end of table 3. The results on these are not necessarily satisfactory because usually the lot is not sampled in a manner that would insure the material, obtained for analysis, being representative of the lot. The official samples drawn by the inspectors will furnish on analysis, results which are a better guide to quality than samples sent in.

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
	American Agricultural Chemical Company National Stock Yards Ill. A. A. Brands							
6-1	16% Superphosphate	Goodwin & Co., Doniphan			17.83	0.60	17.23	
6-2	16% Superphosphate	Richard Bros., Pomona			17.70	0.55	17.15	
		Average Analysis				0.58	17.19	
		Guaranteed Analysis				0.50	16.00	
11-1	16% Superphosphate	Pollock Mill & Elevator Co., Mexico			17.70	0.53	17.17	
11-2	16% Superphosphate	Silex Grain Co., Silex			17.35	0.52	16.83	
11-3	16% Superphosphate	Farmers Elevator & Exchange, Monroe City			17.93	0.52	17.41	
11-4	16% Superphosphate	Farmers Supply Co., Lebanon			17.33	0.46	16.87	
11-5	16% Superphosphate	Joe Warden, Crocker			17.38	0.59	16.79	
11-6	16% Superphosphate	Jesse Miller, Cross Timbers			17.73	0.60	17.13	
		Average Analysis				0.54	17.03	
		Guaranteed Analysis				0.50	16.00	
11-7	20% Superphosphate	Pollock Mill & Elevator Co., Mexico			22.30	0.57	21.73	
11-8	20% Superphosphate	Farmers Elevator & Exchange, Palmyra			22.30	0.57	21.73	
11-9	20% Superphosphate	Owensville Roller Mills, Owensville			22.00	0.82	21.18	
		Average Analysis				0.65	21.55	
		Guaranteed Analysis				0.50	20.00	
6-3	Antler Fertilizer	Clever Hdwe. Co., Clever	2.18	94.03	13.30	0.47	12.83	6.55
		Guaranteed Analysis	2.00			0.55	12.00	6.00
11-29	Antler Fertilizer	L. Haubein & Son, Lockwood	2.01	92.54	13.48	0.74	12.74	6.55
11-30	Antler Fertilizer	Jasper Implement Co., Jasper	2.05	94.63	13.58	1.09	12.49	6.48
		Average Analysis	2.03	93.59		0.92	12.62	6.52
		Guaranteed Analysis	2.00			0.50	12.00	6.00
6-4	Big Boll Fertilizer	Goodwin & Co., Doniphan	2.17	96.31	13.20	0.34	12.86	2.51
		Guaranteed Analysis	2.00			0.50	12.00	2.00
6-5	Excelsior Fertilizer	Hays Dry Goods & Groceries, Hornersville	4.06	97.54	8.40	0.20	8.20	13.07
6-6	Excelsior Fertilizer	Senath Gin Co., Senath	4.17	97.60	8.70	0.23	8.47	13.46
		Average Analysis	4.12	97.57		0.22	8.34	13.27
		Guaranteed Analysis	4.00			0.50	8.00	12.00
11-31	Farmer's Friend	W. E. Craig, Stockton	2.09	91.87	14.04	0.74	13.30	4.39
		Guaranteed Analysis	2.00			0.50	12.00	4.00
6-7	Gilt Edge Fertilizer ¹	Richards Bros., West Plains	2.14	97.20	17.48	0.79	16.69	2.81
		Guaranteed Analysis	2.00			0.50	16.00	2.00
11-32	Gilt Edge Fertilizer	C. H. Honold, Beaufort	2.18	91.28	17.90	0.76	17.14	2.47
11-33	Gilt Edge Fertilizer	M. D. Grider, Harwood	2.16	91.67	18.38	0.76	17.62	2.45
		Average Analysis	2.17	91.48		0.76	17.38	2.46
		Guaranteed Analysis	2.00			0.50	16.00	2.00
6-8	Paramount Fertilizer ²	Marshfield Supply Co., Marshfield	3.10	98.39	9.26	0.99	8.27	6.06
		Guaranteed Analysis	3.00			0.50	8.00	6.00
6-9	Red Dragon Fertilizer	Glen Allen Store Co., Glen Allen	2.27	93.83	13.23	0.83	12.40	2.65
6-10	Red Dragon Fertilizer	Richards Bros., West Plains	2.14	96.73	13.13	0.40	12.73	2.31
6-11	Red Dragon Fertilizer	Marshfield Supply Co., Marshfield	2.11	97.16	12.83	0.45	12.38	2.10
		Average Analysis	2.17	95.91		0.56	12.50	2.35
		Guaranteed Analysis	2.00			0.50	12.00	2.00

¹Not registered²Without registration tags

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES, 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
11-10	Red Dragon Fertilizer.....	Pollock Mill & Elevator Co., Mexico.....	2.01	88.06	13.60	0.82	12.78	2.20
11-11	Red Dragon Fertilizer.....	Silex Grain Co., Silex.....	2.06	89.32	13.48	0.83	12.65	2.42
11-12	Red Dragon Fertilizer.....	Farmers Elevator & Exchange, Monroe City.....	2.03	93.10	13.44	0.47	12.97	2.25
11-13	Red Dragon Fertilizer.....	Farmers Elevator & Exchange, Palmyra.....	2.07	88.89	13.14	0.70	12.44	2.41
11-14	Red Dragon Fertilizer.....	E. C. Biles, Belle.....	2.00	94.42	13.22	0.50	12.72	2.24
11-15	Red Dragon Fertilizer.....	Rosebud Feed Co., Rosebud.....	2.07	86.47	13.52	1.04	12.48	2.38
11-16	Red Dragon Fertilizer.....	L. S. Montague, Dixon.....	2.13	84.51	13.84	2.04	11.80	2.32
11-17	Red Dragon Fertilizer.....	Good News Feed Store, Knobnoster.....	2.08	84.62	13.90	1.50	12.40	2.27
		Average Analysis.....	2.06	88.67	-----	0.99	12.53	2.31
		Guaranteed Analysis.....	2.00	-----	-----	0.50	12.00	2.00
6-12	Triumph Fertilizer.....	Richards Bros., West Plains, Guaranteed Analysis.....	4.35	96.09	13.26	0.70	12.56	4.52
			4.00	-----	-----	0.50	12.00	4.00
11-34	Triumph Fertilizer.....	Farmers Equity Exchange Bowling Green.....	4.15	94.22	13.94	0.87	13.07	4.55
11-35	Triumph Fertilizer.....	W. E. Craig, Stockton.....	4.06	93.84	14.18	0.82	13.36	4.27
		Average Analysis.....	4.11	94.03	-----	0.85	13.22	4.41
		Guaranteed Analysis.....	4.00	-----	-----	0.50	12.00	4.00
6-13	Agrico for Corn.....	Glen Allen Store Co., Glen Allen.....	3.18	97.48	15.10	0.87	14.23	6.26
		Guaranteed Analysis.....	3.00	-----	-----	0.50	14.00	6.00
6-14	Agrico for Grain.....	Glen Allen Store Co., Glen Allen.....	2.12	92.92	13.40	0.78	12.62	4.29
6-15	Agrico for Grain.....	Goodwin & Co., Doniphan.....	2.12	91.98	13.48	0.98	12.50	4.60
6-16	Agrico for Grain.....	G. H. Lane & Son Produce Co., Marshfield.....	2.10	97.62	13.27	0.44	12.83	4.37
		Average Analysis.....	2.11	94.17	-----	0.72	12.65	4.42
		Guaranteed Analysis.....	2.00	-----	-----	0.50	12.00	4.00
11-18	Agrico for Grain.....	Farmers Equity Exchange, Bowling Green.....	2.01	92.04	13.78	0.80	12.98	4.43
11-19	Agrico for Grain.....	Silex Grain Co., Silex.....	2.27	89.43	13.14	0.90	12.24	4.56
11-20	Agrico for Grain.....	Farmers Elevator & Exchange, Monroe City.....	2.06	91.26	13.58	0.90	12.68	4.60
11-21	Agrico for Grain.....	Martin Schubert, Schubert, Farmington Produce Co., Farmington.....	1.99	92.27	13.74	0.75	12.79	4.38
11-22	Agrico for Grain.....		2.00	92.50	14.40	0.88	13.52	4.18
11-23	Agrico for Grain.....	Eaton & Son, Steelville.....	2.08	94.23	13.40	0.59	12.81	4.34
11-24	Agrico for Grain.....	Farmers Supply Co., Lebanon.....	2.08	95.67	13.66	0.56	13.10	4.37
11-25	Agrico for Grain.....	Versailles Flour & Feed Co., Versailles.....	2.05	93.66	13.40	0.69	12.71	4.36
11-26	Agrico for Grain.....	E. Gallivan, Bolivar.....	2.00	94.00	13.40	0.53	12.87	4.40
11-27	Agrico for Grain.....	Patterson Supply House, Carthage.....	2.01	93.53	13.08	0.65	12.43	4.22
11-28	Agrico for Grain.....	Lamar Mills, Lamar.....	2.21	91.40	13.08	0.50	12.58	4.68
		Average Analysis.....	2.07	92.73	-----	0.70	12.79	4.41
		Guaranteed Analysis.....	2.00	-----	-----	0.50	12.00	4.00
6-17	Agrico for Lawns, Trees and Shrubs.....	Henry Schulz Feed Co., Webster Groves.....	10.24	95.12	7.03	0.08	6.95	4.60
		Guaranteed Analysis.....	10.00	-----	-----	0.50	6.00	4.00
6-18	Agrico for Potatoes.....	Glen Allen Store Co., Glen Allen.....	4.08	99.02	8.45	0.16	8.29	6.14
		Guaranteed Analysis.....	4.00	-----	-----	0.50	8.00	6.00
6-19	Agrico for Tomatoes.....	Koshkonong Mills, Koshkonong.....	2.25	95.56	13.43	0.44	12.99	6.33
		Guaranteed Analysis.....	2.00	-----	-----	0.50	12.00	6.00
11-36	Two in One.....	Farmers Equity Exchange, Bowling Green.....	4.03	97.02	18.00	0.48	17.52	4.43
		Guaranteed Analysis.....	4.00	-----	-----	0.50	16.00	4.00

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
11-37	Half & Half ²	Farmers Elevator & Exchange, Monroe City.....	0.85	17.28	22.15	0.85	21.30	-----
		Guaranteed Analysis.....	1.00	-----	-----	8.00	12.00	-----
11-38	Pure Raw Bone.....	Cuba Roller Mills, Cuba.....	3.32	15.06	20.10	-----	-----	-----
		Guaranteed Analysis.....	3.29	-----	20.00	-----	-----	-----
11-39	Steam Bone Meal.....	Pollock Mill & Elevator Co., Mexico.....	2.30	15.22	29.00	-----	-----	-----
11-40	Steam Bone Meal.....	E. C. Biles, Belle.....	2.50	18.40	28.75	-----	-----	-----
		Average Analysis.....	2.40	16.81	28.88	-----	-----	-----
		Guaranteed Analysis.....	2.00	-----	27.00	-----	-----	-----
11-41	American Cyanamid Co. 30 Rockefeller Plaza New York, N. Y. Ammo-Phos.....	E. M. Poirot, Golden City.....	11.04	94.57	50.40	1.22	49.18	-----
		Guaranteed Analysis.....	11.00	-----	-----	-----	48.00	-----
6-20	Aero Cyanamid.....	Eime Bros., South Afton.....	21.20	99.90	-----	-----	-----	-----
		Guaranteed Analysis.....	21.00	-----	-----	-----	-----	-----
11-42	32% Granular Aero Super Phosphate.....	E. M. Poirot, Golden City.....	-----	-----	33.80	0.17	33.63	-----
11-43	32% Granular Aero Super Phosphate.....	Brookshire Hdwe. Co., Diamond.....	-----	-----	33.50	0.21	33.29	-----
		Average Analysis.....	-----	-----	-----	-----	33.46	-----
		Guaranteed Analysis.....	-----	-----	-----	-----	32.00	-----
11-44	Archias Seed Store Corporation Sedalia, Missouri Archias Fairy Brand Plant Food.....	Archias Seed Store Corporation, Sedalia.....	13.81	99.85	16.82	0.02	16.80	15.34
		Guaranteed Analysis.....	10.00	-----	-----	-----	12.00	11.00
11-45	Arkansas Fertilizer Co. N. Little Rock, Arkansas White Diamond Brands 16% Superphosphate.....	George Helm, Stockton.....	-----	-----	16.48	0.92	15.56	-----
		Guaranteed Analysis.....	-----	-----	-----	0.50	16.00	-----
11-46	20% Superphosphate.....	George Helm, Stockton.....	-----	-----	22.60	0.75	21.85	-----
11-47	20% Superphosphate.....	M. D. Grider, Harwood.....	-----	-----	22.70	1.40	21.30	-----
		Average Analysis.....	-----	-----	-----	1.08	21.58	-----
		Guaranteed Analysis.....	-----	-----	-----	0.50	20.00	-----
6-21	Southern King.....	Austin-Snow Co., Marshfield.....	2.36	86.86	13.53	1.15	12.38	2.50
		Guaranteed Analysis.....	2.00	-----	-----	-----	12.00	2.00
11-48	Southern King.....	George Helm, Stockton.....	2.02	91.09	13.12	1.31	11.81	2.10
11-49	Southern King.....	M. D. Grider, Harwood.....	2.11	90.52	13.34	1.28	12.06	1.97
		Average Analysis.....	2.07	90.81	-----	-----	11.93	2.04
		Guaranteed Analysis.....	2.00	-----	-----	-----	12.00	2.00
11-50	Prize Wheat Grower.....	M. D. Grider, Harwood.....	2.34	88.47	17.90	1.75	16.15	2.35
		Guaranteed Analysis.....	2.00	-----	-----	-----	16.00	2.00
11-51	Pure Raw Bone Meal.....	M. D. Grider, Harwood.....	4.02	1.72	25.10	-----	-----	-----
		Guaranteed Analysis.....	3.70	-----	23.00	-----	-----	-----
11-52	Armour Fertilizer Works Chicago Heights, Illinois Big Crop Brands 16% Superphosphate.....	B. & H. Feed & Produce Co., Farmington.....	-----	-----	18.05	1.15	16.90	-----
		Guaranteed Analysis.....	-----	-----	-----	-----	16.00	-----
11-53	20% Superphosphate.....	B. & H. Feed & Produce Co., Farmington.....	-----	-----	19.70	0.40	19.30	-----

²Without registration tags³Incorrectly labeled

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
11-54	20% Superphosphate	Signer & Signer, Arcadia			22.15	0.37	21.78	
11-55	20% Superphosphate	F. M. Shofner, Bolivar			21.65	0.48	21.17	
		Average Analysis					20.75	
		Guaranteed Analysis					20.00	
11-56	0-14-4 Fertilizer	B. & H. Feed & Produce Co., Farmington			15.03	0.17	14.86	4.38
		Guaranteed Analysis					14.00	4.00
11-57	1-12-4 Fertilizer	R. R. Carter Mill & Elevator Co., Jasper	1.02	85.29	13.38	0.45	12.93	4.52
		Guaranteed Analysis	1.00				12.00	4.00
6-22	2-12-2 Fertilizer	Schuman Produce Co., Rolla	2.16	90.74	13.13	0.66	12.47	2.71
6-23	2-12-2 Fertilizer	Lutesville Ice, Fuel & Feed Co., Lutesville	2.10	86.67	12.92	0.60	12.32	2.58
6-24	2-12-2 Fertilizer	James W. Clark, Poplar Bluff	2.09	85.65	13.08	0.53	12.55	2.79
6-25	2-12-2 Fertilizer	Young's Produce, Thayer	2.04	91.18	13.22	0.59	12.63	2.60
		Average Analysis	2.10	88.56			12.49	2.67
		Guaranteed Analysis	2.00				12.00	2.00
11-58	2-12-2 Fertilizer	F. J. Wenger, Mexico	2.18	84.40	13.38	0.36	13.02	2.59
11-59	2-12-2 Fertilizer	Farmers Elevator Co., Silcox	2.18	84.86	13.18	0.51	12.67	2.33
11-60	2-12-2 Fertilizer	R. E. Larkin, Esther	2.18	82.57	13.08	0.73	12.35	2.44
11-61	2-12-2 Fertilizer	B. & H. Feed & Produce Co., Farmington	2.17	84.33	13.53	0.65	12.88	2.27
11-62	2-12-2 Fertilizer	Warren Cooper, Stover	2.22	84.23	13.48	0.85	12.63	2.36
11-63	2-12-2 Fertilizer	Haubein Hdwe. Co., Lockwood	1.48	85.03	13.08	0.46	12.62	2.23
11-64	2-12-2 Fertilizer	Whitlock-Lines, Monett	1.96	85.43	13.10	0.25	12.85	2.40
		Average Analysis	2.05	84.41			12.72	2.37
		Guaranteed Analysis	2.00				12.00	2.00
11-65	2-12-4 Fertilizer	Signer & Signer, Arcadia	2.18	88.99	13.05	0.18	12.87	4.34
		Guaranteed Analysis	2.00				12.00	4.00
6-26	2-12-6 Fertilizer	E. B. Evans Feed & Seed Co., Springfield	2.25	92.44	12.90	0.46	12.44	6.77
		Guaranteed Analysis	2.00				12.00	6.00
11-66	2-12-6 Fertilizer	Signer & Signer, Arcadia	2.17	89.40	12.70	0.30	12.40	6.32
11-67	2-12-6 Fertilizer	Haubein Hdwe. Co., Lockwood	2.21	90.95	13.20	0.40	12.80	6.39
		Average Analysis	2.19	90.18			12.60	6.36
		Guaranteed Analysis	2.00				12.00	6.00
11-68	2-14-4 Fertilizer	Howard Straughan, Farmington	2.35	88.94	15.18	0.85	14.33	4.36
		Guaranteed Analysis	2.00				14.00	4.00
6-27	2-16-2 Fertilizer	Putman & Bryant, Salem	1.87	93.05	16.55	0.37	16.18	3.00
		Guaranteed Analysis	2.00				16.00	2.00
10-177	3-18-3 Fertilizer*	H. F. Dickroeger, Wright City	3.06	90.20	19.20	0.83	18.37	3.42
		Guaranteed Analysis	3.00				18.00	3.00
6-28	4-8-6 Fertilizer	Hart & Vancil, Holcomb	3.97	93.95	8.64	0.20	8.44	6.18
6-29	4-8-6 Fertilizer	Farmer's Union Gin Co., Cardwell	3.95	93.92	8.55	0.19	8.36	6.35
6-30	4-8-6 Fertilizer	Young's Produce, Thayer	4.10	98.29	8.24	0.01	8.23	6.18
		Average Analysis	4.01	95.39			8.34	6.24
		Guaranteed Analysis	4.00				8.00	6.00
6-31	4-8-12 Fertilizer	Farmer's Union Gin Co., Cardwell	4.12	97.57	8.43	0.01	8.42	12.40
		Guaranteed Analysis	4.00				8.00	12.00
6-32	4-12-4 Fertilizer	R. O. Zimmerman, Glen Allen	3.90	95.13	13.34	0.40	12.94	4.29

*1935 Sample reported incorrectly last year, Bulletin 361.

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
6-33	4-12-4 Fertilizer-----	Farmer's Union Gin Co., Cardwell-----	4.29	97.90	12.90	0.35	12.55	5.16
6-34	4-12-4 Fertilizer-----	E. B. Evans Feed & Seed Co., Springfield-----	4.12	93.93	12.98	0.20	12.78	4.03
		Average Analysis-----	4.10	95.65			12.76	4.49
		Guaranteed Analysis-----	4.00				12.00	4.00
6-35	Bone Meal 2-24t-----	A. H. Hummert, St. Louis--	2.65	28.68	27.30			
6-36	Bone Meal 2-24t ² -----	Springfield Seed Co., Spring- field-----	2.50	14.00	26.25			
		Average Analysis-----	2.57	21.34	26.78			
		Guaranteed Analysis-----	2.00		24.00			
6-37	Bone Meal 2 25-24*-----	Schuman Produce Co., Rolla Guaranteed Analysis-----	2.64	21.59	26.25			
			2.25		24.00			
6-38	Bone Meal 2.50-27*-----	Putman & Bryant, Salem Guaranteed Analysis-----	2.59	28.57	27.08			
			2.50		27.00			
6-39	Bone, Blood & Sulphate of Potash 5-8-7 ⁴ -----	A. H. Hummert, St. Louis-- Guaranteed Analysis-----	5.00	21.20	9.90	1.32	8.58	8.48
			5.00				8.00	7.00
6-40	Kainit-----	Farmer's Union Gin Co. Cardwell----- Guaranteed Analysis-----						19.40 20.00
6-41	Garden & Lawn Fertilizer 4-8-6-----	Farmers Supply Co., Horn- ersville-----	4.03	98.01	11.52	3.63	7.89	6.62
6-42	Garden & Lawn Fertilizer 4-8-6-----	Springfield Seed Co., Spring- field-----	3.95	97.97	11.72	3.43	8.29	6.30
		Average Analysis-----	3.99	97.99			8.09	6.46
		Guaranteed Analysis-----	4.00				8.00	6.00
6-43	Pulverized Sheep Manure ¹ ---	Springfield Seed Co., Spring- field----- Guaranteed Analysis-----	1.80	18.89	1.62	0.15	1.47	2.28
			2.00				1.00	2.00
6-44	Special Florists Mixture 5- 15-5 ¹ -----	A. H. Hummert, St. Louis-- Guaranteed Analysis-----	5.33	95.68	15.25	0.16	15.09	6.01
			5.00				15.00	5.00
6-45	Special Tree Food ^{1 2 4} -----	Palmer Seed Co., St. Louis-- Guaranteed Analysis-----	10.36	99.52	8.68	0.12	8.56	6.19
			10.00				8.00	6.00
6-46	Sulphate of Ammonia ^{2 4} -----	Springfield Seed Co., Spring- field----- Guaranteed Analysis-----	21.09	100.00 ⁵				
			20.50					
6-47	Atkins & Durbrow Inc. Driconure ² -----	Woolworth & Co., St. Louis Guaranteed Analysis-----	1.73	21.97	0.82	0.11	0.71	1.76
			1.00				1.00	1.00
6-48	The Barrett Company, 40 Rector Street, New York, New York Arcadian the American Ni- trate of Soda-----	Farmers Supply Co., Horn- ersville----- Guaranteed Analysis-----	16.37	100.00 ⁵				
			16.00					
6-49	Sulphate of Ammonia ^{2 4} -----	Marshfield Supply Co., Marshfield----- Guaranteed Analysis-----	20.74	100.00 ⁵				
			20.56					

*1935 samples not included in average.

1Not registered

2Without registration tags

4Samples drawn from less than five sacks

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
6-50	Chilean Nitrate Sales Corporation, New York, N. Y. Champion Brand Chilean Nitrate of Soda ^a	Greene County Farmers Sales Assn., Springfield	16.15	100.00 ^b	-----	-----	-----	-----
6-51	Champion Brand Chilean Nitrate of Soda ^a	Lomax & Harkey, Hornersville	15.71	100.00 ^b	-----	-----	-----	-----
6-52	Champion Brand Chilean Nitrate of Soda ^a	Brewer Implement Co., Cardwell	16.12	100.00 ^b	-----	-----	-----	-----
		Average Analysis	15.97	100.00 ^b	-----	-----	-----	-----
		Guaranteed Analysis	16.00	-----	-----	-----	-----	-----
	Crocker Packing Company, Joplin, Missouri Interstate Brands							
11-69	Superphosphate, 16%-----	Brookshire Hdwe. Co., Diamond	-----	-----	17.10	0.50	16.60	-----
11-70	Superphosphate, 16%-----	Factory, Joplin	-----	-----	17.45	0.10	17.35	-----
		Average Analysis	-----	-----	-----	-----	16.98	-----
		Guaranteed Analysis	-----	-----	-----	-----	16.00	-----
11-71	Superphosphate, 20%-----	Brookshire Hdwe. Co., Diamond	-----	-----	21.80	0.08	21.72	-----
11-72	Superphosphate, 20%-----	Factory, Joplin	-----	-----	21.80	0.06	21.74	-----
		Average Analysis	-----	-----	-----	-----	21.73	-----
		Guaranteed Analysis	-----	-----	-----	-----	20.00	-----
11-73	2-12-2-----	Factory, Joplin	2.07	44.44	13.30	0.25	13.05	2.55
		Guaranteed Analysis	2.00	-----	-----	-----	12.00	2.00
11-74	4-16-4-----	Factory, Joplin	3.80	62.37	18.18	0.96	17.22	4.28
		Guaranteed Analysis	4.00	-----	-----	-----	16.00	4.00
11-75	Half & Half-----	Factory, Joplin	0.89	42.35	24.25	6.27	17.98	-----
		Guaranteed Analysis	1.20	-----	-----	6.00	14.00	-----
11-76	Steam Bone-----	Brookshire Hdwe. Co., Diamond	2.47	28.28	29.35	-----	-----	-----
11-77	Steam Bone-----	Factory, Joplin	1.85	42.62	31.35	-----	-----	-----
		Average Analysis	2.16	35.45	30.35	-----	-----	-----
		Guaranteed Analysis	2.46	-----	24.00	-----	-----	-----
	Cudahy Packing Company, Kansas City, Missouri Bigwin Brands							
11-78	High Grade 20% Superphosphate-----	Stover Mill & Elevator Co., Stover	-----	-----	22.60	0.36	22.24	-----
		Guaranteed Analysis	-----	-----	-----	1.00	20.00	-----
11-79	High Grade Fertilizer 2-12-2	Farmers Exchange, Lockwood	2.65	68.68	19.75	4.08	15.67	1.50
		Guaranteed Analysis	2.00	-----	-----	-----	12.00	2.00
6-53	High Grade Fertilizer 4-8-6 ^a	Culp Roller Mills, Warrensburg	4.81	72.35	13.14	2.20	10.94	7.14
		Guaranteed Analysis	4.00	-----	-----	-----	8.00	6.00
6-54	High Grade Fertilizer 4-12-4 ^a	Eagle Mill & Elevator Co., Higginsville	5.31	67.23	17.20	2.84	14.36	4.23
		Guaranteed Analysis	4.00	-----	-----	-----	12.00	4.00
11-80	High Grade Fertilizer Half & Half 1-13-0 ^a -----	Stover Mill & Elevator Co., Stover	1.73	27.17	24.50	5.28	19.22	-----

1Not registered

*Samples drawn from less than five sacks

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
11-81	High Grade Fertilizer Half & Half 1-13-0 ¹ -----	E. F. Buckner, Pierce City.	1.88	22.34	24.10	5.56	18.54	-----
		Average Analysis.....	1.81	24.76	-----	5.42	18.88	-----
		Guaranteed Analysis....	1.00	-----	-----	7.00	13.00	-----
6-55	High Grade Steamed Bone Meal ² 4-----	Eagle Mill & Elevator Co., Higginsville.....	3.87	25.84	23.50	-----	-----	-----
		Guaranteed Analysis....	2.50	-----	24.00	-----	-----	-----
	Darling & Company, 4201 South Ashland Ave., Chicago, Illinois Darling's Brands							
6-56	16% Superphosphate-----	Hopking & Schreimer, Marble Hill.....	-----	-----	17.75	0.55	17.20	-----
		Guaranteed Analysis....	-----	-----	-----	-----	16.00	-----
11-82	16% Superphosphate-----	Hassard Elevator Co., Monroe City.....	-----	-----	17.80	0.48	17.32	-----
11-83	16% Superphosphate-----	Farmington Milling Co., Farmington.....	-----	-----	18.10	0.41	17.69	-----
11-84	16% Superphosphate-----	Potosi Mill & Elevator Co., Potosi.....	-----	-----	17.88	0.41	17.47	-----
		Average Analysis.....	-----	-----	-----	-----	17.49	-----
		Guaranteed Analysis....	-----	-----	-----	-----	16.00	-----
6-57	20% Superphosphate-----	Producers Exchange, Marshfield.....	-----	-----	22.50	0.75	21.75	-----
6-58	20% Superphosphate-----	Greene County Farmers Sales Assn., Springfield.....	-----	-----	22.40	1.00	21.40	-----
		Average Analysis.....	-----	-----	-----	-----	21.58	-----
		Guaranteed Analysis....	-----	-----	-----	-----	20.00	-----
11-85	20% Superphosphate-----	Hassard Elevator Co., Monroe City.....	-----	-----	21.80	0.43	21.37	-----
11-86	20% Superphosphate-----	Farmers Exchange, Shelbina	-----	-----	22.20	0.50	21.70	-----
11-87	20% Superphosphate-----	Farmers Exchange No. 232, Belle.....	-----	-----	21.30	0.35	20.95	-----
11-88	20% Superphosphate-----	W. G. Schmidt, Gerald.....	-----	-----	21.45	0.55	20.90	-----
11-89	20% Superphosphate-----	C. Bess, Bonne Terre.....	-----	-----	22.10	0.66	21.44	-----
11-90	20% Superphosphate-----	Farmers Feed Store Steelville.....	-----	-----	22.10	0.60	21.50	-----
		Average Analysis.....	-----	-----	-----	-----	21.31	-----
		Guaranteed Analysis....	-----	-----	-----	-----	20.00	-----
11-91	All Crop-----	Farmington Milling Co., Farmington.....	4.13	96.85	17.33	0.26	17.07	4.58
		Guaranteed Analysis....	4.00	-----	-----	-----	16.00	4.00
6-59	Big Harvest ³ -----	Farmers Exchange, Willow Springs.....	4.15	97.35	9.58	0.21	9.37	7.20
6-60	Big Harvest-----	Farmers Exchange, Lebanon	2.10	87.62	12.97	0.19	12.78	2.54
6-61	Big Harvest-----	Crane Farmers Exchange, Crane.....	2.12	86.79	13.25	0.20	13.05	2.33
		Average Analysis.....	2.12	87.21	-----	-----	12.92	2.44
		Guaranteed Analysis....	2.00	-----	-----	-----	12.00	2.00
11-92	Big Harvest-----	Hassard Elevator Co., Monroe City.....	2.12	84.91	13.20	0.17	13.03	2.27
11-93	Big Harvest-----	Farmers Exchange, Macon	2.20	84.55	13.40	0.16	13.24	2.38
11-94	Big Harvest-----	W. G. Schmidt, Gerald.....	2.36	86.44	13.24	0.46	12.78	2.32
11-95	Big Harvest-----	Dixie Mills Co., De Soto.....	2.08	84.13	13.42	0.45	12.97	2.22
11-96	Big Harvest-----	C. Bess, Bonne Terre.....	2.19	85.39	13.42	0.45	12.97	2.33
		Average Analysis.....	2.19	85.08	-----	-----	13.00	2.30
		Guaranteed Analysis....	2.00	-----	-----	-----	12.00	2.00
6-62	Crop King-----	Producers Exchange, Marshfield.....	2.18	91.28	13.55	0.20	13.35	6.49
		Guaranteed Analysis....	2.00	-----	-----	-----	12.00	6.00

*Not included in average.

¹Not registered³Incorrectly labeled⁴Samples drawn from less than five sacks

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
11-97	Crop King ¹	Potosi Mill & Elevator Co., Potosi.....	2.10	89.05	11.22	0.25	10.97	6.08
11-98	Crop King.....	Producers Exchange, Inc., Richland.....	2.29	87.77	14.00	0.40	13.60	6.59
		Average Analysis.....	2.20	88.41	-----	-----	12.29	6.34
		Guaranteed Analysis.....	2.00	-----	-----	-----	12.00	6.00
11-99	Field Marshall.....	Dixie Mills Co., De Soto.....	4.10	92.68	13.62	0.40	13.22	4.37
11-100	Field Marshall.....	Farmington Milling Co., Farmington.....	4.29	91.98	13.48	0.93	12.55	4.42
		Average Analysis.....	4.20	92.33	-----	-----	12.89	4.40
		Guaranteed Analysis.....	4.00	-----	-----	-----	12.00	4.00
11-101	General Crop.....	Carthage Cash Mercantile Co., Carthage.....	2.08	87.02	15.65	0.97	14.68	4.46
		Guaranteed Analysis.....	2.00	-----	-----	-----	14.00	4.00
11-102	Bone & Superphosphate, Half & Half.....	Farmers Coop. Assn. No. 17, St. Clair.....	0.87	25.29	21.65	7.80	13.85	-----
		Guaranteed Analysis.....	1.00	-----	-----	6.00	14.00	-----
11-103	Pure Ground Bone.....	Producers Grain Co., Mexico	2.23	9.42	28.50	-----	-----	-----
11-104	Pure Ground Bone.....	Farmers Exchange, Shelbyna	2.31	18.61	28.00	-----	-----	-----
11-105	Pure Ground Bone.....	Farmington Milling Co., Farmington.....	2.24	12.50	30.20	-----	-----	-----
11-106	Pure Ground Bone.....	Carthage Farmers Exchange, Carthage.....	2.62	12.21	28.20	-----	-----	-----
		Average Analysis.....	2.35	13.18	28.73	-----	-----	-----
		Guaranteed Analysis.....	1.85	-----	28.00	-----	-----	-----
M. F. A. Brands								
6-63	16% Superphosphate.....	Farmers Exchange, Rolla.....	-----	-----	17.75	0.13	17.62	-----
		Guaranteed Analysis.....	-----	-----	-----	-----	16.00	-----
11-107	16% Superphosphate.....	Farm Club Exchange, Bland	-----	-----	18.10	0.52	17.58	-----
11-108	16% Superphosphate.....	Farm Club Exchange, Owensville.....	-----	-----	18.05	0.65	17.40	-----
11-109	16% Superphosphate.....	Farmers Produce Exchange, St. James.....	-----	-----	18.33	0.86	17.47	-----
11-110	16% Superphosphate.....	Farmers Exchange, Lebanon	-----	-----	17.85	0.34	17.51	-----
11-111	16% Superphosphate.....	M. F. A. Elevator, Versailles	-----	-----	17.65	0.35	17.30	-----
		Average Analysis.....	-----	-----	-----	-----	17.45	-----
		Guaranteed Analysis.....	-----	-----	-----	-----	16.00	-----
6-64	20% Superphosphate.....	Farmers Exchange, Rolla.....	-----	-----	22.35	0.82	21.53	-----
6-65	20% Superphosphate.....	Farmers Exchange, Willow Springs.....	-----	-----	23.25	0.73	22.52	-----
6-66	20% Superphosphate.....	Farmers Exchange, Lebanon	-----	-----	23.30	0.75	22.55	-----
		Average Analysis.....	-----	-----	-----	-----	22.20	-----
		Guaranteed Analysis.....	-----	-----	-----	-----	20.00	-----
11-112	20% Superphosphate.....	Farmers Exchange, Macon	-----	-----	22.00	0.45	21.55	-----
11-113	20% Superphosphate.....	Farmers Coop. Assn. No. 27, Union.....	-----	-----	21.70	0.38	21.32	-----
11-114	20% Superphosphate.....	Farmers Coop. Assn. No. 17, St. Clair.....	-----	-----	22.00	0.40	21.60	-----
11-115	20% Superphosphate.....	Farmers Produce Exchange, St. James.....	-----	-----	22.20	0.47	21.73	-----
11-116	20% Superphosphate.....	M. F. A. Elevator, Barnett.....	-----	-----	22.15	0.39	21.76	-----
11-117	20% Superphosphate.....	Roy S. Dorman, Louisburg.....	-----	-----	22.10	0.35	21.75	-----
11-118	20% Superphosphate.....	Farmers Exchange, Bolivar.....	-----	-----	21.50	0.37	21.13	-----
		Average Analysis.....	-----	-----	-----	-----	21.55	-----
		Guaranteed Analysis.....	-----	-----	-----	-----	20.00	-----
11-119	0-14-4.....	Farmers Produce Exchange, St. James.....	-----	-----	15.35	0.35	15.00	4.23
11-120	0-14-4.....	Farmers Exchange, Lamar.....	-----	-----	15.50	0.13	15.37	4.60
		Average Analysis.....	-----	-----	-----	-----	15.19	4.42
		Guaranteed Analysis.....	-----	-----	-----	-----	14.00	4.00
11-121	2-8-2 ¹	Farm Club Exchange, Owensville.....	2.10	83.92	13.42	0.38	13.04	2.38
		Guaranteed Analysis.....	2.00	-----	-----	-----	8.00	2.00

¹Not registered
²Incorrectly labeled
³Caked in sacks

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
6-67	2-12-2	Farmers Exchange, Rolla	2.18	88.07	13.40	0.10	13.30	2.22
6-68	2-12-2	Farmers Exchange, Salem	2.23	89.69	13.54	0.10	13.44	2.28
6-69	2-12-2	Farmers Exchange, Grandin	2.18	88.07	13.85	0.15	13.70	2.32
		Average Analysis	2.20	88.61			13.48	2.32
		Guaranteed Analysis	2.00				12.00	2.00
11-122	2-12-2	Farmers Exchange, Shelbina	2.11	85.31	13.50	0.50	13.00	2.48
11-123	2-12-2	Farmers Club Exchange, Bland	2.16	84.26	13.38	0.89	12.49	2.43
11-124	2-12-2	Farmers Coop. Assn. No. 27, Union	2.13	83.57	13.40	0.71	12.69	2.42
11-125	2-12-2	Farmers Grain & Produce Exchange, Rosebud	2.00	83.50	13.32	0.45	12.87	2.41
11-126	2-12-2	Producers Exchange, Vienna	2.08	85.10	13.06	0.35	12.71	2.34
11-127	2-12-2	Farmers Exchange, Eldon	2.21	85.07	13.60	0.67	12.93	2.20
		Average Analysis	2.12	84.47			12.78	2.38
		Guaranteed Analysis	2.00				12.00	2.00
6-70	2-12-6	Farmers Exchange, Grandin	2.26	91.59	13.38	0.25	13.13	6.18
		Guaranteed Analysis	2.00				12.00	6.00
11-128	2-12-6	Farmers Coop. Assn. No. 27, Union	2.14	85.98	13.00	0.40	12.60	6.43
		Guaranteed Analysis	2.00				12.00	6.00
11-129	2-14-4	Farmers Coop. Assn. No. 17, St. Clair	2.05	86.34	15.73	0.93	14.80	4.29
11-130	2-14-4	M. F. A. Produce Co., Crocker	2.19	86.30	16.00	1.09	14.91	4.42
11-131	2-14-4	Farmers Exchange, Jasper	2.16	86.57	15.70	1.18	14.52	4.61
		Average Analysis	2.13	86.40			14.74	4.44
		Guaranteed Analysis	2.00				14.00	4.00
11-132	2-16-2	Producers Exchange, Stover	2.03	85.79	18.00	0.43	17.57	2.43
		Guaranteed Analysis	2.00				16.00	2.00
6-71	3-8-6	Farmers Exchange, Salem	3.27	95.41	9.08	0.09	8.99	6.46
6-72	3-8-6	Producers Exchange, Marshfield	3.18	95.28	8.89	0.10	8.79	6.43
6-73	3-8-6	Greene County Farmers Sales Assn., Springfield	3.27	94.80	9.36	0.14	9.22	6.12
		Average Analysis	3.24	95.16			9.00	6.34
		Guaranteed Analysis	3.00				8.00	6.00
6-74	4-8-7	Farmers Exchange, Grandin	4.15	96.39	9.12	0.10	9.02	7.39
		Guaranteed Analysis	4.00				8.00	7.00
11-133	4-12-4	Producers Exchange 85, Warsaw	3.74	91.91	13.94	0.43	13.51	4.27
11-134	4-12-4	Farmers Exchange, Monett	4.05	92.35	13.40	0.63	12.77	4.47
11-135	4-12-4	Farmers Exchange, Jasper	4.10	92.44	13.44	0.64	12.80	4.38
		Average Analysis	3.96	92.23			13.03	4.37
		Guaranteed Analysis	4.00				12.00	4.00
11-136	4-16-4	Producers Grain Co., Mexico	4.15	95.42	17.18	0.23	16.95	4.71
11-137	4-16-4	Farmers Coop. Assn. No. 27, Union	4.10	96.83	17.38	0.27	17.11	4.54
11-138	4-16-4	Farmers Coop. Assn. No. 17, St. Clair	3.85	96.32	17.35	0.24	17.11	4.20
11-139	4-16-4	Farmers Coop. Co., Dixon	3.96	94.20	16.93	0.25	16.68	4.68
11-140	4-16-4	Producers Exchange No. 280, Freeburg	4.03	96.03	17.23	0.30	16.93	4.60
		Average Analysis	4.02	95.76			16.96	4.55
		Guaranteed Analysis	4.00				16.00	4.00
11-141	Pure Ground Bone	Farm Club Exchange, Owensville	2.18	19.72	28.00			
		Guaranteed Analysis	1.85		28.00			
11-142	Raw Bone Meal	Dallas County Farmers Exchange, Buffalo	3.92	7.65	24.45			
		Guaranteed Analysis	3.75		20.00			

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
11-143	Ed. Erickson, Verona, Missouri Raw Bone Meal ¹⁷ -----	Elmer H. Veith, Monett.--- Guaranteed Analysis.---	4.32 3.75	4.63	20.50 16.00	-----	-----	-----
11-144	Federal Chemical Co., E. St. Louis, Illinois Daybreak and Globe Brands 16% Superphosphate-----	M. J. Leuthen, Vienna.-----	-----	-----	19.90	1.80	18.10	-----
11-145	16% Superphosphate-----	E. R. Fraser, Bolivar.-----	-----	-----	18.20	1.88	16.32	-----
11-146	16% Superphosphate-----	Parson's Hatchery, Richland Average Analysis.----- Guaranteed Analysis.---	-----	-----	18.50	1.52	16.98 17.13 16.00	-----
6-75	20% Superphosphate-----	Guy Gastineau, Ellington.--- Guaranteed Analysis.---	-----	-----	24.00	1.50	22.50 20.00	-----
11-147	20% Superphosphate-----	M. J. Leuthen, Vienna.-----	-----	-----	22.80	1.25	21.55	-----
11-148	20% Superphosphate-----	B. C. Whittell, Stockton.---	-----	-----	22.70	1.75	20.95	-----
11-149	20% Superphosphate-----	Brookshire Hdwe. Co., Dia- mond.-----	-----	-----	22.20	1.45	20.75	-----
11-150	20% Superphosphate-----	Eldon Feed Co., Eldon.----- Average Analysis.----- Guaranteed Analysis.---	-----	-----	22.85	1.43	21.42 21.17 20.00	-----
6-76	Loam Land Fertilizer-----	Guy Gastineau, Ellington.--- Guaranteed Analysis.---	2.40 2.00	74.17	14.50	1.25	13.25 12.00	2.24 2.00
11-151	Loam Land Fertilizer-----	F. L. Reynolds & Son, Ma- con.-----	2.48	62.50	15.15	2.88	12.27	2.37
11-152	Loam Land Fertilizer-----	Farmington Produce Co., Farmington.-----	2.39	60.67	15.11	3.05	12.06	2.42
11-153	Loam Land Fertilizer-----	Farmers Cash Produce Co., Crocker.-----	2.22	67.57	13.50	1.48	12.02	2.38
11-154	Loam Land Fertilizer-----	S. H. Tuley, Monroe City.---	2.33	62.23	14.83	2.56	12.27	2.37
11-155	Loam Land Fertilizer-----	Owensville Roller Mills, Owensville.-----	2.37	63.29	14.90	2.76	12.14	2.16
11-156	Loam Land Fertilizer-----	St. Francois County Farm Bureau Sales & Purch. Assn., Farmington.-----	2.39	62.76	14.74	2.58	12.16	2.31
11-157	Loam Land Fertilizer-----	Parson's Hatchery, Richland	2.26	61.95	15.14	2.83	12.31	2.30
11-158	Loam Land Fertilizer-----	Eldon Feed Co., Eldon.-----	1.98	85.71	14.20	2.05	12.15	2.13
11-159	Loam Land Fertilizer-----	Ora Rice, Lamar.----- Average Analysis.----- Guaranteed Analysis.---	2.26 2.30 2.00	62.83 65.50	14.90	2.60	12.30 12.19 12.00	2.24 2.30 2.00
6-77	Special Formula 2-12-4 ¹ ---	Highley Feed Store, Bunker Guaranteed Analysis.---	1.75 2.00	74.29	14.90	1.75	13.15 12.00	4.42 4.00
6-78	Official Formula 2-12-6-----	Burchfield Mill, Marshfield. Guaranteed Analysis.---	2.00 2.00	81.00	14.75	1.43	13.32 12.00	7.07 6.00
11-160	Official Formula 2-12-6-----	Charley Roberson, Pierce City.----- Guaranteed Analysis.---	2.38 2.00	73.53	13.70	1.05	12.65 12.00	7.20 6.00
11-161	Official Formula 2-14-4-----	Charley Roberson, Pierce City.----- Guaranteed Analysis.---	2.12 2.00	80.19	15.18	0.65	14.53 14.00	4.49 4.00
11-162	Official Formula 3-8-6-----	Stephens Feed Store Fred- ericktown.----- Guaranteed Analysis.---	2.80 3.00	82.55	9.32	0.92	8.40 8.00	6.55 6.00
11-163	Steamed Bone-----	Farmers Cash Produce Co., Crocker.----- Guaranteed Analysis.---	2.70 2.00	42.96	24.25 27.00	-----	-----	-----
6-79	Floyd Money Maker Brands 16% Superphosphate-----	Cope & Co., Salem.----- Guaranteed Analysis.---	-----	-----	19.25	0.10	19.15 16.00	-----

¹Not registered

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
11-164	16% Superphosphate-----	Marion County Farm Bureau Service Co., Palmyra			18.28	1.28	17.00	
11-165	16% Superphosphate ³ -----	Farmington Produce Co., Farmington			21.85	1.11	20.74	
		Average Analysis-----					18.87	
		Guaranteed Analysis-----					16.00	
6-80	20% Superphosphate-----	Cope & Co., Salem			23.25	0.91	22.34	
		Guaranteed Analysis-----					20.00	
11-166	20% Superphosphate-----	Cooper Feed Store Fredericktown			23.00	1.74	21.26	
		Guaranteed Analysis-----					20.00	
11-167	0-12-4 Fertilizer-----	Marion County Farm Bureau Service Co., Palmyra			13.20	0.90	12.30	4.50
		Guaranteed Analysis-----					12.00	4.00
11-168	2-12-2-----	Marion County Farm Bureau Service Co., Palmyra	2.23	62.78	14.71	2.61	12.10	2.07
11-169	2-12-2-----	Cooper Feed Store, Fredericktown	2.26	63.72	14.62	2.37	12.25	2.66
		Average Analysis-----	2.25	63.25			12.18	2.37
		Guaranteed Analysis-----	2.00				12.00	2.00
11-170	2-12-4-----	Marion County Farm Bureau Service Co., Palmyra	1.88	72.97	14.60	1.14	13.46	4.75
		Guaranteed Analysis-----	2.00				12.00	4.00
11-171	2-14-4-----	Marion County Farm Bureau Service Co., Palmyra	2.23	71.31	15.96	1.72	14.24	4.04
		Guaranteed Analysis-----	2.00				14.00	4.00
6-81	3-8-6-----	Lomax & Harkey, Hornersville	3.36	84.52	9.34	0.69	8.65	7.15
		Guaranteed Analysis-----	3.00				8.00	6.00
6-82	4-8-6-----	Cope & Co., Salem	4.13	85.71	9.32	0.56	8.76	6.84
		Guaranteed Analysis-----	4.00				8.00	6.00
11-172	4-8-6-----	H. A. Colman, Steelville	3.13	85.71	11.52	1.00	10.52	5.74
		Guaranteed Analysis-----	4.00				8.00	6.00
6-83	Watermelon Truck Special 4-10-6-----	Brewer Implement Co., Cardwell	4.23	86.29	12.05	1.66	10.39	6.42
		Guaranteed Analysis-----	4.00				10.00	6.00
6-84	Ford Motor Company, Dearborn, Michigan Ford's Refined Ammonium Sulphate ² -----	Riesmeyer Motor Co., Webster Groves	20.86	100.00 ⁴				
		Guaranteed Analysis-----	20.80					
6-85	A. H. Hoffman, Inc., Landisville, Penna. Hoffman's Cow Manure (Dehydrated)-----	S. S. Kresge & Co., St. Louis	1.71	27.49	1.81	0.13	1.68	1.90
		Guaranteed Analysis-----	2.00				2.00	2.00
6-86	Hoffman's Plant Food-----	S. S. Kresge & Co., St. Louis	5.45	75.78	12.08	0.50	11.58	6.08
		Guaranteed Analysis-----	5.00				8.00	6.00
11-173	W. J. Largent, Carthage, Missouri Raw Bone-----	W. E. Wilson, Route 1, Carthage	4.14	3.86	23.45			
11-174	Raw Bone-----	Factory, Carthage	4.08	1.24	24.35			
		Average Analysis-----	4.11	2.55	23.90			
		Guaranteed Analysis-----	4.00		22.00			

²Without registration tags⁴Incorrectly labeled

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
6-87	Master Meat Products Co., 2500 22nd Street, Detroit, Michigan Master Bone Meal.....	S. S. Kresge & Co., St. Louis Guaranteed Analysis....	4.10 4.00	12.44	25.50 25.00			
6-88	Memphis Fertilizer Factory, Montgomery, Alabama Kainit, 20%.....	Senath Gin Co., Senath.....						20.65
6-89	Kainit, 20%.....	Earl Jones, Kennett..... Average Analysis..... Guaranteed Analysis....						18.89 19.77 20.00
6-90	Missouri Dahlia Farms Co., Inc., 8601 St. Charles Road, St. Louis, Missouri Natures Plant Food Cattle Manure.....	St. Louis Seed Co., St. Louis Guaranteed Analysis....	2.11 1.00	27.01	1.95	0.13	1.82 1.00	2.79 2.00
6-91	Newhouse Chemical & Sup- ply Co., N. Little Rock, Arkansas Triangle Brands 16% Superphosphate.....	J. H. Julian, West Plains..... Guaranteed Analysis....			18.60	0.17 0.50	18.43 16.00	
6-92	20% Superphosphate.....	J. H. Julian, West Plains.....			23.50	1.50	22.00	
6-93	20% Superphosphate.....	School of the Ozarks, Hollis- ter..... Average Analysis..... Guaranteed Analysis....			23.60	1.59 0.50	22.01 22.01 20.00	
6-94	Old Timer Fertilizer ²	J. H. Julian, West Plains.....	2.24	99.00	13.55	1.20	12.35	2.28
6-95	Old Timer Fertilizer ²	E. B. Evans Feed & Seed Co., Springfield..... Average Analysis..... Guaranteed Analysis....	2.30 2.27 2.00	93.04 96.02	14.00	1.33 0.50	12.67 12.51 12.00	2.34 2.31 2.00
6-96	Tomato Fertilizer ³	School of the Ozarks, Hollis- ter..... Guaranteed Analysis....	2.19 2.00	95.89	14.00	1.33 0.50	12.67 12.00	6.14 6.00
6-97	3-8-6 ³	E. B. Evans Feed & Seed Co., Springfield..... Guaranteed Analysis....	3.18 3.00	96.54	10.10	1.03	9.07 8.00	5.87 6.00
6-98	Potato & Truck ³	School of the Ozarks, Hollis- ter..... Guaranteed Analysis....	4.01 4.00	98.50	9.30	1.03 0.50	8.27 8.00	6.28 6.00
6-99	4-16-4 ³	E. B. Evans Feed & Seed Co., Springfield..... Guaranteed Analysis....	3.98 4.00	88.69	17.60	1.58	16.02 16.00	4.76 4.00
6-100	20% Kainit ⁷	D. M. Rigdon, Kennett..... Guaranteed Analysis....						21.35 20.00
6-101	Pulverized Manure Co., Chicago, Illinois Wizard Brands Cow Manure.....	St. Louis Seed Co., St. Louis Guaranteed Analysis....	1.99 2.00	15.08	1.15	0.20	0.95 1.00	1.24 1.00
6-102	Pulverized Sheep Manure ..	St. Louis Seed Co., St. Louis Guaranteed Analysis....	2.00 2.00	5.00	2.06	0.13	1.93 1.00	4.15 2.00
6-103	Garden Mulch.....	St. Louis Seed Co., St. Louis Guaranteed Analysis....	2.00 2.00	18.50	1.38	0.20	1.18 1.00	1.08 1.00

³Incorrectly labeled

⁷Without labels

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
	E. Rauh & Sons Fertilizer Co., Indianapolis, Indiana Red Star Brands							
6-104	16% Superphosphate	Burchfield Mill, Marshfield. Guaranteed Analysis			18.69	1.03	17.66	16.00
11-175	16% Superphosphate	Lebanon Produce Co., Lebanon			18.05	0.63	17.42	
11-176	16% Superphosphate	G. T. Murphy, Richland. Average Analysis. Guaranteed Analysis			17.45	0.69	16.76	17.09
							16.00	
11-177	20% Superphosphate	Lebanon Produce Co., Lebanon			22.05	0.63	21.42	
11-178	20% Superphosphate	G. T. Murphy, Richland			22.55	0.63	21.92	
11-179	20% Superphosphate	V. T. Moore, Harwood. Average Analysis. Guaranteed Analysis			22.50	0.53	21.97	21.77
							20.00	
11-180	Half & Half	G. T. Murphy, Richland	1.09	68.81	20.10	6.36	13.74	
11-181	Half & Half	V. T. Moore, Harwood. Average Analysis. Guaranteed Analysis	1.05	58.10	22.00	8.00	14.00	
			1.07	63.46		7.18	13.87	
			1.00			10.00	10.00	
11-182	2-12-2	Lebanon Produce Co., Lebanon	2.05	87.32	13.96	0.95	13.01	2.25
11-183	2-12-2	V. T. Moore, Harwood. Average Analysis. Guaranteed Analysis	2.12	83.96	13.32	0.90	12.42	2.29
			2.09	85.64			12.72	2.27
			2.00				12.00	2.00
11-184	4-16-4 ³	V. T. Moore, Harwood. Guaranteed Analysis	4.12	93.69	26.45	2.29	24.16	4.38
			4.00				16.00	4.00
11-185	Standard 2-27 Bone	V. T. Moore, Harwood. Guaranteed Analysis	2.20	17.73	28.55			
			1.60		27.00			
	Read Phosphate Company, Nashville, Tenn. Red Diamond Brands							
6-105	16% Superphosphate	R. B. Roberts, Cabool			17.85	0.97	16.88	
6-106	16% Superphosphate	James Rathbun, Sparta. Average Analysis. Guaranteed Analysis			18.03	0.63	17.40	17.14
						1.00	16.00	
11-186	16% Superphosphate	E. L. Theurer Grain Co., Lockwood. Guaranteed Analysis			18.50	0.55	17.95	16.00
6-107	20% Superphosphate	R. B. Roberts, Cabool. Guaranteed Analysis			22.35	0.03	22.32	20.00
11-187	20% Superphosphate	Farmers Exchange, Bolivar			21.60	0.20	21.40	
11-188	20% Superphosphate	E. L. Theurer Grain Co., Lockwood			22.00	0.38	21.62	
11-189	20% Superphosphate	Farmers Exchange, Nevada. Average Analysis. Guaranteed Analysis			22.00	0.43	21.57	0.34
						1.00	21.53	20.00
6-108	Premium Grain Grower	R. B. Roberts, Cabool	2.03	70.94	14.88	1.13	13.75	2.13
6-109	Premium Grain Grower	James Rathbun, Sparta. Average Analysis. Guaranteed Analysis	2.62	86.26	12.95	0.83	12.12	2.67
			2.33	78.60		0.98	12.94	2.40
			2.00			1.00	12.00	2.00
11-190	Premium Grain Grower	Halfway Farmers Exchange, Halfway	1.98	77.78	13.20	0.54	12.66	2.68
11-191	Premium Grain Grower	Farmers Exchange, Bolivar	1.96	75.92	13.30	0.60	12.70	2.80
11-192	Premium Grain Grower	E. L. Theurer Grain Co., Lockwood. Average Analysis. Guaranteed Analysis	1.98	75.65	14.04	0.70	13.34	2.71
			1.97	76.45		0.61	12.90	2.73
			2.00			1.00	12.00	2.00

³Incorrectly labeled

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
6-110	Red Diamond 2-12-6-----	James Rathbun, Sparta----- Guaranteed Analysis-----	2.29 2.00	86.03	12.70	0.85 1.00	11.85 12.00	6.58 6.00
6-111	Red Diamond 5-15-5-----	James Rathbun, Sparta----- Guaranteed Analysis-----	4.75 5.00	92.63	16.63	1.44 1.00	15.19 15.00	5.10 5.00
6-112	F. Rynveld & Sons, Inc., 149 West 24th St., New York, New York Rynveld's Bone Meal Fertilizer ² -----	Woolworth & Co., St. Louis Guaranteed Analysis-----	2.96 2.47	20.61	25.70 22.00	-----	-----	-----
6-113	O. M. Scott & Sons, Marysville, Ohio Scott's Turf Builder ¹ -----	Stix, Baer & Fuller, St. Louis Guaranteed Analysis-----	10.54 10.00	66.41	6.45	0.13	6.32 6.00	4.52 4.00
6-114	Sewerage Commission, P. O. Box 2079, Milwaukee, Wisconsin Milorganite-----	St. Louis Seed Co., St. Louis Guaranteed Analysis-----	6.04 6.00	11.59	3.09	0.64 0.75	2.45 2.00	-----
11-193	Sullinger & Howard, Pierce City, Missouri Best Plant Food Fertilizer-----	Factory, Pierce City----- Guaranteed Analysis-----	1.99 1.00	2.58	9.94	6.10	3.84 2.00	0.13 0.01
6-115	Swift & Company Fertilizer Works, National Stock Yards, Ill. Red Steer Brands 16% Superphosphate-----	I. H. Shell & Son, Lutesville-----	-----	-----	17.22	0.37	16.85	-----
6-116	16% Superphosphate-----	T. Bingham, Ozark----- Average Analysis----- Guaranteed Analysis-----	-----	-----	17.65	0.43	17.22 17.04 16.00	-----
11-194	16% Superphosphate-----	Farmers Elevator Co., Silex Louis Ritterbusch, Bland-----	-----	-----	17.35	0.30	17.05	-----
11-195	16% Superphosphate-----	-----	-----	-----	17.23	0.34	16.89	-----
11-196	16% Superphosphate-----	St. Clair Feed Co., St. Clair-----	-----	-----	17.45	0.25	17.20	-----
11-197	16% Superphosphate-----	Crocker Hdwe. Co., Crocker Average Analysis----- Guaranteed Analysis-----	-----	-----	17.10	0.33	16.77 16.98 16.00	-----
11-198	20% Superphosphate ² -----	Farmers Elevator & Ex- change, Palmyra-----	-----	-----	22.15	0.16	21.99	-----
11-199	20% Superphosphate-----	Hahn Feed Co. Union-----	-----	-----	21.55	0.38	21.17	-----
11-200	20% Superphosphate-----	I. C. McColl, Belleview-----	-----	-----	22.05	0.25	21.80	-----
11-202	20% Superphosphate-----	Farmers Hdwe. Co., Buffalo Average Analysis----- Guaranteed Analysis-----	-----	-----	20.60	0.05	20.55 21.58 20.00	-----
11-203	0-14-7-----	Tucker Seed House, Car- thage----- Guaranteed Analysis-----	-----	-----	14.55	0.13	14.42 14.00	7.47 7.00
6-117	2-12-2 ⁴ -----	R. E. Strickland, Greenville-----	2.21	95.02	13.50	0.98	12.52	2.41
6-118	2-12-2-----	I. H. Shell & Son, Lutesville-----	2.20	95.45	13.70	0.69	13.01	2.32
6-119	2-12-2-----	Mich Quinn, Willow Springs-----	2.19	95.43	13.40	0.68	12.72	2.19
6-120	2-12-2-----	R. T. Leach, Lebanon----- Average Analysis----- Guaranteed Analysis-----	2.14 2.19 2.00	96.26 95.54	13.70	0.72	12.98 12.81 12.00	2.55 2.37 2.00
11-204	2-12-2-----	F. J. Wenger, Mexico-----	2.07	84.06	13.30	1.30	12.00	2.78
11-205	2-12-2-----	Farmers Elevator Co., Silex-----	2.02	84.65	13.57	1.50	12.07	2.55

¹Not registered²Without registration tags⁴Samples drawn from less than five sacks

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
11-206	2-12-2 ² -----	Farmers Elevator & Exchange, Palmyra-----	2.13	73.71	13.34	0.50	12.84	2.13
11-207	2-12-2 ² -----	Shelbina Roller Mills, Shelbina-----	2.09	78.47	13.30	0.45	12.85	2.18
11-208	2-12-2-----	Louis Ritterbusch, Bland-----	1.96	84.69	13.14	0.44	12.70	2.19
11-209	2-12-2-----	Hahn Feed Co., Union-----	2.07	84.54	13.64	1.45	12.19	2.40
11-210	2-12-2-----	Davidson Fuel & Feed Co., De Soto-----	2.02	83.17	13.14	1.23	11.91	2.20
11-211	2-12-2-----	J. C. McColl, Belleview-----	2.11	84.36	13.68	1.07	12.61	2.46
11-212	2-12-2-----	Frank Dichneite, Freeburg-----	1.96	87.75	13.48	1.03	12.45	2.26
11-213	2-12-2-----	Miles Bros., Brazito-----	2.04	85.78	13.68	1.12	12.56	2.28
11-214	2-12-2-----	Campbell Bros., Halfway-----	2.00	84.42	13.28	1.35	11.93	2.09
		Average Analysis-----	2.04	83.24	-----	-----	12.37	2.30
		Guaranteed Analysis-----	2.00	-----	-----	-----	12.00	2.00
6-121	2-12-6-----	Stokes Bros. Store Co., Malden-----	2.14	95.79	13.65	0.62	13.03	6.18
6-122	2-12-6 ⁴ -----	Marshfield Supply Co., Marshfield-----	2.17	95.85	13.63	0.68	12.95	7.24
		Average Analysis-----	2.16	95.82	-----	-----	12.99	6.71
		Guaranteed Analysis-----	2.00	-----	-----	-----	12.00	6.00
11-215	2-14-4-----	Jacobs Hdwe. Co., Stoutland-----	2.09	84.21	15.80	1.13	14.67	4.23
		Guaranteed Analysis-----	2.00	-----	-----	-----	14.00	4.00
11-216	2-16-2-----	St. Clair Feed Co., St. Clair-----	1.98	65.98	17.80	0.90	16.90	2.28
11-217	2-16-2-----	E. D. Buckner, Pierce City-----	2.18	89.91	17.28	0.91	16.37	2.67
		Average Analysis-----	2.08	77.95	-----	-----	16.64	2.48
		Guaranteed Analysis-----	2.00	-----	-----	-----	16.00	2.00
6-123	3-8-6-----	J. H. O'Brien Mercantile Co., Bucoda-----	3.10	97.74	8.93	0.15	8.78	7.07
		Guaranteed Analysis-----	3.00	-----	-----	-----	8.00	6.00
11-201	3-12-4-----	Henry Fischer, Stover-----	3.16	92.41	13.22	0.80	12.42	4.70
		Guaranteed Analysis-----	3.00	-----	-----	-----	12.00	4.00
6-124	4-12-4-----	Stokes Bros. Store Co., Malden-----	4.18	98.80	14.70	0.42	14.28	5.08
		Guaranteed Analysis-----	4.00	-----	-----	-----	12.00	4.00
11-218	4-16-4 ² -----	Shelbina Roller Mills, Shelbina-----	4.19	89.02	17.15	0.50	16.65	4.50
11-219	4-16-4-----	St. Francois County Farm Bureau Sales & Purch. Assn., Farmington-----	4.04	91.58	17.78	0.74	17.04	4.42
11-220	4-16-4-----	Madison County Farmers Warehouse Assn., Fredericktown-----	4.27	90.40	17.55	0.33	17.22	4.49
		Average Analysis-----	4.17	90.33	-----	-----	16.97	4.47
		Guaranteed Analysis-----	4.00	-----	-----	-----	16.00	4.00
6-133	Swift's Steam Bone Fertilizer ¹ -----	St. Louis Seed Co., St. Louis-----	2.06	14.56	32.25	-----	-----	-----
6-134	Swift's Steam Bone Fertilizer ⁷ -----	F. Kinsolving, Hornersville-----	2.41	24.48	29.50	-----	-----	-----
		Average Analysis-----	2.24	19.52	30.88	-----	-----	-----
		Guaranteed Analysis-----	2.25	-----	26.00	-----	-----	-----
11-222	2-26 Bone Fertilizer ² -----	Shelbina Roller Mills, Shelbina-----	1.90	23.24	28.15	-----	-----	-----
11-223	2-26 Bone Fertilizer-----	St. Clair Feed Co., St. Clair-----	1.68	23.03	28.50	-----	-----	-----
11-224	2-26 Bone Fertilizer-----	St. Francois County Farm Bureau Purch. & Sales Assn., Farmington-----	1.90	24.87	28.00	-----	-----	-----
11-225	2-26 Bone Fertilizer-----	Jacobs Hdwe. Co., Stoutland-----	2.08	23.56	27.90	-----	-----	-----
		Average Analysis-----	1.89	23.68	28.14	-----	-----	-----
		Guaranteed Analysis-----	2.00	-----	26.00	-----	-----	-----

²Without registration tags

⁴Samples drawn from less than five sacks

⁷Without labels

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
11-221	Raw Bone Fertilizer.....	Madison County Farmers Warehouse Assn., Fredericktown	4.04	7.18	25.25	-----	-----	-----
		Guaranteed Analysis.....	3.70	-----	23.00	-----	-----	-----
11-226	Half & Half Fertilizer ²	Jacobs Hdwe. Co., Stoutland	1.18	71.19	21.25	3.48	17.77	-----
		Guaranteed Analysis.....	1.00	-----	-----	8.00	12.00	-----
6-125	Vigoro.....	St. Louis Seed Co., St. Louis	4.24	95.75	13.95	0.41	13.54	5.19
6-126	Vigoro.....	Corneli Seed Co., St. Louis	4.40	97.50	13.88	0.49	13.39	4.76
6-127	Vigoro.....	Gilven Greenhouses, Rolla	4.17	94.96	13.74	0.64	13.10	4.70
6-128	Vigoro.....	L. K. Ashcraft & Co., Malden	-----	-----	-----	-----	-----	-----
		-----	4.38	96.80	13.73	0.91	12.82	4.57
6-129	Vigoro.....	Ira B. Tatum, Clarkton	4.39	97.04	13.73	0.97	12.76	4.61
6-130	Vigoro.....	Sexton Bros., Kennett	4.32	96.99	13.75	0.99	12.76	4.45
6-131	Vigoro.....	Shelton-Riggs, Kennett	4.35	97.01	13.93	1.09	12.84	4.39
6-132	Vigoro.....	West's Flower Shoppe, Poplar Bluff	4.20	96.19	13.75	0.45	13.30	4.46
		Average Analysis.....	4.31	96.53	-----	-----	13.06	4.64
		Guaranteed Analysis.....	4.00	-----	-----	-----	12.00	4.00
11-227	Vigoro.....	Versailles Greenhouses, Versailles	4.27	96.02	13.48	1.12	12.36	4.62
11-228	Vigoro.....	Tuckers Seed House, Carthage	3.98	89.70	13.64	0.33	13.31	4.60
11-229	Vigoro.....	Archias' Seed Store Corporation, Sedalia	4.19	93.79	13.70	0.54	13.16	4.51
		Average Analysis.....	4.15	93.17	-----	-----	12.94	4.58
		Guaranteed Analysis.....	4.00	-----	-----	-----	12.00	4.00
6-135	Swifts Kainit.....	Stokes Bros. Store Co., Malden	-----	-----	-----	-----	-----	22.16
		Guaranteed Analysis.....	-----	-----	-----	-----	-----	20.00
6-136	Swifts Muriate of Potash 48% ^{1 2}	Stokes Bros. Store Co., Malden	-----	-----	-----	-----	-----	48.81
6-137	Swift's Muriate of Potash 48% ¹	Farmers Union Cotton Gin Co., Senath	-----	-----	-----	-----	-----	48.37
		Average Analysis.....	-----	-----	-----	-----	-----	48.59
		Guaranteed Analysis.....	-----	-----	-----	-----	-----	48.00
6-138	Swift's Muriate of Potash ⁷	F. Kinsolving, Hornersville	-----	-----	-----	-----	-----	50.89
		Guaranteed Analysis.....	-----	-----	-----	-----	-----	50.00
6-139	Swift's Special Golf Fertilizer 12-6-4.....	St. Louis Seed Co., St. Louis	10.62	99.15	7.29	0.07	7.22	3.47
		Guaranteed Analysis.....	12.00	-----	-----	-----	6.00	4.00
6-140	Swift's Sulphate of Ammonia	St. Louis Seed Co., St. Louis	20.51	100.00 ³	-----	-----	-----	-----
		Guaranteed Analysis.....	20.75	-----	-----	-----	-----	-----
	Synthetic Nitrogen Products Corp., 285 Madison Avenue, New York, New York							
6-141	Nitrophoska 15-30-15 ²	Palmer Seed Co., St. Louis	15.09	97.75	33.00	0.01	32.99	15.26
		Guaranteed Analysis.....	15.00	-----	-----	-----	30.00	15.00
	Tennessee Corporation, Lockland, Ohio							
6-142	Loma.....	St. Louis Seed Co., St. Louis	5.32	92.86	11.22	0.44	10.78	4.69
		Guaranteed Analysis.....	5.00	-----	-----	0.65	10.00	4.00
	Virginia-Carolina Chemical Corp., E. St. Louis, Illinois V-C Brands							
6-143	16% Superphosphate.....	P. J. Burford, Doniphan	-----	-----	18.45	0.55	17.90	-----
6-144	16% Superphosphate.....	Dean Produce Co., Lebanon	-----	-----	19.03	0.58	18.45	-----
		Average Analysis.....	-----	-----	-----	-----	18.18	-----
		Guaranteed Analysis.....	-----	-----	-----	-----	16.00	-----

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TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
11-230	16% Superphosphate	Owensville Roller Mills, Owensville			17.98	0.50	17.48	
11-231	16% Superphosphate	Madison County Farmers Warehouse Assn., Fredericktown			17.80	0.60	17.20	
11-232	16% Superphosphate	Cuba Roller Mills, Cuba			17.75	0.53	17.22	
11-233	16% Superphosphate	Dean Produce Co., Lebanon			17.80	0.44	17.36	
		Average Analysis					17.32	
		Guaranteed Analysis					16.00	
6-145	20% Superphosphate	R. B. Woods, Bernie			23.30	0.69	22.61	
6-146	20% Superphosphate	P. J. Burford, Doniphan			23.70	0.53	23.17	
6-147	20% Superphosphate	Lee Taylor, Alton			24.15	0.44	23.71	
		Average Analysis					23.16	
		Guaranteed Analysis					20.00	
11-234	20% Superphosphate	Holmes Hatchery & Feed Service, De Soto			22.60	0.70	21.90	
		Guaranteed Analysis					20.00	
11-235	32% Superphosphate	E. L. Thuerer Grain Co., Lockwood			32.65	0.58	32.07	
		Guaranteed Analysis					32.00	
11-236	0-14-4	Farmers Grain & Produce Exchange, Rosebud			15.05	0.35	14.70	4.64
11-237	0-14-4	Cash Feed & Produce Osceola			15.30	0.45	14.85	4.67
		Average Analysis					14.78	4.66
		Guaranteed Analysis					14.00	4.00
11-238	0-14-6	Rosser Produce Co., Farmington			15.48	0.63	14.85	6.76
		Guaranteed Analysis					14.00	6.00
11-239	1-12-4	R. R. Carter Mill & Elevator Co., Jasper	0.98	77.55	12.92	0.53	12.39	4.75
		Guaranteed Analysis	1.00				12.00	4.00
6-148	2-12-2	Hughes Milling Co., Salem	1.92	88.02	13.84	0.28	13.56	2.17
6-149	2-12-2	Githens Cash Store, Poplar Bluff	1.87	88.23	14.04	0.23	13.81	2.15
6-150	2-12-2	Thayer Milling Co., Thayer	2.17	89.40	13.90	0.31	13.59	2.60
6-151	2-12-2	Dean Produce Co., Lebanon	2.06	88.83	13.70	0.33	13.37	2.42
		Average Analysis	2.01	88.62			13.58	2.34
		Guaranteed Analysis	2.00				12.00	2.00
11-240	2-12-2	Silex Grain Co., Silex	2.04	83.33	13.40	0.60	12.80	2.22
11-241	2-12-2	Rosser Produce Co., Farmington	2.07	85.13	13.64	0.53	13.11	2.28
11-242	2-12-2	Madison County Warehouse Assn., Fredericktown	2.21	88.24	13.32	0.52	12.80	2.40
11-243	2-12-2	W. L. Kirgan, St. James	2.15	88.84	13.32	0.50	12.82	2.45
11-244	2-12-2	Westphalia Milling Co., Westphalia	2.15	85.12	13.40	0.79	12.61	3.49
11-245	2-12-2	Versailles Flour & Feed Co., Versailles	2.06	83.50	13.44	0.87	12.57	2.39
11-246	2-12-2	Indermuehle Produce Co., Juffalo	2.18	85.32	13.10	0.67	12.43	2.85
11-247	2-12-2	Gwinn Feed Store, Bolivar	2.09	83.25	13.68	0.90	12.78	2.34
11-248	2-12-2	Mann Grain & Feed Co., Clinton	2.17	85.25	13.52	0.67	12.85	2.29
		Average Analysis	2.12	85.33			12.75	2.52
		Guaranteed Analysis	2.00				12.00	2.00
11-249	2-12-4	Holmes Hatchery & Feed Service, De Soto	2.01	88.56	12.90	0.40	12.50	4.71
		Guaranteed Analysis	2.00				12.00	4.00
6-152	2-12-6	Hughes Milling Co., Salem	2.19	90.87	13.38	0.36	13.02	7.04
		Guaranteed Analysis	2.00				12.00	6.00
11-250	2-12-6	Madison County Farmers Whse. Assn., Fredericktown	2.09	88.99	13.02	0.54	12.48	6.75
		Guaranteed Analysis	2.00				12.00	6.00

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1936 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P ₂ O ₅			Water Soluble Potash K ₂ O
			Total	Water Soluble to Total	Total	Insoluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
11-251	2-14-4-----	Carthage Cash Mercantile Co., Carthage-----	2.07	90.82	15.50	0.50	14.98	4.65
		Guaranteed Analysis---	2.00				14.00	4.00
11-252	2-16-2-----	B. L. Coit, Stover-----	2.03	90.77	17.00	0.38	16.62	2.32
		Guaranteed Analysis---	2.00				16.00	2.00
6-153	4-8-7-----	Hughes Milling Co., Salem-----	4.06	96.55	9.80	0.13	9.67	7.44
		Guaranteed Analysis---	4.00				8.00	7.00
6-154	4-12-4-----	Githens Cash Store, Poplar Bluff-----	4.50	95.56	12.76	0.13	12.63	4.35
6-155	4-12-4-----	Thayer Milling Co., Thayer-----	4.40	95.68	13.42	0.23	13.19	4.51
		Average Analysis-----	4.45	95.62			12.91	4.43
		Guaranteed Analysis---	4.00				12.00	4.00
11-253	4-16-4-----	Rosser Produce Co., Farmington-----	4.06	93.60	17.15	0.13	17.02	4.48
11-254	4-16-4-----	E. L. Theurer Grain Co., Lockwood-----	3.98	93.70	17.48	0.23	17.25	4.42
		Average Analysis-----	4.02	93.65			17.14	4.45
		Guaranteed Analysis---	4.00				16.00	4.00
11-255	Steamed Bone Meal-----	Ashley L. Veasman, Dixon-----	2.46	14.63	28.20			
11-256	Steamed Bone Meal-----	E. L. Theurer Grain Co., Lockwood-----	2.02	15.38	30.60			
		Average Analysis-----	2.24	15.01	29.40			
		Guaranteed Analysis---	2.00		27.00			
11-257	Steamed Bone Meal-----	Rosser Produce Co., Farmington-----	3.39	17.11	24.50			
		Guaranteed Analysis---	3.00		22.00			
11-258	Wallace Bros. Packing Co., Joplin, Missouri Wallace's Bone Meal Fertilizer-----	Factory, Joplin-----	3.14	42.99	26.35			
		Guaranteed Analysis---	3.19		27.03			
5-59	Samples Sent In Red Steer 4-12-4, Swift & Co., National Stock Yds., Illinois-----	State Highway Dept., Jefferson City-----	4.07		14.10	0.34	13.76	4.10
		Guaranteed Analysis---	4.00				12.00	4.00
10-276	Steamed Bone Meal, Cudahy Packing Co., Kansas City-----	F. A. Botts, Grandview-----	2.40		28.30			
		Guaranteed Analysis---	2.50		24.00			
10-277	Red Steer 2-12-2, Swift & Co., National Stock Yds., Illinois-----	Joe G. O'Hanlon, Silex-----	2.10		13.39	0.47	12.92	3.53
		Guaranteed Analysis---	2.00				12.00	2.00
10-279	M. F. A. Bone and Potash, Darling & Co., E. St. Louis	Kenoma Lumber Co., Kenoma-----	1.98		28.08			3.92
		Guaranteed Analysis---	1.86		26.04			4.20
10-281	Red Steer 4-12-4, Swift & Co., National Stock Yds., Illinois-----	Geo. Straatman, Robertsville-----	3.96		14.20	0.68	13.52	4.28
		Guaranteed Analysis---	4.00				12.00	4.00

REGISTRATION OF FERTILIZER, 1937

The Missouri Fertilizer Law provides that all brands of fertilizer to be sold in the state shall be registered before sales are made. Table 4 lists all the companies who have filed their registrations for 1937 showing the brands registered and their guaranteed analysis. Prospective buyers should consult this table and buy only brands found in this list and from companies whose name appears in this table. All the information listed in this table must appear upon the labels of the goods purchased, otherwise the goods are not labeled according to the requirements of the law.

Information about companies and brands not appearing in this table will be furnished to prospective buyers on application to the Missouri Agricultural Experiment Station.

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1937

Fertilizer	Nitrogen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total from Bone	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
American Agricultural Chemical Co., National Stock Yards, Ill.					
Agrico for Tomatoes.....	2.00	-----	12.00	0.50	6.00
Agrico for Potatoes.....	4.00	-----	8.00	0.50	6.00
Agrico for Grain.....	2.00	-----	12.00	0.50	4.00
Agrico for Truck.....	4.00	-----	10.00	0.50	6.00
Agrico for Tobacco.....	4.00	-----	10.00	0.50	6.00
Agrico for Corn.....	3.00	-----	14.00	0.50	6.00
Agrico for Cotton.....	4.00	-----	12.00	0.50	4.00
Agrico for Lawns, Trees and Shrubs.....	10.00	-----	6.00	0.50	4.00
AA Red Dragon Fertilizer.....	2.00	-----	12.00	0.50	2.00
AA Triumph Fertilizer.....	4.00	-----	12.00	0.50	4.00
AA Antler Fertilizer.....	2.00	-----	12.00	0.50	6.00
AA 16% Superphosphate.....	-----	-----	16.00	0.50	-----
AA 20% Superphosphate.....	-----	-----	20.00	0.50	-----
AA Kaimit, 20%.....	-----	-----	-----	-----	20.00
AA Harvest Moon Fertilizer.....	4.00	-----	8.00	0.50	6.00
Sulphate of Ammonia.....	20.56	-----	-----	-----	-----
AA Elm Mixture.....	-----	-----	16.00	0.50	6.00
AA Big Boll Fertilizer.....	2.00	-----	12.00	0.50	2.00
AA Challenge Fertilizer.....	2.00	-----	14.00	0.50	4.00
AA Steam Bone Meal.....	2.00	27.00	-----	-----	-----
AA Two-in-One Fertilizer.....	4.00	-----	16.00	0.50	4.00
AA Paramount Fertilizer.....	3.00	-----	8.00	0.50	6.00
AA 45% Superphosphate.....	-----	-----	45.00	0.50	-----
Muriate of Potash.....	-----	-----	-----	-----	50.00
American Cyanamid Company, 30 Rockefeller Plaza, New York, New York					
21% Aero Cyanamid Granular.....	21.00	-----	-----	-----	-----
Ammo-Phos 11-48-0.....	11.00	-----	48.00	-----	-----
Ammo-Phos 16-20-0.....	16.00	-----	20.00	-----	-----
Anaconda Copper Mining Co., Anaconda, Montana					
Anaconda Treble Superphosphate.....	-----	-----	43.00	-----	-----
Anaconda Ammoniated Phosphate.....	10.00	-----	52.00	1.00	-----
Archias Seed Store, Sedalia, Missouri					
Archias Fairy Brand Plant Food.....	10.00	-----	12.00	-----	11.00
Arkansas Fertilizer Company, North Little Rock, Arkansas					
White Diamond 6-8-12.....	6.00	-----	8.00	-----	12.00
White Diamond 10-6-4.....	10.00	-----	6.00	-----	4.00
White Diamond 4-16-4.....	4.00	-----	16.00	-----	4.00
White Diamond Crop Getter.....	4.00	-----	12.00	-----	4.00
White Diamond 4-10-6.....	4.00	-----	10.00	-----	6.00
White Diamond Jack Rabbit.....	4.00	-----	8.00	-----	6.00
White Diamond 3-8-6.....	3.00	-----	8.00	-----	6.00
White Diamond Prize Wheat Grower.....	2.00	-----	16.00	-----	2.00
White Diamond 2-14-4.....	2.00	-----	14.00	-----	4.00
White Diamond Gro-Fast.....	2.00	-----	12.00	-----	6.00
White Diamond Southern King.....	2.00	-----	12.00	-----	2.00
White Diamond 0-14-7.....	-----	-----	14.00	-----	7.00
White Diamond 0-12-12.....	-----	-----	12.00	-----	12.00
White Diamond Kali-Superphosphate.....	-----	-----	12.00	-----	4.00
White Diamond 20% Superphosphate.....	-----	-----	20.00	0.50	-----
White Diamond 18% Superphosphate.....	-----	-----	18.00	0.50	-----
White Diamond 16% Superphosphate.....	-----	-----	16.00	0.50	-----
White Diamond Steamed Bone Meal.....	1.65	27.00	-----	-----	-----
White Diamond Pure Raw Bone Meal.....	3.70	23.00	-----	-----	-----
White Diamond Muriate of Potash.....	-----	-----	-----	-----	50.00
White Diamond "Extra Dry" Sulphate of Ammonia.....	20.00	-----	-----	-----	-----
White Diamond 16% Nitrate of Soda.....	16.00	-----	-----	-----	-----
White Diamond Kaimit.....	-----	-----	-----	-----	20.00
White Diamond 0-14-4.....	-----	-----	14.00	0.50	4.00

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI, 1937 (Continued)

Fertilizer	Nitrogen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total from Bone	Avail-able	Insol-uble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Armour Fertilizer Works,					
Chicago Heights, Illinois					
Armour's Big Crop 4-24-4 Fertilizer.....	4.00	-----	24.00	-----	4.00
Armour's Big Crop 4-16-4 Fertilizer.....	4.00	-----	16.00	-----	4.00
Armour's Big Crop 4-12-4 Fertilizer.....	4.00	-----	12.00	-----	4.00
Armour's Big Crop 4-8-12 Fertilizer.....	4.00	-----	8.00	-----	12.00
Armour's Big Crop 4-8-6 Fertilizer.....	4.00	-----	8.00	-----	6.00
Armour's Big Crop 3-18-9 Fertilizer.....	3.00	-----	18.00	-----	9.00
Armour's Big Crop 3-18-3 Fertilizer.....	3.00	-----	18.00	-----	3.00
Armour's Big Crop 3-8-6 Fertilizer.....	3.00	-----	8.00	-----	6.00
Armour's Big Crop 2-16-2 Fertilizer.....	2.00	-----	16.00	-----	2.00
Armour's Big Crop 2-14-4 Fertilizer.....	2.00	-----	14.00	-----	4.00
Armour's Big Crop 2-12-6 Fertilizer.....	2.00	-----	12.00	-----	6.00
Armour's Big Crop 2-12-4 Fertilizer.....	2.00	-----	12.00	-----	4.00
Armour's Big Crop 2-12-2 Fertilizer.....	2.00	-----	12.00	-----	2.00
Armour's Big Crop 1-12-4 Fertilizer.....	1.00	-----	12.00	-----	4.00
Armour's Big Crop 0-14-6 Fertilizer.....	-----	-----	14.00	-----	6.00
Armour's Big Crop 0-14-4 Fertilizer.....	-----	-----	14.00	-----	4.00
Armour's Big Crop 0-12-12 Fertilizer.....	-----	-----	12.00	-----	12.00
Armour's Big Crop 0-12-6 Fertilizer.....	-----	-----	12.00	-----	6.00
Armour's Big Crop 20% Superphosphate.....	-----	-----	20.00	-----	-----
Armour's Big Crop 16% Superphosphate.....	-----	-----	16.00	-----	-----
Armour's Big Crop Bone Meal.....	2.00	27.00	-----	-----	-----
Armour's Big Crop Raw Bone Meal.....	3.75	22.00	-----	-----	-----
Armour's Bone Meal and Superphosphate.....	1.00	-----	14.00	8.00	-----
Armour's Multiphos 45% Superphosphate.....	-----	-----	45.00	-----	-----
Armour's Kainit.....	-----	-----	-----	-----	20.00
Armour's Sulphate of Ammonia.....	20.50	-----	-----	-----	-----
Armour's Special Tree Food 10-8-6.....	10.00	-----	8.00	-----	6.00
Armour's Special Turf Fertilizer 10-8-6.....	10.00	-----	8.00	-----	6.00
Armour's Special Florists' Mixture 5-15-5.....	5.00	-----	15.00	-----	5.00
Armour's Garden and Lawn Fertilizer 4-8-6.....	4.00	-----	8.00	-----	6.00
Armour's Rose Grower Bone Meal.....	3.75	22.00	-----	-----	-----
Armour's Bone, Blood and Sulphate of Potash 5-8-7.....	5.00	8.00	-----	-----	7.00*
Pulverized Sheep Manure.....	2.00	-----	1.00	-----	2.00
*Potash from Sulphate.					
Barada & Page,					
Kansas City, Missouri					
B-P Ammonia Sulphate.....	20.50	-----	-----	-----	-----
The Barrett Company,					
40 Rector Street,					
New York, New York					
Arcadian the American Nitrate of Soda.....	16.00	-----	-----	-----	-----
Arcadian Sulphate of Ammonia.....	20.56	-----	-----	-----	-----
Sulphate of Ammonia.....	20.56	-----	-----	-----	-----
Blood and Bone Fertilizer Corporation,					
East St. Louis, Illinois					
"Steer Head Brands"					
Special Truck Grower.....	4.00	-----	8.00	-----	6.00
Two-Sixteen-Two Fertilizer.....	2.00	-----	16.00	-----	2.00
Two-Twelve-Six Fertilizer.....	2.00	-----	12.00	-----	6.00
Missouri Special Fertilizer.....	2.00	-----	12.00	-----	2.00
Special Wheat Grower.....	2.00	-----	10.00	-----	3.00
Twelve-Four Fertilizer.....	-----	-----	12.00	-----	4.00
Superphosphate 16%.....	-----	-----	16.00	-----	-----
Superphosphate 18%.....	-----	-----	18.00	-----	-----
Superphosphate 20%.....	-----	-----	20.00	-----	-----
Raw Bone Meal.....	3.28	20.00	-----	-----	-----
St. Louis Bone Meal.....	2.50	24.00	-----	-----	-----
Steam Bone Meal.....	1.00	30.00	-----	-----	-----
Phosphate and Bone Mixture (Half and Half).....	1.00	-----	12.00	8.00	-----
Chilean Nitrate Sales Corporation,					
120 Broadway,					
New York, New York					
Champion Brand Chilean Nitrate of Soda.....	16.00	-----	-----	-----	-----
Old Style Chilean Nitrate of Soda.....	15.50	-----	-----	-----	-----

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1937 (Continued)

Fertilizer	Nitrogen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total from Bone	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
The Colorado Fuel and Iron Company, Denver, Colorado					
Silver Tip Sulphate of Ammonia.....	20.00	-----	-----	-----	-----
Crocker Packing Company, Joplin, Missouri					
Interstate Steam Bone.....	2.50	24.00	-----	-----	-----
Interstate 4-12-8.....	4.00	-----	12.00	-----	8.00
Interstate 4-12-4.....	4.00	-----	12.00	-----	4.00
Interstate 4-8-6.....	4.00	-----	8.00	-----	6.00
Interstate 4-8-4.....	4.00	-----	8.00	-----	4.00
Interstate 2-16-6.....	2.00	-----	16.00	-----	6.00
Interstate 2-16-2.....	2.00	-----	16.00	-----	2.00
Interstate 2-12-8.....	2.00	-----	12.00	-----	8.00
Interstate 2-12-2.....	2.00	-----	12.00	-----	2.00
Interstate 2-12-6.....	2.00	-----	12.00	-----	6.00
Interstate 2-8-5.....	2.00	-----	8.00	-----	5.00
Interstate 2-8-10.....	2.00	-----	8.00	-----	10.00
Interstate 0-16-0 Superphosphate 16%.....	-----	-----	16.00	-----	-----
Interstate 0-20-0 Superphosphate 20%.....	-----	-----	20.00	-----	-----
Interstate 0.50-15-2.....	0.50	-----	15.00	-----	2.00
"Aero" Superphosphate Granular.....	-----	-----	32.00	-----	-----
Lawn, Vegetable and Flower Grower.....	4.00	-----	8.00	-----	6.00
Interstate Half and Half.....	1.20	-----	14.00	6.00	-----
Milorganite.....	6.06	-----	2.15	0.65	-----
Muriate of Potash.....	-----	-----	-----	-----	60.72
Sulphate of Ammonia.....	20.60	-----	-----	-----	-----
Cudahy Packing Company, 221 North La Salle Street, Chicago, Illinois					
"Bigwin" Fertilizer Steamed Bone Meal.....	2.50	24.00	-----	-----	-----
"Bigwin" High Grade 16% Superphosphate.....	-----	-----	16.00	1.00	-----
"Bigwin" High Grade 18% Superphosphate.....	-----	-----	18.00	1.00	-----
"Bigwin" High Grade Fertilizer 2-12-2.....	2.00	-----	12.00	-----	2.00
"Bigwin" High Grade Fertilizer 2-16-2.....	2.00	-----	16.00	-----	2.00
"Bigwin" High Grade Fertilizer 4-12-6.....	2.00	-----	12.00	-----	6.00
"Bigwin" High Grade Fertilizer 4-8-6.....	4.00	-----	8.00	-----	6.00
"Bigwin" High Grade 20% Superphosphate.....	-----	-----	20.00	1.00	-----
Nitrate of Soda.....	15.00	-----	-----	-----	-----
Muriate of Potash.....	-----	-----	-----	-----	58.00
Sulphate of Ammonia.....	21.00	-----	-----	-----	-----
"Bigwin" High Grade Fertilizer 4-16-4.....	4.00	-----	16.00	-----	4.00
"Bigwin" High Grade Fertilizer 4-12-4.....	4.00	-----	12.00	-----	4.00
"Bigwin" High Grade Fertilizer 0-14-6.....	-----	-----	14.00	-----	6.00
"Bigwin" High Grade Fertilizer 2-12-4.....	2.00	-----	12.00	-----	4.00
"Bigwin" High Grade 45% Superphosphate.....	-----	-----	45.00	2.00	-----
"Bigwin" Fertilizer, Half and Half 1-13-0.....	1.00	-----	13.00	7.00*	-----
*From bone					
Darling and Company, 4201 South Ashland Avenue, Chicago, Illinois					
Darling's All Crop.....	4.00	-----	16.00	-----	4.00
Darling's Potato Special.....	4.00	-----	8.00	-----	7.00
Darling's Field Marshal.....	4.00	-----	12.00	-----	4.00
Darling's Farmers Favorite.....	3.00	-----	8.00	-----	6.00
Darling's Crop King.....	2.00	-----	12.00	-----	6.00
Darling's Tomato Grower.....	2.00	-----	12.00	-----	6.00
Darling's Bumper Crop.....	2.00	-----	16.00	-----	2.00
Darling's General Crop.....	2.00	-----	14.00	-----	4.00
Darling's Special Lawn and Garden Fertilizer.....	4.00	-----	8.00	-----	7.00
Darling's Big Harvest.....	2.00	-----	12.00	-----	2.00
Darling's Two-Twelve-Four.....	2.00	-----	12.00	-----	4.00
Darling's Fourteen-Four.....	-----	-----	14.00	-----	4.00
Darling's Ten-Ten.....	-----	-----	10.00	-----	10.00
Darling's Pure Ground Bone.....	1.85	28.00	-----	-----	-----
Darling's Bone and Superphosphate, Half and Half.....	1.00	-----	14.00	6.00*	-----
Darling's Nitrate of Soda.....	16.00	-----	-----	-----	-----
Darling's Sulphate of Ammonia.....	20.56	-----	-----	-----	-----
Darling's Muriate of Potash.....	-----	-----	-----	-----	50.00

*Insoluble P₂O₅ is from Bone.

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1937 (Continued)

Fertilizer	Phosphoric Acid (P ₂ O ₅)				Potash (K ₂ O) Per cent
	Nitrogen	Total from Bone	Avail-able	Insol-uble	
Darling's Twelve-Twelve.....	-----	-----	12.00	-----	12.00
Darling's 20% Superphosphate.....	-----	-----	20.00	-----	-----
Darling's 16% Superphosphate.....	-----	-----	16.00	-----	-----
Darling's 45% Superphosphate.....	-----	-----	45.00	-----	-----
Darling's Potato Brand 4-8-6.....	4.00	-----	8.00	-----	6.00
M. F. A. 4-16-4.....	4.00	-----	16.00	-----	4.00
M. F. A. 4-8-7.....	4.00	-----	8.00	-----	7.00
M. F. A. 4-12-4.....	4.00	-----	12.00	-----	4.00
M. F. A. 3-8-6.....	3.00	-----	8.00	-----	6.00
M. F. A. 2-12-6.....	2.00	-----	12.00	-----	6.00
M. F. A. 2-16-2.....	2.00	-----	16.00	-----	2.00
M. F. A. 2-14-4.....	2.00	-----	14.00	-----	4.00
M. F. A. 2-12-2.....	2.00	-----	12.00	-----	2.00
M. F. A. 2-12-4.....	2.00	-----	12.00	-----	4.00
M. F. A. 0-14-4.....	-----	-----	14.00	-----	4.00
M. F. A. 0-12-12.....	-----	-----	12.00	-----	12.00
M. F. A. 0-10-10.....	-----	-----	10.00	-----	10.00
M. F. A. 16% Superphosphate.....	-----	-----	16.00	-----	-----
M. F. A. 20% Superphosphate.....	-----	-----	20.00	-----	-----
M. F. A. 45% Superphosphate.....	-----	-----	45.00	-----	-----
M. F. A. Bone and Superphosphate, Half and Half.....	1.00	-----	14.00	6.00*	-----
M. F. A. Pure Ground Bone.....	1.85	28.00	-----	-----	-----
M. F. A. Nitrate of Soda.....	16.00	-----	-----	-----	-----
M. F. A. Sulphate of Ammonia.....	20.56	-----	-----	-----	-----
M. F. A. Muriate of Potash.....	-----	-----	-----	-----	50.00
M. F. A. Potato Brand 4-8-6.....	4.00	-----	8.00	-----	6.00
*Insoluble P ₂ O ₅ is from Bone.	-----	-----	-----	-----	-----
The Davison Chemical Corporation, Nashville, Tennessee					
Red Diamond 3-8-6.....	3.00	-----	8.00	-----	6.00
Red Diamond 4-12-4.....	4.00	-----	12.00	-----	4.00
Premium Grain Grower.....	2.00	-----	12.00	-----	2.00
Red Diamond 5-15-5.....	5.00	-----	15.00	-----	5.00
Grain Special.....	1.00	-----	12.00	-----	4.00
Red Diamond 2-12-6.....	2.00	-----	12.00	-----	6.00
Red Diamond 4-16-4.....	4.00	-----	16.00	-----	4.00
Red Diamond 2-12-4.....	2.00	-----	12.00	-----	4.00
Phosphate and Potash.....	-----	-----	14.00	-----	7.00
Red Diamond 0-14-4.....	-----	-----	14.00	-----	4.00
Red Diamond 0-12-2.....	-----	-----	12.00	-----	2.00
Red Diamond 0-14-2.....	-----	-----	14.00	-----	2.00
16% Superphosphate.....	-----	-----	16.00	-----	-----
20% Superphosphate.....	-----	-----	20.00	-----	-----
Raw Bone Meal.....	3.70	20.00	-----	-----	-----
Steam Bone Meal.....	2.00	27.00	-----	-----	-----
Half and Half.....	1.00	-----	12.00	8.00	-----
Nitrate of Soda.....	16.00	-----	-----	-----	-----
Sulphate of Ammonia.....	20.50	-----	-----	-----	-----
Muriate of Potash.....	-----	-----	-----	-----	50.00
Red Diamond 6-8-4.....	6.00	-----	8.00	-----	4.00
Davco Homogeneous Granulated 2-12-2.....	2.00	-----	12.00	-----	2.00
Davco Homogeneous Granulated 3-8-6.....	3.00	-----	8.00	-----	6.00
Davco Granulated 16% Superphosphate.....	-----	-----	16.00	-----	-----
Davco Granulated 20% Superphosphate.....	-----	-----	20.00	-----	-----
Federal Chemical Co., Inc., East St. Louis, Illinois					
Floyd Money Maker 2-12-2.....	2.00	-----	12.00	-----	2.00
Floyd Money Maker 2-12-4.....	2.00	-----	12.00	-----	4.00
Floyd Money Maker 2-14-4.....	2.00	-----	14.00	-----	4.00
Floyd Money Maker 2-12-6.....	2.00	-----	12.00	-----	6.00
Floyd Money Maker 3-8-6.....	3.00	-----	8.00	-----	6.00
Floyd Money Maker 4-6-2.....	4.00	-----	6.00	-----	2.00
Floyd Money Maker 4-12-4.....	4.00	-----	12.00	-----	4.00
Floyd Money Maker 4-16-4.....	4.00	-----	16.00	-----	4.00
Floyd Money Maker 4-8-6.....	4.00	-----	8.00	-----	6.00
Floyd Money Maker 0-12-4.....	-----	-----	12.00	-----	4.00
Floyd Money Maker 0-14-4.....	-----	-----	14.00	-----	4.00
Floyd Money Maker 0-12-6.....	-----	-----	12.00	-----	6.00

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1937 (Continued)

Fertilizer	Nitrogen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total from Bone	Avail-able	Insol-uble	
		Per cent	Per cent	Per cent	
Floyd Money Maker 0-10-10.....	-----	-----	10.00	-----	10.00
Floyd Money Maker 16% Superphosphate.....	-----	-----	16.00	-----	-----
Floyd Money Maker 20% Superphosphate.....	-----	-----	20.00	-----	-----
Garden Grow (A Plant Food for Gardens, Lawns and Flowers)	5.00	-----	10.00	5.00	5.00
Bone and Phosphate Mixture.....	1.00	-----	12.00	8.00	-----
Raw Bone.....	3.30	20.00	-----	-----	-----
Steamed Bone.....	2.00	27.00	-----	-----	-----
Globe Brands					
Globe Formula 1-12-3.....	1.00	-----	12.00	-----	3.00
Eagle Corn and Wheat Grower.....	2.00	-----	10.00	-----	2.00
Loam Land Fertilizer.....	2.00	-----	12.00	-----	2.00
Daybreak 2-12-6.....	2.00	-----	12.00	-----	6.00
Official Formula 2-14-4.....	2.00	-----	14.00	-----	4.00
Double Duty.....	4.00	-----	12.00	-----	4.00
Phosphate and Potash.....	-----	-----	12.00	-----	4.00
0-12-6 Fertilizer.....	-----	-----	12.00	-----	6.00
3-8-6 Fertilizer.....	3.00	-----	8.00	-----	6.00
16% Superphosphate.....	-----	-----	16.00	-----	-----
20% Superphosphate.....	-----	-----	20.00	-----	-----
Special Formula 4-16-4.....	4.00	-----	16.00	-----	4.00
Blue Ribbon Meal Mixture.....	2.00	-----	10.00	10.00	-----
Raw Bone.....	3.30	20.00	-----	-----	-----
Steam Bone.....	2.00	27.00	-----	-----	-----
Bone and Phosphate Mixture.....	1.00	-----	12.00	8.00	-----
Daybreak Brands					
Daybreak Formula 1-12-3.....	1.00	-----	12.00	-----	3.00
Standard Corn and Wheat Grower.....	2.00	-----	10.00	-----	2.00
Loam Land Fertilizer.....	2.00	-----	12.00	-----	2.00
Daybreak 2-12-6.....	2.00	-----	12.00	-----	6.00
Official Formula 2-14-4.....	2.00	-----	14.00	-----	4.00
3-8-6 Fertilizer.....	3.00	-----	8.00	-----	6.00
Double Duty.....	4.00	-----	12.00	-----	4.00
Phosphate and Potash.....	-----	-----	12.00	-----	4.00
0-12-6 Fertilizer.....	-----	-----	12.00	-----	6.00
Special Formula 4-16-4.....	4.00	-----	16.00	-----	4.00
16% Superphosphate.....	-----	-----	16.00	-----	-----
20% Superphosphate.....	-----	-----	20.00	-----	-----
Bone and Phosphate Mixture.....	1.00	-----	12.00	8.00	-----
Raw Bone.....	3.30	20.00	-----	-----	-----
Steam Bone.....	2.00	27.00	-----	-----	-----
Blue Ribbon Meal Mixture.....	2.00	-----	10.00	10.00	-----
Nitrate of Soda.....	16.00	-----	-----	-----	-----
Sulphate of Ammonia.....	20.00	-----	-----	-----	-----
Muriate of Potash.....	-----	-----	-----	-----	50.00
Flower City Plant Food Company, Inc., Pittsford, New York					
Wondergro Plant Food.....	10.00	-----	12.00	-----	11.00
Excelsior Plant Food.....	5.00	-----	8.00	-----	5.00
Fairy Brand Plant Food.....	10.00	-----	12.00	-----	11.00
Ford Motor Company, Dearborn, Michigan					
Ford Ammonium Sulphate.....	20.80	-----	-----	-----	-----
Leonard Haeefe, 825 West Tesson Street, St. Louis, Missouri					
Star Brand Ground Steam Bone.....	2.00	20.00	-----	-----	-----
Star Brand Bone Fertilizer.....	4.00	15.00	-----	-----	-----
A. H. Hoffman, Inc., Landisville, Pennsylvania					
Hoffman's Bone Meal.....	3.70	20.00	-----	-----	-----
Hoffman's Plant Food.....	5.00	-----	8.00	-----	6.00
Hoffman's Sheep Manure (Kiln Dried).....	1.85	-----	1.00	-----	2.00
Hoffman's Cow Manure (Dehydrated).....	2.00	-----	2.00	-----	2.00

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1937 (Continued)

Fertilizer	Nitrogen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total from Bone	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Master Meat Products Company, Detroit, Michigan Master Fertilizer 4-12-2.....	4.00	-----	12.00	-----	2.00
Milwaukee Sewerage Commission, P. O. Box 2079, Milwaukee, Wisconsin Milorganite.....	6.00	-----	2.00	0.75	-----
Newhouse Chemical and Supply Company, North Little Rock, Arkansas					
Triangle Up-Ahead Fertilizer.....	6.00	-----	8.00	0.50	12.00
Triangle Master Farmer.....	6.00	-----	12.00	0.50	6.00
Triangle Complete Fertilizer.....	4.00	-----	12.00	0.50	4.00
Triangle All Crop Fertilizer.....	4.00	-----	10.00	0.50	4.00
Triangle Potato and Truck.....	4.00	-----	8.00	0.50	6.00
Triangle Four State Cotton.....	4.00	-----	8.00	0.50	4.00
Triangle Sandland Fertilizer.....	3.00	-----	10.00	0.50	3.00
Triangle Tomato Fertilizer.....	2.00	-----	12.00	0.50	6.00
Triangle Old Timer Fertilizer.....	2.00	-----	12.00	0.50	2.00
Triangle Early Day Fertilizer.....	2.00	-----	10.00	0.50	2.00
Triangle 2-16-0.....	2.00	-----	16.00	0.50	-----
Triangle 0-15-6.....	-----	-----	15.00	0.50	6.00
Triangle 16% Superphosphate.....	-----	-----	16.00	0.50	-----
Triangle 18% Superphosphate.....	-----	-----	18.00	0.50	-----
Triangle 20% Superphosphate.....	-----	-----	20.00	0.50	-----
Triangle Steamed Bone Meal.....	1.65	27.00	-----	-----	-----
Triangle Pure Raw Bone Meal.....	3.70	23.00	-----	-----	-----
Triangle Muriate of Potash.....	-----	-----	-----	-----	50.00
Triangle Sulphate of Ammonia.....	20.00	-----	-----	-----	-----
Triangle Nitrate of Soda.....	16.00	-----	-----	-----	-----
Triangle Kainit.....	-----	-----	-----	-----	20.00
Triangle 4-16-4.....	4.00	-----	16.00	0.50	4.00
Triangle 0-14-7.....	-----	-----	14.00	0.50	7.00
Triangle 3- 8-6.....	3.00	-----	8.00	0.50	6.00
N. V. Potash Export My. Inc., 19 West 44th Street, New York, New York					
Muriate of Potash.....	-----	-----	-----	-----	50.00
20% Kainit.....	-----	-----	-----	-----	20.00
30% Manure Salts.....	-----	-----	-----	-----	30.00
Pearson-Ferguson Company, 1000 Hickory Street, Kansas City, Missouri					
P-F Brand 10-20-10.....	10.00	-----	20.00	-----	10.00
P-F Brand 9-27- 9.....	9.00	-----	27.00	-----	9.00
P-F Brand 9-18-18.....	9.00	-----	18.00	-----	18.00
P-F Brand 8-24- 8.....	8.00	-----	24.00	-----	8.00
P-F Brand 8-16-16.....	8.00	-----	16.00	-----	16.00
P-F Brand 8-12-20.....	8.00	-----	12.00	-----	20.00
P-F Brand 6-12- 4.....	6.00	-----	12.00	-----	4.00
P-F Brand 5-15- 5.....	5.00	-----	15.00	-----	5.00
P-F Brand 4-16- 4.....	4.00	-----	16.00	-----	4.00
P-F Brand 4-12- 4.....	4.00	-----	12.00	-----	4.00
P-F Brand 4- 8- 6.....	4.00	-----	8.00	-----	6.00
P-F Brand 2-12- 2.....	2.00	-----	12.00	-----	2.00
P-F Brand 0-20-20.....	-----	-----	20.00	-----	20.00
P-F Brand 0-20- 0.....	-----	-----	20.00	-----	-----
P-F Brand Superphosphate.....	-----	-----	20.00	-----	-----
Plantabbs Corporation, 1214 Court Square Bldg., Baltimore, Maryland					
Fulton's Plantabbs.....	11.00	-----	15.00	-----	20.00
The Pulverized Manure Company, Chicago, Illinois					
Wizard Brand Pulverized Sheep Manure.....	2.00	-----	1.00	-----	2.00
Wizard Brand Cow Manure.....	2.00	-----	1.00	-----	1.00
Garden Mulch (Pure Cow Manure) Unprocessed.....	2.00	-----	1.00	-----	1.00

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1937 (Continued)

Fertilizer	Nitrogen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total from Bone	Avail-able	Insol-uble	
	Per cent	Per cent	Per cent	Per cent	Per cent
E. Rauh and Sons Fertilizer Co., Indianapolis, Indiana					
Rauh's Red Star 16% Superphosphate	-----	-----	16.00	-----	-----
Rauh's Red Star 20% Superphosphate	-----	-----	20.00	-----	-----
Rauh's Red Star 0-12-6	-----	-----	12.00	-----	6.00
Rauh's Red Star 0-14-6	-----	-----	14.00	-----	6.00
Rauh's Red Star 1-11-5	1.00	-----	11.00	-----	5.00
Rauh's Red Star Half and Half	1.00	-----	10.00	10.00	-----
Rauh's Red Star 1-12-4	1.00	-----	12.00	-----	4.00
Rauh's Red Star 2-12-2	2.00	-----	12.00	-----	2.00
Rauh's Red Star 2-12-6	2.00	-----	12.00	-----	6.00
Rauh's Red Star 2-16-2	2.00	-----	16.00	-----	2.00
Rauh's Red Star 3- 9-12	3.00	-----	9.00	-----	18.00
Rauh's Red Star 4- 8-6	4.00	-----	8.00	-----	6.00
Rauh's Red Star 4-16-4	4.00	-----	16.00	-----	4.00
Rauh's Steamed Bone Meal	1.60	27.00	-----	-----	-----
M. C. Reed, 302 South McGregor Street, Carthage, Missouri					
Kalosecta 4-12-4	4.00	-----	12.00	1.00	4.00
Ruhm Phosphate and Chemical Company, Mt. Pleasant, Tennessee					
Ruhm's Phosphate Rock (washed and ground)	-----	-----	-----	34.30	-----
O. M. Scott and Sons Company, Marysville, Ohio					
Scott's Turf Builder	10.00	-----	6.00	-----	4.00
The Smith Agricultural Chemical Company, Columbus, Ohio					
Sacco Plant Food	4.00	-----	12.00	-----	4.00
Wedo	8.00	-----	5.00	-----	3.00
Stockdale Fertilizer Company, Morris, Illinois					
Ovone (Sheep Manure)	2.00	-----	1.00	-----	2.00
Swift and Company Fertilizer Works, National Stock Yards, Illinois					
Red Steer 12- 6- 4	12.00	-----	6.00	-----	4.00
Red Steer 10-20-10	10.00	-----	20.00	-----	10.00
Red Steer 10- 6- 4	10.00	-----	6.00	-----	4.00
Red Steer 9-27- 9	9.00	-----	27.00	-----	9.00
Red Steer 9-18-18	9.00	-----	18.00	-----	18.00
Red Steer 9- 7- 2	9.00	-----	7.00	-----	2.00
Red Steer 8-24- 8	8.00	-----	24.00	-----	8.00
Red Steer 8-16-16	8.00	-----	16.00	-----	16.00
Red Steer 6-12- 6	6.00	-----	12.00	-----	6.00
Red Steer 6-12- 4	6.00	-----	12.00	-----	4.00
Red Steer 6-12- 0	6.00	-----	12.00	-----	-----
Red Steer 5-15- 5	5.00	-----	15.00	-----	5.00
Red Steer 5-10- 5	5.00	-----	10.00	-----	5.00
Red Steer 4-16- 4	4.00	-----	16.00	-----	4.00
Red Steer 4-12- 6	4.00	-----	12.00	-----	6.00
Red Steer 4-12- 4	4.00	-----	12.00	-----	4.00
Red Steer 4-10- 6	4.00	-----	10.00	-----	6.00
Red Steer 4- 8- 8	4.00	-----	8.00	-----	8.00
Red Steer 4- 8- 7	4.00	-----	8.00	-----	7.00
Red Steer 4- 8- 6	4.00	-----	8.00	-----	6.00
Red Steer 3-18- 3	3.00	-----	18.00	-----	3.00
Red Steer 3-12- 4	3.00	-----	12.00	-----	4.00
Red Steer 3- 8- 6	3.00	-----	8.00	-----	6.00
Red Steer 2-16- 2	2.00	-----	16.00	-----	2.00
Red Steer 2-14- 4	2.00	-----	14.00	-----	4.00
Red Steer 2-12- 6	2.00	-----	12.00	-----	6.00
Red Steer 2-12- 4	2.00	-----	12.00	-----	4.00
Red Steer 2-12- 2	2.00	-----	12.00	-----	2.00
Red Steer 2-10- 2	2.00	-----	10.00	-----	2.00
Red Steer 1-12- 4	1.00	-----	12.00	-----	4.00
Red Steer 0-16- 4	-----	-----	16.00	-----	4.00

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1937 (Continued)

Fertilizer	Nitrogen	Phosphoric Acid (P ₂ O ₅)			Potash (K ₂ O)
		Total from Bone	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Red Steer 0-14-7	-----	-----	14.00	-----	7.00
Red Steer 0-14-4	-----	-----	14.00	-----	4.00
Red Steer 0-12-12	-----	-----	12.00	-----	12.00
Red Steer 0-12-4	-----	-----	12.00	-----	4.00
Red Steer 0-10-4	-----	-----	10.00	-----	4.00
Red Steer 44% Superphosphate	-----	-----	44.00	-----	-----
Red Steer 32% Superphosphate	-----	-----	32.00	-----	-----
Red Steer 20% Superphosphate	-----	-----	20.00	-----	-----
Special Golf Fertilizer 12-6-4	12.00	-----	6.00	-----	4.00
Steam Bone Fertilizer 2 1/4-26	2.25	26.00	-----	-----	-----
Red Steer 16% Superphosphate	-----	-----	16.00	-----	-----
Steam Bone Fertilizer 2-26	2.00	26.00	-----	-----	-----
Raw Bone Fertilizer 3.7-23	3.70	23.00	-----	-----	-----
Sulphate of Ammonia	20.75	-----	-----	-----	-----
Nitrate of Soda	15.00	-----	-----	-----	-----
Muriate of Potash	-----	-----	-----	-----	50.00
Sulphate of Potash	-----	-----	-----	-----	48.00
Blood and Bone Tankage Fertilizer	4.00	18.00	-----	-----	-----
Red Steer Half and Half Fertilizer	1.00	-----	12.00	8.00	-----
Pulverized Manure	2.00	-----	1.00	-----	2.00
Kainit	-----	-----	-----	-----	20.00
Cyanamid	21.00	-----	-----	-----	-----
Vigoro	4.00	-----	12.00	-----	4.00
Synthetic Nitrogen Products Corporation,					
285 Madison Avenue,					
New York, New York					
Nitrophoska 15-30-15	15.00	-----	30.00	-----	15.00
Urea	46.00	-----	-----	-----	-----
Tennessee Corporation,					
Lockland, Ohio					
Loma	5.00	-----	10.00	0.65	4.00
Soil-Prep	4.00	-----	2.00	-----	2.00
Virginia-Carolina Chemical Corporation,					
East St. Louis, Illinois					
V-C Fertilizer 9-18-18	9.00	-----	18.00	-----	18.00
V-C Fertilizer 8-16-16	8.00	-----	16.00	-----	16.00
V-C Fertilizer 4-16-4	4.00	-----	16.00	-----	4.00
V-C Fertilizer 4-12-4	4.00	-----	12.00	-----	4.00
V-C Fertilizer 4-8-7	4.00	-----	8.00	-----	7.00
V-C Fertilizer 4-8-6	4.00	-----	8.00	-----	6.00
V-C Fertilizer 3-18-9	3.00	-----	18.00	-----	9.00
V-C Fertilizer 3-12-4	3.00	-----	12.00	-----	4.00
V-C Fertilizer 3-8-6	3.00	-----	8.00	-----	6.00
V-C Fertilizer 2-16-2	2.00	-----	16.00	-----	2.00
V-C Fertilizer 2-12-6	2.00	-----	12.00	-----	6.00
V-C Fertilizer 2-12-4	2.00	-----	12.00	-----	4.00
V-C Fertilizer 2-12-2	2.00	-----	12.00	-----	2.00
V-C Fertilizer 1-12-4	1.00	-----	12.00	-----	4.00
V-C Fertilizer 0-14-4	-----	-----	14.00	-----	4.00
V-C Fertilizer 0-14-6	-----	-----	14.00	-----	6.00
V-C Fertilizer 0-12-2	-----	-----	12.00	-----	2.00
V-C 20% Superphosphate	-----	-----	20.00	-----	-----
V-C 16% Superphosphate	-----	-----	16.00	-----	-----
20% Kainit	-----	-----	-----	-----	20.00
Half and Half	1.00	-----	13.00	10.00	-----
Muriate of Potash	-----	-----	-----	-----	50.00
Sulphate of Ammonia	20.00	-----	-----	-----	-----
Nitrate of Soda	16.00	-----	-----	-----	-----
Steamed Bone Meal	2.00	27.00	-----	-----	-----
Raw Bone Meal	3.70	23.00	-----	-----	-----
V-C Fertilizer 2-14-4	2.00	-----	14.00	-----	4.00
V-C Fertilizer 3-12-12	3.00	-----	12.00	-----	12.00
Westover Nursery Company,					
8100 Olive Street Road,					
St. Louis, Missouri					
Westover's Wesgro Brand, Cattle Manure	1.00	-----	1.00	-----	2.00
Westover's Rosegro Brand, Blood and Bone	3.30	25.00	-----	-----	-----
The Zoro Company,					
216 North Clinton Street,					
Chicago, Illinois					
Florogold	4.00	-----	12.00	0.35	4.00

FERTILIZER SALES, 1936

The statistical data on fertilizer sales are given in Tables 5, 6, and 7. Table 5 indicates the distribution in tonnage for spring and fall seasons in each county in the state. Table 6 indicates the tonnage of the fertilizer constituents,—nitrogen, total phosphoric acid in bone, available phosphoric acid and water soluble potash contained in the fertilizer reported as sold in the state in 1936. Table 7 gives the tonnage for all grades of superphosphate and mixed fertilizer sold in 1936 where this amount was ten tons or more. The total tonnage for bone goods will be found in tables 5 and 6.

The classification terms used in these tables are explained as follows:

Bone.—Ground steamed or raw bone, which has not been treated chemically or mixed with any phosphoric acid carrier, inorganic or none animal in nature. Raw Bone Meal, Steamed Bone Meal, Blood and Bone are examples of goods listed in this classification.

Superphosphate.—Acid Phosphate carrying guarantees of available phosphoric acid only, of all amounts from 16 per cent and more.

Mixed Fertilizer, High Grade.—All brands having guaranteed percentages of either two or three of the fertilizer constituents,—nitrogen, available phosphoric acid and water soluble potash—the sum of whose percentage equal 20 or more. Mixtures of Bone and Superphosphate commonly called Half and Half are included in this classification.

Mixed Fertilizer, Medium Grade.—Brands have guaranteed percentages of two or three constituents totaling not less than 14 but less than 20 units.

Mixed Fertilizer, Low Grade.—Brands having guaranteed percentages which total less than 14 units.

Miscellaneous.—Simple unmixed materials, other than bone and superphosphate. These include potash salts, sulphate of ammonium, nitrate of soda, dried manure, dried blood, cyanamid, etc.

TABLE 5.—APPROXIMATE TONNAGE OF FERTILIZER SOLD IN THE STATE OF MISSOURI, BY COUNTIES, BASED UPON REPORT OF SHIPMENTS BY THE FERTILIZER COMPANIES

County	Sales in 1936			Fertilizer Sales Classified in 1936						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Adair.....	27	143	170	Spring -	0	9	3	14	0	1
				Fall....	0	85	8	50	0	0
Andrew.....	20	0	20	Spring -	0	0	20	0	0	0
				Fall....	0	0	0	0	0	0
Atchison.....	20	19	39	Spring -	0	0	20	0	0	0
				Fall....	0	0	0	0	0	0
Audrain.....	85	680	765	Spring -	1	17	12	2	0	0
				Fall....	54	171	83	371	0	1
Barry.....	441	1,017	1,458	Spring -	0	48	124	269	0	0
				Fall....	139	163	165	550	0	0
Barton.....	275	2,935	3,210	Spring -	0	61	37	177	0	0
				Fall....	294	822	676	1,120	0	23
Bates.....	97	1,480	1,577	Spring -	0	22	36	39	0	0
				Fall....	62	571	165	682	0	0
Benton.....	22	454	476	Spring -	0	8	0	14	0	0
				Fall....	12	102	10	330	0	0
Bollinger.....	193	600	793	Spring -	0	92	6	95	0	0
				Fall....	41	295	25	239	0	0
Boone.....	49	419	468	Spring -	4	24	12	4	0	5
				Fall....	5	162	71	155	0	26
Buchanan.....	85	195	280	Spring -	1	29	36	19	0	0
				Fall....	1	67	52	25	0	50
Butler.....	33	30	63	Spring -	0	0	10	22	0	1
				Fall....	5	8	10	7	0	0
Caldwell.....	20	181	201	Spring -	0	16	4	0	0	0
				Fall....	2	97	53	29	0	0
Callaway.....	41	516	557	Spring -	2	7	28	4	0	0
				Fall....	66	229	69	152	0	0
Camden.....	22	92	114	Spring -	2	4	0	16	0	0
				Fall....	9	13	8	62	0	0
Cape Girardeau..	108	309	417	Spring -	0	46	8	52	0	2
				Fall....	4	120	21	144	0	20
Carroll.....	14	431	445	Spring -	0	2	6	6	0	0
				Fall....	7	254	101	69	0	0
Carter.....	29	38	67	Spring -	0	3	5	21	0	0
				Fall....	3	7	4	24	0	0
Cass.....	5	1,176	1,181	Spring -	0	4	0	1	0	0
				Fall....	24	321	76	755	0	0
Cedar.....	172	835	1,007	Spring -	2	104	13	53	0	0
				Fall....	39	418	49	329	0	0
Chariton.....	9	350	359	Spring -	0	5	3	1	0	0
				Fall....	5	220	37	88	0	0
Christian.....	319	810	1,129	Spring -	0	131	93	95	0	0
				Fall....	9	170	81	550	0	0
Clark.....	72	59	131	Spring -	0	8	43	21	0	0
				Fall....	0	46	3	10	0	0
Clay.....	53	64	117	Spring -	0	3	48	2	0	0
				Fall....	0	49	14	1	0	0
Clinton.....	10	64	74	Spring -	0	6	3	1	0	0
				Fall....	0	49	6	9	0	0
Cole.....	129	991	1,120	Spring -	5	26	61	34	0	3
				Fall....	16	384	57	533	0	1
Cooper.....	8	162	170	Spring -	0	6	2	0	0	0
				Fall....	16	48	30	68	0	0
Crawford.....	26	284	310	Spring -	0	15	3	8	0	0
				Fall....	14	161	17	92	0	0
Dade.....	48	1,329	1,377	Spring -	0	22	0	26	0	0
				Fall....	105	267	491	465	0	1
Dallas.....	45	234	279	Spring -	0	29	0	16	0	0
				Fall....	14	182	0	38	0	0
Davies.....	12	88	100	Spring -	0	11	0	1	0	0
				Fall....	0	14	19	55	0	0
DeKalb.....	0	26	26	Spring -	0	0	0	0	0	0
				Fall....	0	25	1	0	0	0
Dent.....	128	296	424	Spring -	1	31	7	89	0	0
				Fall....	6	87	17	186	0	0
Douglas.....	121	68	189	Spring -	0	10	11	100	0	0
				Fall....	0	13	0	55	0	0
Dunklin.....	657	20	677	Spring -	30	3	168	88	0	368
				Fall....	0	1	14	5	0	0
Franklin.....	120	1,349	1,469	Spring -	1	52	38	28	0	1
				Fall....	53	573	156	567	0	0

TABLE 5.—APPROXIMATE TONNAGE OF FERTILIZER SOLD IN THE STATE OF MISSOURI, BY COUNTIES, BASED UPON REPORT OF SHIPMENTS BY THE FERTILIZER COMPANIES (Continued)

County	Sales in 1936			Fertilizer Sales Classified in 1936						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Gasconade.....	11	607	618	Spring -	0	4	2	5	0	0
				Fall....	10	334	6	256	0	1
Gentry.....	2	16	18	Spring -	0	1	0	1	0	0
				Fall....	0	4	10	2	0	0
Greene.....	885	2,610	3,495	Spring -	14	199	125	527	0	20
				Fall....	99	820	196	1,490	0	5
Grundy.....	127	400	527	Spring -	2	51	41	33	0	0
				Fall....	0	295	46	59	0	0
Harrison.....	26	113	139	Spring -	3	16	4	3	0	0
				Fall....	4	87	10	12	0	0
Henry.....	7	1,002	1,009	Spring -	0	3	0	4	0	0
				Fall....	28	357	59	558	0	0
Hickory.....	33	369	402	Spring -	0	12	0	21	0	0
				Fall....	0	174	16	179	0	0
Holt.....	20	0	20	Spring -	0	0	0	0	0	20
				Fall....	0	0	0	0	0	0
Howard.....	6	71	77	Spring -	0	2	3	1	0	0
				Fall....	1	42	6	22	0	0
Howell.....	368	237	605	Spring -	0	115	81	170	0	2
				Fall....	0	118	21	98	0	0
Iron.....	34	173	207	Spring -	0	1	10	23	0	0
				Fall....	0	30	25	118	0	0
Jackson.....	377	389	766	Spring -	27	42	103	14	0	191
				Fall....	31	126	64	47	0	121
Jasper.....	173	3,182	3,355	Spring -	0	47	27	97	0	2
				Fall....	203	820	745	1,409	0	5
Jefferson.....	30	138	168	Spring -	0	20	2	6	0	2
				Fall....	1	67	12	58	0	0
Johnson.....	49	1,018	1,067	Spring -	6	12	4	27	0	0
				Fall....	19	616	71	312	0	0
Knox.....	31	249	280	Spring -	0	10	9	12	0	0
				Fall....	12	138	57	42	0	0
Laclede.....	128	683	811	Spring -	2	22	30	74	0	0
				Fall....	11	430	2	240	0	0
Lafayette.....	8	82	90	Spring -	0	2	4	2	0	0
				Fall....	0	61	11	10	0	0
Lawrence.....	367	2,309	2,676	Spring -	6	99	70	190	0	2
				Fall....	134	613	375	1,142	0	45
Lewis.....	11	478	489	Spring -	1	6	3	1	0	0
				Fall....	59	199	38	182	0	0
Lincoln.....	135	1,895	2,030	Spring -	1	12	23	99	0	0
				Fall....	72	301	227	1,277	18	0
Linn.....	55	214	269	Spring -	0	37	1	17	0	0
				Fall....	1	112	40	61	0	0
Livingston.....	8	78	86	Spring -	0	6	1	1	0	0
				Fall....	0	55	6	17	0	0
McDonald.....	39	74	113	Spring -	0	3	25	11	0	0
				Fall....	0	58	13	3	0	0
Macon.....	27	547	574	Spring -	0	3	5	19	0	0
				Fall....	15	95	25	412	0	0
Madison.....	148	241	389	Spring -	0	13	12	123	0	0
				Fall....	12	27	17	185	0	0
Maries.....	16	295	311	Spring -	0	5	1	10	0	0
				Fall....	11	95	3	186	0	0
Marion.....	65	786	851	Spring -	2	13	30	19	0	1
				Fall....	39	318	47	382	0	0
Mercer.....	4	3	7	Spring -	0	2	1	1	0	0
				Fall....	3	0	0	0	0	0
Miller.....	18	719	737	Spring -	0	6	2	10	0	0
				Fall....	24	302	51	342	0	0
Mississippi.....	87	0	87	Spring -	0	0	72	15	0	0
				Fall....	0	0	0	0	0	0
Moniteau.....	5	841	846	Spring -	0	5	0	0	0	0
				Fall....	48	263	62	468	0	0
Monroe.....	63	877	940	Spring -	1	22	25	15	0	0
				Fall....	88	239	47	503	0	0
Montgomery.....	75	1,045	1,120	Spring -	0	16	10	49	0	0
				Fall....	127	282	109	527	0	0
Morgan.....	18	871	889	Spring -	0	0	0	18	0	0
				Fall....	36	215	102	518	0	0
New Madrid.....	11	0	11	Spring -	0	0	0	0	0	11
				Fall....	0	0	0	0	0	0

TABLE 5.—APPROXIMATE TONNAGE OF FERTILIZER SOLD IN THE STATE OF MISSOURI, BY COUNTIES, BASED UPON REPORT OF SHIPMENTS BY THE FERTILIZER COMPANIES (Continued)

County	Sales in 1936			Fertilizer Sales Classified in 1936						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Newton	209	1,628	1,837	Spring	3	75	12	78	0	41
				Fall	97	741	212	572	0	6
Nodaway	3	35	38	Spring	0	0	3	0	0	0
				Fall	0	25	0	10	0	0
Oregon	53	71	124	Spring	0	7	10	35	0	1
				Fall	1	13	29	28	0	0
Osage	16	396	412	Spring	0	6	1	9	0	0
				Fall	0	167	20	209	0	0
Ozark	0	9	9	Spring	0	0	0	0	0	0
				Fall	0	3	0	6	0	0
Pemiscot	0	0	0	Spring	0	0	0	0	0	0
				Fall	0	0	0	0	0	0
Perry	71	173	244	Spring	0	29	26	12	0	4
				Fall	1	96	5	71	0	0
Pettis	45	874	919	Spring	0	21	5	18	0	1
				Fall	106	290	126	352	0	0
Phelps	72	374	446	Spring	2	32	3	31	0	4
				Fall	12	151	18	193	0	0
Pike	170	794	964	Spring	0	41	19	108	0	2
				Fall	105	158	85	446	0	0
Platte	24	23	47	Spring	0	0	24	0	0	0
				Fall	0	2	7	14	0	0
Polk	332	965	1,297	Spring	16	154	12	150	0	0
				Fall	30	447	21	467	0	0
Pulaski	77	467	544	Spring	3	16	12	46	0	0
				Fall	14	201	49	203	0	0
Putnam	1	5	6	Spring	0	1	0	0	0	0
				Fall	0	5	0	0	0	0
Ralls	10	387	397	Spring	1	5	2	2	0	0
				Fall	34	168	39	146	0	0
Randolph	67	199	266	Spring	3	14	33	17	0	0
				Fall	5	56	20	118	0	0
Ray	22	75	97	Spring	0	1	2	19	0	0
				Fall	3	37	34	1	0	0
Reynolds	21	2	23	Spring	0	6	1	11	0	3
				Fall	0	0	2	0	0	0
Ripley	118	55	173	Spring	0	31	11	76	0	0
				Fall	1	34	0	20	0	0
St. Charles	41	863	904	Spring	3	11	14	12	0	1
				Fall	25	290	68	469	11	0
St. Clair	60	719	779	Spring	0	18	2	40	0	0
				Fall	30	228	47	414	0	0
St. Francois	257	786	1,043	Spring	2	63	37	154	0	1
				Fall	28	200	81	477	0	0
Ste. Genevieve	8	130	138	Spring	0	2	5	1	0	0
				Fall	0	64	25	41	0	0
St. Louis	928	569	1,497	Spring	58	80	275	162	2	351
				Fall	41	81	86	85	0	276
Saline	7	58	65	Spring	0	6	1	0	0	0
				Fall	3	26	7	22	0	0
Schuyler	4	42	46	Spring	0	0	0	4	0	0
				Fall	0	16	8	18	0	0
Scotland	19	54	73	Spring	0	5	1	13	0	0
				Fall	0	23	20	11	0	0
Scott	33	4	37	Spring	0	0	28	4	0	1
				Fall	0	4	0	0	0	0
Shannon	36	28	64	Spring	0	19	11	6	0	0
				Fall	1	11	2	14	0	0
Shelby	42	550	592	Spring	1	3	16	22	0	0
				Fall	121	207	35	187	0	0
Stoddard	13	63	76	Spring	0	2	7	4	0	0
				Fall	2	9	26	26	0	0
Stone	193	176	369	Spring	0	1	133	59	0	0
				Fall	6	35	6	129	0	0
Sullivan	14	35	49	Spring	0	2	1	11	0	0
				Fall	0	21	10	4	0	0
Taney	16	3	19	Spring	0	2	5	10	0	0
				Fall	0	2	0	1	0	0
Texas	395	742	1,137	Spring	3	138	3	251	0	0
				Fall	24	330	18	370	0	0
Vernon	199	1,894	2,093	Spring	13	83	3	100	0	0
				Fall	229	897	285	483	0	0

TABLE 5.—APPROXIMATE TONNAGE OF FERTILIZER SOLD IN THE STATE OF MISSOURI, BY COUNTIES, BASED UPON REPORT OF SHIPMENTS BY THE FERTILIZER COMPANIES (Continued)

County	Sales in 1936			Fertilizer Sales Classified in 1936						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Warren.....	28	609	637	Spring_	0	15	0	13	0	0
				Fall....	38	149	51	371	0	0
Washington....	72	293	365	Spring_	0	23	26	23	0	0
				Fall....	10	124	6	153	0	0
Wayne.....	37	40	77	Spring_	1	3	1	32	0	0
				Fall....	0	11	1	28	0	0
Webster.....	488	676	1,164	Spring_	0	117	137	233	0	1
				Fall....	38	235	21	382	0	0
Worth.....	0	1	1	Spring_	0	0	0	0	0	0
				Fall....	0	1	0	0	0	0
Wright.....	318	405	723	Spring_	0	105	4	209	0	0
				Fall....	0	184	13	208	0	0
Total for Spring_	11,501				223	2,797	2,472	4,962	2	1,045
Total for Fall...		55,628			3,098	19,646	6,591	25,683	29	581
Grand Total 1936			67,129		3,321	22,443	9,063	30,645	31	1,626

FERTILIZER CONSUMPTION SUMMARIZED

Table 6 giving the tonnage of plant food constituents contained in the various kinds of fertilizer used. It is logical that the greatest tonnage used should be phosphoric acid since this plant food is more depleted in Missouri soils than the other two constituents.

TABLE 6.—TONNAGE OF PLANT FOOD CONSTITUENTS SOLD IN MISSOURI IN 1936 (APPROXIMATE)

Kind of Fertilizer	Fertilizer tonnage	Plant Food Tonnage				
		Nitrogen	Phosphoric acid from bone	Available phosphoric acid	Insoluble phosphoric acid	Potash
Bone Fertilizer.....	3,248.19	69.89	836.14	-----	-----	-----
Half and Half.....	1,534.35	15.34	103.40	197.95	5.73	-----
Bone and Potash.....	6.00	0.11	1.56	-----	-----	0.25
Superphosphate.....	22,570.83	-----	-----	4,226.48	-----	-----
High Grade Mixed.....	7,381.90	212.75	-----	1,004.75	-----	356.85
Medium Grade Mixed.....	30,566.65	604.43	-----	3,650.53	-----	746.44
Low Grade Mixed.....	30.48	0.66	-----	2.39	-----	0.61
Nitrate of Soda.....	47.71	7.63	-----	-----	-----	-----
Sulphate of Ammonia.....	161.10	33.03	-----	-----	-----	-----
Dried Manure and Garden Mulch.....	247.67	4.52	-----	2.47	-----	4.87
Cyanamid.....	426.60	89.59	-----	-----	-----	-----
Dried Blood and Sewerage Residue, Gypsum and Tobacco Wastes.....	369.96	22.36	-----	7.33	-----	-----
Potash Salts.....	329.58	-----	-----	-----	-----	81.11
Totals.....	66,921.02	1,060.31	941.10	9,091.70	5.73	1,190.13

Table 7 gives the tonnage of the fertilizer mixtures and grades of superphosphate used in Missouri in 1936, listed in the order used. 2-12-2 and the 16 and 20 per cent superphosphate remain the popular sellers in Missouri as they have for some years past.

TABLE 7.—TONNAGE OF SUPERPHOSPHATE AND THE LEADING FERTILIZER MIXTURES (BRANDS) SOLD IN MISSOURI IN 1936 (APPROXIMATE)

Brand	Tonnage	Brand	Tonnage
2-12-2.....	24,451.37	4-8-12.....	96.90
0-20-0.....	14,462.17	4-10-6.....	83.30
0-16-0.....	7,894.63	3-12-4.....	81.88
2-12-4.....	4,069.91	0-14-6.....	80.89
2-12-6.....	2,480.21	11-48-0.....	65.55
Half and Half.....	1,562.68	1-12-3.....	58.06
4-12-4.....	1,338.77	4-8-8.....	53.91
4-16-4.....	1,089.44	0-16-6.....	51.80
2-14-4.....	823.70	3-18-3.....	51.58
2-16-2.....	727.48	2-10-2.....	37.68
0-14-4.....	544.21	0-45-0.....	32.78
4-8-6.....	348.72	0-12-2.....	32.50
3-8-6.....	266.77	10-8-6.....	31.40
1-12-4.....	220.32	8-16-16.....	30.31
0-14-7.....	174.13	10-6-4.....	29.70
0-32-0.....	165.75	2-8-2.....	27.88
0-14-2.....	125.00	9-18-18.....	16.00
3-14-6.....	110.01	9-7-2.....	12.75
4-8-7.....	106.77	3-18-9.....	11.00
0-12-4.....	99.01	2-8-10.....	10.20
0-12-6.....	98.45	16-20-0.....	10.15

USE OF HIGH GRADE FERTILIZERS IN MISSOURI

Studies of the data given in these tables show some tendency for high grade mixtures to increase in tonnage as compared with others. A larger use of fertilizer mixtures contains 20 units or more of plant food will result in greater efficiency and lower cost per acre to the buyer. Attention of the reader is called to last year's report where discussion will be found on the use of high grade fertilizer in Missouri.

BASICITY OF FERTILIZER RESIDUES

The Association of Official Agricultural Chemists in 1935 adopted tentatively a procedure for the testing of basicity of fertilizers. This method has been followed in testing some of the representative samples of the different companies obtained by the inspectors in 1936. The results indicate the attempt of the majority of the companies to correct the acid residual effect in many of the brands sold. For certain brands the residual effect is definitely basic. The mixed fertilizer from about two or three companies exhibit definite acid residual reaction; this is also true for a limited

number of brands from the other companies. In other words there are about two companies whose fertilizers would be called definitely acid in their residual effect. For the companies the tests show non-acid residual effects in most of the brands. The situation is progressing toward a satisfactory condition for the majority of the tonnage of fertilizer sold in the state. The testing of fertilizers sold in Missouri, for basicity will continue for the samples collected in 1937.

FINANCIAL STATEMENT

Fertilizer Control Fund
of the
Missouri Agricultural Experiment Station
For the year ending December 31, 1936.

RECEIPTS

Balance January 1, 1936	\$27,099.53	
Receipts from the sale of tags 1936	36,473.35	\$63,572.88

DISBURSEMENTS

Salaries	\$ 8,802.15	
Labor	5,764.68	
Stationery and Office Supplies	669.68	
Scientific Supplies	2,410.31	
Sundry Supplies	1,941.04	
Feeding Stuffs	5,291.86	
Fertilizers	650.41	
Communication Service	624.32	
Travel Expenses	965.79	
Transportation of Things	394.79	
Publications	4,855.81	
Heat, Light, Water and Power	539.72	
Contingent Expenses	165.14	
Repairs to Equipment	466.74	
Furniture and Fixtures	829.49	
Library	445.46	
Scientific Equipment	771.66	
Livestock	1,313.74	
Tools and Machinery	1,103.78	
Buildings and Structures	2,335.96	\$40,342.53
		<hr/>
Balance, Cash on hand December 31, 1936		\$23,230.35