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Registration, Labeling, Inspection,  
and Sale of Commercial  
Fertilizer; 1932

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# Registration, Labeling, Inspection, and Sale of Commercial Fertilizers; 1932

F. B. MUMFORD, *Director*

L. D. HAIGH, *Chemist*

The present report gives the results found on analysis of the samples of fertilizer collected in the open market in the fall of 1932. The samples from each manufacturer are grouped together and the manufacturers' list is arranged in alphabetical order. The samples obtained in the inspection work conducted in the spring of 1932 are published in Bulletin 318, which may be had on application to the Missouri Agricultural Experiment Station, Columbia, Missouri. The analyses given in these two reports were made by L. D. Haigh and E. W. Cowan, Chemists of the station.

In addition to the analytical data this report also summarizes the results for each manufacturer and for each plant food constituent. There are also appended tables showing the kind and quantity of fertilizer sold in each county and the total tonnage for the entire state of the different brands and the plant food they contain. A table of all the manufacturers and their listed brands, who have already filed their registration for sales in 1933 is given.

## Inspection

The work of inspection conducted in the spring of 1932 included visits to 25 towns in 16 counties and the collection of 95 samples of fertilizer materials. In the fall, 40 towns were visited in 24 counties and 156 samples were collected.

## The Missouri Fertilizer Law

Registration: The first requirement for the sale of fertilizer in Missouri is registration. The law reads as follows:

"Before any commercial fertilizer or material to be used as a fertilizer . . . . is sold, offered or exposed for sale in this state, the manufacturer, importer, corporation, company, or person who sells or causes same to be sold, . . . . shall file annually for registry with the Missouri Agricultural Experiment Station at Columbia a statement . . . . ."

Labelling: The second requirement of labelling is set forth by the law as follows:

"Any commercial fertilizer or material to be used as a fertilizer the selling price of which exceeds five dollars per ton shall have stamped or affixed to each package of fertilizer in a conspicuous place on the outside thereof . . . . . a plainly printed statement which shall certify as follows:

- (1) The name, brand or trade mark under which the fertilizer is sold.
- (2) The name and address of the manufacturer.
- (3) The guaranteed chemical composition of the fertilizer expressed in the following terms: (a) Percentum of nitrogen, (b) Percentum of available phosphoric acid and in the case of an undissolved bone the percentum of insoluble phosphoric acid, (c) Percentum of potash soluble in distilled water."

Registration tags and labels: The third requirement, quoting from the law, reads as follows:

"Every person, corporation or company selling or exposing for sale such fertilizer shall, in addition to said printed statement, attach to every package or quantity of said fertilizer sold or exposed for sale in a conspicuous place on the outside of said package a label or tag furnished by said experiment station showing that such a brand of commercial fertilizer has been registered at said experiment station for that year."

The full text of the Missouri Fertilizer Law will be furnished free on application to the Missouri Agricultural Experiment Station.

#### Violations of the Missouri Fertilizer Law

As a result of the inspection in 1932 the following violations of the Missouri Fertilizer Law were found.

*Violations with respect to registration.*—Pulverized Sheep Manure sold to E. B. Evans Feed and Seed Co., had not been registered by American Agricultural Chemical Co., prior to sale.

Daybreak Special Fertilizer 3-8-6 from the Federal Chemical Co. had not been registered at the time of sale to a farmer in Callaway County.

Gro-mor 2-12-2 fertilizer had been sold to the Farmers Exchange, Monett, by the Fort Smith Cotton Oil Co. before same had been registered.

Red Steer 1-12-4 fertilizer sold by Swift and Co. to Omer Webb, Jasper, and Swifts 2¼-26 Bone Fertilizer sold to Madison County Farmers Warehouse Association, Fredericktown, had not been registered at the time of sale.

Big Crop 3¾-22 Raw Bone Meal was sold to Farmers Elevator Co., Martinsburg, by Armour Fertilizer Works. Registration for this brand had not been made.

*Violations with respect to labelling.*—10 sacks of Raw Bone Meal and Steam Bone Meal sold by Armour Fertilizer Works to Farmers Elevator, Martinsburg, were without labels.

Small sacks of Dixie Plant Ration sold by Dixie Mills Company, E. St. Louis, Ill. to Berghauser Hardware Co., Fulton, were without labels.

15 sacks of Money Maker Bone and Phosphate Mixture sold to Cope and Co., Salem by the Floyd Plant Food Co. were labelled with the wrong brand name.

*Violations with respect to registration tags.*—Bigwin 20 per cent Superphosphate at the Pearson Ferguson Co., Kansas City, also Bigwin 2-12-2, Bigwin 4-8-6, and Bigwin Steamed Bone Meal at the warehouse of the Farmers Elevator and Supply Co., Clinton, from the Cudahy Packing Co., were without registration tags.

10 sacks of AA 16 per cent Superphosphate had been resacked at the warehouse of the Farmers Cooperative Assn., Carrollton but the registration tags had not been transferred to the new sacks.

Koppers Products Co., Pittsburgh, Pennsylvania had shipped 100 sacks of Koppers Ammonium Sulphate to Pearson Ferguson Co., without registration tags.

51 sacks of Wizard Brand Sheep Manure had been sold to Boone County Mill and Elevator Co., Columbia by the Pulverized Manure Co., Kansas City, without registration tags.

A stock of Arkansas fertilizer had been resacked at the warehouse of the Mondy Grocery Co., of Aurora but the registration tags had not been transferred to the newly filled sacks.

Shipments of M. F. A. brands of fertilizer from Darling and Co. to the following dealers carried 1931 instead of 1932 registration tags: Springfield Sales Co., Springfield; Farmers Exchange, Bolivar; Farmers Exchange, Jasper; Farmers Exchange, Aurora; Farmers Exchange, Lockwood; Farmers Sales Association, Verona; Farmers Elevator Co., Jonesburg.

### **A Word for Fertilizer Buyers**

The reliability of a fertilizer may in general be accepted when accompanied by labels and by registration tags as prescribed by the Missouri Fertilizer Law. When these are missing the goods should not be purchased.

For sacks of fertilizer a registration tag in the form of a shipping tag is used. Goods placed on the market by the manufac-

turer in 1933 will carry blue tags stamped with the date 1933. The full reading of the registration tag is as follows:

101 to 200 lbs.	
Missouri Agricultural Experiment Station	
Columbia, Missouri	
Registered 1933	F. B. Mumford, Director

For fertilizer contained in small packages a gummed label is generally used. This is also blue in color, bears the date 1933 and in appearance and reading is as follows:

10 lbs and under	
Missouri Agricultural Experiment Station	
Columbia, Mo.	
Registered 1933	F. B. Mumford Director

If the requirements of the law have been met, one may purchase the fertilizer with the assurance that the statements of quality as given by the label are dependable.

#### The Chemical Analysis

Table 3 gives the results of analyzing the samples collected in the fall of 1932. The results of analysis on the samples collected in the spring of 1932 were reported in Bulletin 318. When more than one sample of any brand was analyzed, the several results are averaged in order that it may be compared with the guarantee.

Results obtained below the guarantee are printed in bold faced type. This is for the purpose of calling attention to a discrepancy, which however may be very small in amount. It does not mean that the fertilizer should be condemned as worthless.

A revision of the official method for available phosphoric acid was recently authorized by the Association of Official Agricultural

Chemists and was employed on all samples analyzed in 1933. This procedure employs a one gram instead of a two gram sample and digests the material in the ammonium citrate solution for one hour instead of 30 minutes as before.

All the samples carrying a guarantee for nitrogen were tested by the usual tests for their solubility in water and their reaction with permanganate as an index of their activity. These results show that the following samples contain inferior nitrogen; 10-74, 10-85, 10-110, 10-111.

### Summaries of the Data

Tables 1 and 2 present the results, summarizing the analytical results for each manufacturer and for each kind of fertilizer and plant food. These results show a marked improvement in the results over those of last year. Table 1 shows a ratio of 107.5 for all results of all manufacturers as compared with their guarantees placed at 100. The result last year was 104.9. The per cent of deficiencies for all the samples this year was 11.2 as compared with 14.8 of last year. Some of this improvement is due to the use of the modified official method for determination of available phosphoric acid in mixed fertilizer. Deficiencies of this constituent were 3.6 per cent as compared with 11.2 per cent last year.

### Fertilizer Sales in Missouri, 1932

Tables 5, 6, and 7 list the tonnage of fertilizer by locality, plant food constituents, and kinds of mixtures. The fertilizers are grouped into seven different divisions in tables 5 and 6. The explanation of the terms used in these tables is as follows:

Bone includes all brands sold under the general names of Raw Bone, Steamed Bone, Pure Bone, Ground Bone, etc. Superphosphate includes all grades of acid phosphate containing from 16 per cent to 45 per cent Available Phosphoric Acid. High Grade Mixed includes all brands of mixed fertilizer in whose guarantee plant food units add up to 20 or more. The mixture known as Half and Half is included in the high grade mixed division. Medium Grade Mixed includes fertilizers containing not less than 14 units and any amount less than 20 units of plant food. Low Grade includes all mixture containing less than 14 units of plant food. Miscellaneous includes nitrate of soda, sulphate of ammonia, potash salts, dried manure, sewerage residue, rock phosphate, etc.

TABLE 1.—SUMMARY OF AVERAGE VARIATIONS FROM MANUFACTURER'S GUARANTEE—SPRING AND FALL SAMPLES, 1932

Manufacturer	Superphosphate		Bone Fertilizer			Mixed Fertilizer				All Fertilizers	
	No. Samples	Available P <sub>2</sub> O <sub>5</sub>	No. Samples	Total Nitrogen	Total P <sub>2</sub> O <sub>5</sub>	No. Samples	Total Nitrogen	Available P <sub>2</sub> O <sub>5</sub>	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. Chem. Co.-----	12	107.5	7	105.6	105.2	28	103.8	108.3	112.0	47	107.5
Armour Fertilizer Works-----	2	106.7	7	106.7	113.9	13	100.9	108.7	112.3	22	110.1
Crocker Packing Co.-----	2	119.5	1	98.7	100.6	5	95.2	105.9	112.0	8	108.5
Cudahy Packing Co.-----	1	97.5	1	123.9	103.7	2	115.7	116.8	115.7	4	108.1
Darling & Co., Darling's Brands	4	105.0	1	119.4	104.1	10	102.9	105.5	124.0	15	106.5
Darling & Co., M.F.A. Brands	7	105.4	--	-----	-----	15	99.1	108.3	111.3	22	107.0
Dixie Mills Co.-----	--	-----	--	-----	-----	3	106.4	109.7	113.6	3	109.0
Federal Chemical Co.-----	2	102.3	2	148.4	84.7	8	104.4	104.7	124.9	12	102.7
Floyd Plant Food Co.-----	6	101.5	3	95.8	100.9	13	101.8	104.8	117.0	22	103.8
Pulverized Manure Co.-----	--	-----	--	-----	-----	5	96.4	159.0	206.7	5	150.3
Read Phosphate Co.-----	3	111.2	--	-----	-----	5	103.3	107.9	108.8	8	109.0
Swift and Co. Fertilizer Works	11	108.5	12	139.1	103.5	31	102.3	108.4	113.5	54	107.6
Virginia Carolina Chem. Corp.	2	108.4	1	92.0	103.2	1	107.0	115.2	115.5	4	107.8
Total and-Averages-----	52	106.8	35	118.5	104.4	139	102.3	107.9	115.8	226	107.5

\*The average guaranteed value is placed at 100. The figures greater and less than 100, in the ratio columns indicate the percentage which the average found value is respectively in excess of or deficient from the guarantee.

TABLE 2.—SUMMARY OF TOTAL AND DEFICIENT FERTILIZER CONSTITUENTS FROM SPRING AND FALL SAMPLES, 1932

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 Agr. Chem. Co.	35	5	---	7	0	---	41	1	---	29	0	---	112	6	5.4
Armour Fertilizer Works	20	4	---	7	0	---	14	0	---	13	0	---	54	4	7.4
Barada and Page, Inc.	2	0	---	0	0	---	1	1	---	1	0	---	4	1	25.0
Chilean Nitrate Sales Corp.	2	2	---	0	0	---	0	0	---	0	0	---	2	2	100.0
Crocker Packing Co.	6	3	---	1	0	---	7	1	---	5	0	---	19	4	21.1
Cudahy Packing Co.	3	0	---	1	0	---	3	1	---	2	1	---	9	2	22.2
Darling & Co., Darling's Brands	10	2	---	1	0	---	14	0	---	10	0	---	35	2	5.7
Darling & Co., M.F.A. Brands	14	6	---	0	0	---	22	0	---	15	0	---	51	6	11.8
Dixie Mills Co.	3	0	---	0	0	---	3	0	---	3	0	---	9	0	0.0
Federal Chemical Co.	10	2	---	2	1	---	12	1	---	8	0	---	32	4	12.5
Floyd Plant Food Co.	15	4	---	3	1	---	18	1	---	11	1	---	47	7	14.9
Pulverized Manure Co.	5	4	---	0	0	---	5	0	---	5	0	---	15	4	26.7
Read Phosphate Co.	5	2	---	0	0	---	8	1	---	5	1	---	18	4	22.2
Swift & Co., Fertilizer Works	43	7	---	13	4	---	43	0	---	31	2	---	130	13	10.0
Synthetic Nitrogen Products	2	0	---	0	0	---	1	0	---	1	0	---	4	0	0.0
Virginia-Carolina Chemical Corp.	2	1	---	1	0	---	2	0	---	1	0	---	6	1	16.7
Totals	177	42	23.7	36	6	16.7	194	7	3.6	140	5	3.6	547	60	11.2

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1932

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P <sub>2</sub> O <sub>5</sub>			Water Soluble Potash K <sub>2</sub> O
			Total	Water Soluble to Total	Total	In-soluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
<b>American Agricultural Chemical Company, St. Louis, Missouri</b>								
<b>A. A. Brands</b>								
10-1	16% Superphosphate	W. F. Nicklin, Hawk Point			16.76	0.45	16.31	
10-2	16% Superphosphate	Eolia Elevator Co., Eolia			18.55	0.52	18.03	
10-3	16% Superphosphate	Fleahman Feed Store, Jonesburg			17.85	0.32	17.53	
10-4	16% Superphosphate	W. T. Craig, Kingdom City			18.25	0.34	17.91	
		Average Analysis				0.41	17.45	
		Guaranteed Analysis				0.50	16.00	
10-5	20% Superphosphate	W. H. Yancy, La Belle			21.75	0.55	21.20	
10-6	20% Superphosphate	Barnett & Son, Keytesville			21.80	0.53	21.27	
10-7	20% Superphosphate	W. T. Craig, Kingdom City			22.10	0.45	21.65	
		Average Analysis				0.51	21.37	
		Guaranteed Analysis				0.50	20.00	
10-8	Agrico for Corn	J. C. Ricketts, Belleview	3.16	94.30	15.53	0.56	14.97	6.33
		Guaranteed Analysis	3.00			0.50	14.00	6.00
10-9	Agrico for Cotton <sup>1</sup>	J. B. Boyer & Son, Potosi	4.13	88.86	14.27	0.77	13.50	4.32
		Guaranteed Analysis	4.00			0.50	12.00	4.00
10-10	Agrico for Grain	Silex Grain Co., Silex	1.90	78.95	14.64	0.90	13.74	4.34
10-11	Agrico for Grain	Fleahman Feed Store, Jonesburg	2.25	79.11	14.62	1.08	13.54	4.65
10-12	Agrico for Grain	Farm Supply Co., Lebanon	2.23	78.03	14.60	1.00	13.60	4.49
10-13	Agrico for Grain	Signer and Signer, Arcadia	2.17	75.58	14.08	0.84	13.24	4.69
		Average Analysis	2.14	77.92		0.96	13.53	4.54
		Guaranteed Analysis	2.00			0.50	12.00	4.00
10-14	Antler Fertilizer	J. C. Ricketts, Belleview	2.16	82.41	14.32	0.85	13.47	6.93
		Guaranteed Analysis	2.00			0.50	12.00	6.00
10-15	Elm Mixture <sup>1 2</sup>	J. C. Ricketts, Belleview			17.28	0.35	16.93	6.42
		Guaranteed Analysis				0.50	16.00	6.00
10-16	Farmers Friend Fertilizer	J. P. Long, Glenallen	2.17	82.03	14.52	1.08	13.44	4.63
		Guaranteed Analysis	2.00			0.50	12.00	4.00
10-17	Gilt Edge Fertilizer <sup>1</sup>	Signer and Signer, Arcadia	2.08	94.71	17.53	0.45	17.08	2.38
		Guaranteed Analysis	2.00			0.50	16.00	2.00
10-18	Pure Raw Bone <sup>2</sup>	Farmers Exchange, Rolla	3.10	23.87	22.65			
10-19	Pure Raw Bone <sup>2</sup>	Mills and Waterall, Fredericktown	3.38	22.19	21.90			
		Average Analysis	3.24	23.03	22.28			
		Guaranteed Analysis	3.29		20.00			
10-21	Red Dragon Fertilizer	A. W. Way, Wentzville	2.00	95.00	12.96	0.24	12.72	2.26
10-22	Red Dragon Fertilizer	W. F. Nicklin, Hawk Point	2.06	80.09	13.02	0.49	12.53	2.57
10-23	Red Dragon Fertilizer	Silex Grain Co., Silex	2.03	94.58	13.12	0.28	12.84	2.35
10-24	Red Dragon Fertilizer	Eolia Elevator Co., Eolia	2.04	84.80	12.92	0.55	12.37	2.39
10-25	Red Dragon Fertilizer	Harmon McCune, Perry	2.00	95.00	12.97	0.26	12.71	2.31
10-26	Red Dragon Fertilizer	W. F. Shipler & Williams, Hallsville	2.16	91.20	13.48	0.30	13.18	2.31
10-27	Red Dragon Fertilizer	Pollock Milling Co., Mexico	2.06	90.78	12.84	0.30	12.54	2.24
10-28	Red Dragon Fertilizer	Farm Supply Co., Lebanon	1.98	93.94	12.88	0.23	12.65	2.46
10-29	Red Dragon Fertilizer	Banner Roller Mills, Salem	2.14	78.50	13.00	0.76	12.24	2.27
10-30	Red Dragon Fertilizer	Steele Hardware Co., Bismarck	1.95	92.31	13.20	0.33	12.87	2.34
10-31	Red Dragon Fertilizer	Signer and Signer, Arcadia	2.12	77.83	13.52	0.25	13.27	2.37
		Average Analysis	2.05	88.55		0.66	12.72	2.35
		Guaranteed Analysis	2.00			0.50	12.00	2.00
10-32	Steam Bone Meal	J. K. Brennan, Hannibal	1.11	20.72	30.13			
10-33	Steam Bone Meal	Pollock Milling Co., Mexico	1.30	19.23	30.15			
10-34	Steam Bone Meal	Banner Roller Mills, Salem	1.21	17.36	29.10			
10-35	Steam Bone Meal	Mills and Waterall, Fredericktown	1.21	20.66	30.15			
		Average Analysis	1.21	19.49	29.88			
		Guaranteed Analysis	1.00		29.00			

<sup>1</sup>Samples drawn from less than five sacks.<sup>2</sup>Spring goods.



TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1932 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P <sub>2</sub> O <sub>5</sub>			Water Soluble Potash K <sub>2</sub> O
			Total	Water Soluble to Total	Total	In-soluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
10-36	Arkansas Fertilizer Co., Little Rock, Arkansas White Diamond Brands 16% Superphosphate	Producers Exchange, Rich- land Guaranteed Analysis.			19.60	0.10	19.50	
							16.00	
10-37	Armour Fertilizer Works, Chicago, Illinois Big Crop Brands 20% Superphosphate	Prairie Milling Co., Mont- gomery City Guaranteed Analysis.			21.55	0.41	21.14	
							20.00	
10-38	2-12-2 Fertilizer <sup>1</sup>	P. O. Foristell, Foristell	1.95	94.36	12.28	0.19	12.09	2.41
10-39	2-12-2 Fertilizer	Brown's Buying Station, Wellsville	2.08	94.23	12.66	0.10	12.56	2.42
10-40	2-12-2 Fertilizer	A. P. Eckler, Martinsburg	2.10	93.80	16.18	2.88	13.30	2.03
10-41	2-12-2 Fertilizer	Prairie Milling Co., Mont- gomery City	2.04	93.63	12.80	0.11	12.69	2.29
10-42	2-12-2 Fertilizer	High Hill Grain Co., High Hill	2.04	94.12	13.05	0.11	12.94	2.62
10-43	2-12-2 Fertilizer	Kuhlman & Son, Patton	1.90	92.11	12.22	0.10	12.12	2.25
		Average Analysis	2.02	93.71			12.62	2.34
		Guaranteed Analysis	2.00				12.00	2.00
10-44	3-18-3 Fertilizer	Brown's Buying Station, Wellsville Guaranteed Analysis	2.97	95.29	19.60	0.27	19.33	3.41
			3.00				18.00	3.00
10-45	4-16-4 Fertilizer	Brown's Buying Station, Wellsville	3.93	96.69	17.30	0.13	17.17	4.65
10-46	4-16-4 Fertilizer	Prairie Milling Co., Mont- gomery City	4.09	96.09	17.18	0.24	16.94	4.81
		Average Analysis	4.01	96.39			17.06	4.73
		Guaranteed Analysis	4.00				16.00	4.00
10-47	Bone Meal, 2-24	P. O. Foristell, Foristell	2.11	8.06	27.80			
10-48	Bone Meal, 2-24 <sup>4</sup>	Farmers Elevator Co., Mar- tinsburg	2.60	17.69	27.90			
10-49	Bone Meal, 2-24	Brown's Buying Station, Wellsville	2.19	22.37	28.50			
		Average Analysis	2.30	16.04	28.07			
		Guaranteed Analysis	2.00		24.00			
10-50	3-24 Bone Meal <sup>5</sup>	Prairie Milling Co., Mont- gomery City Guaranteed Analysis	2.25	11.56	26.60			
			2.47		24.00			
10-51	Raw Bone Meal <sup>4 5</sup>	Farmers Elevator Co., Mar- tinsburg Guaranteed Analysis	3.99	18.80	23.10			
			3.75		22.00			
10-52	Darling and Company, Union Stock Yards Chicago, Illinois Darlings Brands 16% Superphosphate	J. H. Zweifel, New Florence			17.10	0.20	16.90	
10-53	16% Superphosphate	Burlbaw & Graham, Farm- ington			16.75	0.18	16.57	
		Average Analysis					16.74	
		Guaranteed Analysis					16.00	
10-54	Naught Fourteen Four Fer- tilizer	Burlbaw & Graham, Farm- ington Guaranteed Analysis			15.00	0.15	14.85	4.74
							14.00	4.00
10-55	Big Harvest	A. B. Magruder, Whiteside	2.10	90.48	13.02	0.94	12.08	2.39
10-56	Big Harvest	Farmers Elevator & Ex- change Co., Ewing	2.11	91.94	13.40	0.74	12.66	2.58
10-57	Big Harvest	H. P. Noel, Paris	2.10	91.90	13.40	0.81	12.59	2.34

<sup>1</sup>Without registration tags.<sup>4</sup>Without labels<sup>5</sup>Not registered.

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1932 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P <sub>2</sub> O <sub>5</sub>			Water Soluble Potash K <sub>2</sub> O
			Total	Water Soluble to Total	Total	In-soluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
10-58	Big Harvest	Hughes Feed Store, Salem	2.15	93.02	13.02	0.46	12.56	2.49
10-59	Big Harvest <sup>1</sup>	F. O. Codding & Son, Arcadia	2.07	91.79	13.28	0.68	12.60	2.65
10-60	Big Harvest	Burlbaw & Graham, Farmington	1.94	91.24	12.61	0.22	12.39	2.01
		Average Analysis	2.08	91.73			12.48	2.41
		Guaranteed Analysis	2.00				12.00	2.00
10-61	Bumper Crop	Farmers Elevator & Exchange Co., Ewing	1.87	92.51	17.03	0.13	16.90	2.47
		Guaranteed Analysis	2.00				16.00	2.00
10-66	<b>M. F. A. Brands</b> 16% Superphosphate	Farmers Produce Exchange, Lebanon			16.95	0.09	16.86	
		Guaranteed Analysis					16.00	
10-62	20% Superphosphate	Producers Grain Company, Montgomery City			20.85	0.39	20.46	
10-63	20% Superphosphate	Farmers Elevator Company, Martinsburg			20.85	0.31	20.54	
		Average Analysis					20.50	
		Guaranteed Analysis					20.00	
10-64	Naught Fourteen Four Fertilizer	George Talley, Santa Fe			15.05	0.09	14.96	4.73
		Guaranteed Analysis					14.00	4.00
10-65	2-12-2	Farmers Produce Exchange, Lebanon	2.00	92.00	13.31	0.37	12.94	2.58
10-67	2-12-2	Cuba Farmers Exchange, Cuba	2.10	92.86	13.04	0.21	12.83	2.46
10-69	2-12-2	Farmers Elevator Co., Jonesburg (Spring Shipment)	2.13	93.90	12.60	0.40	12.20	2.25
10-70	2-12-2	Farmers Elevator Co., Jonesburg (Fall Shipment)	2.06	91.74	13.00	0.56	12.44	2.34
10-71	2-12-2	Producers Grain Co., Montgomery City	2.06	91.74	13.02	0.15	12.87	2.28
		Average Analysis	2.07	92.45			12.66	2.38
		Guaranteed Analysis	2.00				12.00	2.00
10-72	2-16-2	M.F.A. Cooperative Assn., Perry	1.73	93.06	17.13	0.18	16.95	2.26
10-68	2-16-2	Cuba Farmers Exchange, Cuba	1.83	92.90	16.98	0.25	16.73	2.82
		Average Analysis	1.78	92.98			16.84	2.54
		Guaranteed Analysis	2.00				16.00	2.00
10-73	2-16-6	George Talley, Santa Fe	1.91	94.24	16.59	0.36	16.23	6.13
		Guaranteed Analysis	2.00				16.00	6.00
10-74	Dixie Mills Company, E. St. Louis, Illinois Dixie Plant Ration <sup>3</sup> 4	Berghauer Hdwe Co., Fulton	6.48	65.90	7.41	0.77	6.64	2.92
		Guaranteed Analysis	6.00				6.00	2.00
10-75	<b>Federal Chemical Co., Louisville, Kentucky Daybreak Brands</b> 16% Superphosphate	H. T. Deters, St. Clemons			17.59	1.29	16.30	
		Guaranteed Analysis					16.00	
10-76	20% Superphosphate	A. D. Rutherford & Son, Fulton			21.93	1.39	20.54	
		Guaranteed Analysis					20.00	
10-78	Loam Land Fertilizer	H. T. Deters, St. Clemons	2.17	78.34	13.30	0.86	12.44	2.47
10-79	Loam Land Fertilizer <sup>1</sup>	Mills & Waterall, Fredericktown	2.18	72.94	13.42	1.03	12.39	2.92
		Average Analysis	2.18	75.64			12.42	2.80
		Guaranteed Analysis	2.00				12.00	2.00

<sup>1</sup>Samples drawn from less than five sacks.

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1932 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P <sub>2</sub> O <sub>5</sub>			Water Soluble Potash K <sub>2</sub> O
			Total	Water Soluble to Total	Total	In-soluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
10-80	Pure Bone <sup>6</sup> -----	Mills & Waterall, Fredericktown ----- Guaranteed Analysis	4.45 1.00	9.88	21.50 30.00	----- -----	----- -----	----- -----
10-81	Raw Bone-----	Mills & Waterall, Fredericktown ----- Guaranteed Analysis	2.70 3.30	15.56	20.88 20.00	----- -----	----- -----	----- -----
10-82	Standard Corn & Wheat Grower -----	Bollinger County Dairy Assn., Lutesville----- Guaranteed Analysis	2.20 2.00	73.64	13.84	0.98	12.86 10.00	3.02 2.00
	<b>Globe Brands</b>							
10-83	20% Superphosphate-----	P. N. Day, Lewistown-----	-----	-----	21.65	1.57	20.08	-----
10-84	20% Superphosphate-----	R. Smith, Glenallen----- Average Analysis Guaranteed Analysis	----- ----- -----	-----	21.25	1.23	20.02 20.05 20.00	----- ----- -----
10-85	Globe Formula 1-12-3 ----	Producers Exchange, Inc., Truesdale----- Guaranteed Analysis	1.06 1.00	65.09	13.20	1.13	12.07 12.00	3.50 3.00
10-86	Loam Land Fertilizer-----	Producers Exchange, Inc., Truesdale-----	2.08	77.90	13.28	0.74	12.54	2.94
10-87	Loam Land Fertilizer-----	R. Smith, Glenallen----- Average Analysis Guaranteed Analysis	2.15 2.11 2.00	74.88 76.39	12.80	1.00	11.80 12.17 12.00	2.55 2.75 2.00
10-88	Official Formula 2-14-4 ----	R. Smith, Glenallen----- Guaranteed Analysis	2.13 2.00	74.65	15.30	1.12	14.18 14.00	4.98 4.00
	<b>Floyd Plant Food Company, St. Louis, Missouri Money Maker Brands</b>							
10-89	16% Superphosphate-----	Wm. Stevens, Pendleton-----	-----	-----	17.58	1.34	16.24	-----
10-90	16% Superphosphate-----	Cope & Co., Salem-----	-----	-----	18.08	1.52	16.56	-----
10-91	16% Superphosphate-----	Kuhlman & Son, Patton----- Average Analysis Guaranteed Analysis	----- ----- -----	-----	17.68	1.41	16.27 16.36 16.00	----- ----- -----
10-92	20% Superphosphate-----	H. T. Deters, Bowling Green-----	-----	-----	21.70	1.51	20.19	-----
10-93	20% Superphosphate-----	Farmers Exchange, Rolla-----	-----	-----	21.80	1.55	20.25	-----
10-94	20% Superphosphate-----	Cope & Co., Salem----- Average Analysis Guaranteed Analysis	----- ----- -----	-----	21.73	1.61	20.12 20.19 20.00	----- ----- -----
10-95	1-12-3 Fertilizer-----	Cooper Bros. & Son, Fredericktown----- Guaranteed Analysis	1.20 1.00	67.50	13.09	1.01	12.08 12.00	3.57 3.00
10-96	Bone & Phosphate Mixture <sup>6</sup>	Cope & Co., Salem----- Guaranteed Analysis	0.42 1.00	16.67	24.05	7.80 8.00	16.25 12.00	----- -----
10-97	2-12-2 Fertilizer-----	Wm. Stevens, Pendleton-----	2.10	77.62	13.36	0.93	12.43	2.65
10-98	2-12-2 Fertilizer-----	H. T. Deters, Bowling Green-----	2.08	78.37	13.16	0.84	12.32	2.59
10-99	2-12-2 Fertilizer-----	Farmers Produce Co., Shelbyville-----	2.09	77.03	13.34	0.80	12.54	2.66
10-100	2-12-2 Fertilizer-----	Gastler Bros. Elevator Co., Wellsville-----	2.07	76.33	13.38	0.83	12.55	2.37
10-101	2-12-2 Fertilizer-----	Farmers Exchange, Rolla-----	2.14	73.83	13.09	0.93	12.16	2.23
10-102	2-12-2 Fertilizer-----	Cope & Co., Salem-----	1.98	72.73	12.47	0.88	11.59	1.82
10-103	2-12-2 Fertilizer-----	Cooper Bros. & Son, Fredericktown----- Average Analysis Guaranteed Analysis	2.15 2.09 2.00	78.13 76.29	13.44	0.77	12.67 12.32 12.00	2.22 2.36 2.00

<sup>6</sup>Goods incorrectly labelled.

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1932 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P <sub>2</sub> O <sub>5</sub>			Water Soluble Potash K <sub>2</sub> O
			Total	Water Soluble to Total	Total	In-soluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
10-104	2-12-4 Fertilizer-----	Farmers Exchange, Rolla... Guaranteed Analysis..	2.27 2.00	76.21	12.80	0.80	12.00 12.00	4.32 4.00
10-105	4-12-4 Fertilizer-----	Cooper Bros. & Son, Freder- icktown----- Guaranteed Analysis..	4.04 4.00	79.70	12.97	0.89	12.08 12.00	4.34 4.00
10-106	Ground Steam Bone-----	T. B. Bosley, Montgomery City-----	2.38 2.67	16.39 16.10	24.00 23.95	-----	-----	-----
10-107	Ground Steam Bone-----	Farmers Exchange, Rolla...	2.67	16.10	23.95	-----	-----	-----
10-108	Ground Steam Bone-----	Cooper Bros. & Son, Freder- icktown----- Average Analysis----- Guaranteed Analysis..	2.14 2.40 2.50	20.56 17.68	24.75 24.23 24.00	-----	-----	-----
10-109	Miles Packing Company, Cape Girardeau, Mo. Miles Special Bone Fertilizer	Factory, Cape Girardeau... Guaranteed Ana ysis..	4.38 5.00	22.60	19.90 15.00	-----	-----	-----
10-110	Pulverized Manure Co., Chicago, Illinois Wizard Brand Cattle Ma- nure-----	Allhoff Bros., Wellston----- Guaranteed Analysis..	2.07 2.00	14.98	1.47	0.14	1.33 1.00	2.56 1.00
10-111	Wizard Brand Sheep Ma- nure-----	Allhoff Bros., Wellston----- Guaranteed Analysis	1.94 2.00	27.32	2.00	0.14	1.86 1.00	3.77 2.00
10-112	Read Phosphate Company, Nashville, Tennessee Red Diamond Brands 20% Superphosphate-----	John Wyatt, Bismarck----- Guaranteed Analysis	-----	-----	21.40	0.10	21.30 20.00	-----
10-113	Premium Grain Grower----	Farmers Elevator & Supply Co., Hawk Point----- Guaranteed Analysis	2.14 2.00	57.48	13.74	1.01 3.00	12.73 12.00	2.21 2.00
10-114	Complete Grain Special----	John Wyatt, Bismarck----- Guaranteed Analysis	2.09 2.00	69.36	14.17	1.09 3.00	13.08 12.00	4.71 4.00
10-115	2-16-2-----	Gus Runty, Hawk Point... Guaranteed Analysis	2.49 2.00	89.16	17.10	1.65 2.00	15.45 16.00	2.66 2.00
10-116	Swift and Company, Ferti- lizer Works, National Stock Yards, Illinois Red Steer Brands 16% Superphosphate-----	Farmers Elevator & Supply Co., Moscow Mills-----	-----	-----	18.00	0.18	17.82	-----
10-117	16% Superphosphate <sup>3</sup> ?-----	Farmers Exchange, Rolla...	-----	-----	16.19	0.04	16.15	-----
10-118	16% Superphosphate-----	St. Francois County Farm Bureau, Purchasing & Sales Assn., Bismarck	-----	-----	17.38	0.04	17.34	-----
10-120	16% Superphosphate-----	Madison County Farmers Warehouse Assn., Fred- ericktown----- Average Analysis----- Guaranteed Analysis..	-----	-----	17.25	0.04	17.21 17.13 16.00	-----
10-121	20% Superphosphate-----	Farmers Elevator & Ex- change Co., Palmyra-----	-----	-----	21.50	0.04	21.46	-----
10-122	20% Superphosphate-----	J. B. Boyer & Son, Potosi	-----	-----	21.50	0.04	21.46	-----
10-123	20% Superphosphate <sup>1</sup> -----	St. Francois County Farm Bureau, Purchasing & Sales Assn., Bismarck	-----	-----	21.35	0.04	21.31	-----
10-124	20% Superphosphate-----	St. Francois County Farm Bureau, Purchasing & Sales Assn., Farmington Average Analysis----- Guaranteed Analysis..	-----	-----	21.35	0.04	21.31 21.39 20.00	-----

\*Samples drawn from less than five sacks.

\*Spring goods.

\*Without registration tags.

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1932 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P <sub>2</sub> O <sub>5</sub>			Water Soluble Potash K <sub>2</sub> O
			Total	Water Soluble to Total	Total	In-soluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
10-125	2-12-2	Frank Cunningham, Montgomery City	2.02	94.55	13.20	0.15	13.05	2.18
10-126	2-12-2	Farmers Elevator & Supply Co., Moscow Mills	2.05	94.15	12.88	0.10	12.78	2.16
10-127	2-12-2	Farmers Elevator Co., Silex	2.02	92.57	12.68	0.05	12.63	2.20
10-128	2-12-2	Farmers Elevator & Exchange Co., Palmyra	2.06	94.66	12.49	0.10	12.39	2.31
10-129	2-12-2	Farmers Elevator & Exchange Co., Frankford	2.12	91.98	13.10	0.09	13.01	2.18
10-130	2-12-2	J. L. Cornelius, Edina	2.05	95.12	13.08	0.02	13.06	2.38
10-131	2-12-2	Vandalia Roller Mills & Elevator Co., Vandalia	2.14	94.39	12.85	0.09	12.76	2.15
10-132	2-12-2	McCull Bros., Bellevue	1.75	94.20	14.27	0.06	14.21	1.94
10-133	2-12-2	J. B. Boyer & Son, Potosi	2.10	92.86	13.28	0.27	13.01	2.42
10-134	2-12-2	St. Francois County Farm Bureau, Purchasing & Sales Assn., Bismarck	2.16	94.44	13.22	0.19	13.03	2.38
10-135	2-12-2	St. Francois County Farm Bureau, Purchasing & Sales Assn., Farmington	2.08	93.75	12.89	0.18	12.71	2.15
10-136	2-12-2	Madison County Farmers Warehouse Assn., Fredericktown	2.08	93.75	12.70	0.11	12.59	2.39
10-137	2-12-2	Kuhlman & Son, Patton	2.11	92.42	12.44	0.08	12.36	2.16
		Average Analysis	2.06	93.76			12.89	2.23
		Guaranteed Analysis	2.00				12.00	2.00
10-138	3-8-6	Allhoff Bros., Wellston	2.87	94.93	10.33	0.03	10.30	5.86
		Guaranteed Analysis	3.00				8.00	6.00
10-139	3-12-4	Allhoff Bros., Wellston	2.86	91.96	13.43	0.12	13.31	4.24
		Guaranteed Analysis	3.00				12.00	4.00
10-140	4-10-6	Frank Cunningham, Montgomery City	3.89	96.14	10.54	0.03	10.51	6.09
		Guaranteed Analysis	4.00				10.00	6.00
10-141	4-16-4	Madison County Farmers Warehouse Assn., Fredericktown	4.03	96.28	17.28	0.26	17.02	4.11
		Guaranteed Analysis	4.00				16.00	4.00
10-142	Steam Bone Fertilizer <sup>2</sup>	Frank Cunningham, Montgomery City	2.23	17.49	28.50			
10-143	Steam Bone Fertilizer	Farmers Elevator & Exchange Co., Frankford	2.24	9.82	29.33			
10-144	Steam Bone Fertilizer	James Young, Paris	2.28	5.70	29.33			
10-145	Steam Bone Fertilizer	J. B. Boyer & Son, Potosi	2.16	12.50	28.85			
10-146	Steam Bone Fertilizer	St. Francois County Farm Bureau, Purchasing & Sale Assn., Farmington	2.19	12.79	29.70			
		Average Analysis	2.22	11.66	29.14			
		Guaranteed Analysis	1.00		29.00			
10-147	2¾-26 Bone Fertilizer <sup>5</sup>	Robert Smith, Fulton	1.93	13.99	28.75			
10-148	2¾-26 Bone Fertilizer <sup>5</sup>	Farmers Elevator & Exchange Co., Frankford	2.07	17.87	28.80			
10-149	2¾-26 Bone Fertilizer <sup>5</sup>	Madison County Farmers Warehouse Assn., Fredericktown	2.25	14.22	27.90			
10-150	2¾-26 Bone Fertilizer <sup>5 1</sup>	Kuhlman & Son, Patton	2.27	12.33	27.45			
		Average Analysis	2.13	14.60	28.23			
		Guaranteed Analysis	2.25		26.00			

<sup>5</sup>Not registered. <sup>7</sup>Resacked goods.

TABLE 3.—FERTILIZER ANALYSES AND GUARANTEES; 1932 (Continued)

Lab. No.	Manufacturer and Brands	Dealer or Purchaser	Nitrogen		Phosphoric Acid, P <sub>2</sub> O <sub>5</sub>			Water Soluble Potash K <sub>2</sub> O
			Total	Water Soluble to Total	Total	In-soluble	Available	
			Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	
10-151	Raw Bone Fertilizer.....	Madison County Farmers Warehouse Assn., Fredericktown.....	5.23	27.72	24.35			
		Guaranteed Analysis.....	3.70		23.00			
10-152	Vigoro.....	Griffen's Flower Store, Hannibal.....	4.21	90.74	13.08	0.05	13.03	4.93
10-153	Vigoro.....	C. C. Wonneman & Son, Mexico.....	4.21	90.97	13.00	0.06	12.94	5.15
10-154	Vigoro.....	Lopez Store Co., Ironton.....	4.07	91.15	13.13	0.06	13.07	4.81
		Average Analysis.....	4.16	90.95			13.01	4.96
		Guaranteed Analysis.....	4.00				12.00	4.00
	Virginia-Carolina Chemical Corporation, E. St. Louis, Illinois V-C Brands							
10-155	Superphosphate, 20%.....	Cuba Roller Mills, Cuba.....			21.60	0.23	21.37	
		Guaranteed Analysis.....					20.00	
10-156	Steamed Bone Meal 1-29....	W. L. Harney, Montgomery City.....	0.92	22.83	29.93			
		Guaranteed Analysis.....	1.00		29.00			
5-156	Samples sent in Big Crop Bone Meal, 2-24 Armour Fertilizer Works	Wm. Pollock Milling & Elevator Co., Mexico.....	3.85		24.60			
		Guaranteed Analysis.....	2.00		24.00			
6-12	Big Harvest, 2-12-2, Darling and Company.....	Trussel Hall, Milan.....	3.20		14.44	0.35	14.09	3.82
		Guaranteed Analysis.....	2.00				12.00	2.00
11-13	Floyd Ground Raw Bone <sup>6</sup> Floyd Plant Food Co....	Farmers Produce Exchange, St. James.....	2.61		20.97			
		Guaranteed Analysis.....	3.30		20.00			
12-8	20% Superphosphate, Darling and Company.....	John Mayer, Jr., Harrisonville.....			21.10	0.69	20.41	
		Guaranteed Analysis.....					20.00	
12-10	Septic Tank Sludge, Carthage.....	J. E. Rutter, Carthage.....	2.39		1.51	0.30	1.21	0.15

<sup>6</sup>Not in strict agreement with registration.

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI, 1933

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total from bone	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
<b>American Agricultural Chemical Company,</b> 1210 Syndicate Trust Bldg., St. Louis, Missouri					
AA 16 per cent Superphosphate.....	----	----	16.00	0.50	----
AA 20 per cent Superphosphate.....	----	----	20.00	0.50	----
AA Red Dragon Fertilizer.....	2.00	----	12.00	0.50	2.00
AA Big Boll Fertilizer.....	2.00	----	12.00	0.50	2.00
AA Antler Fertilizer.....	2.00	----	12.00	0.50	6.00
AA Gilt Edge Fertilizer.....	2.00	----	16.00	0.50	2.00
AGRICO for Grain.....	2.00	----	12.00	0.50	4.00
AGRICO for Tomatoes.....	2.00	----	12.00	0.50	6.00
AGRICO for Corn.....	3.00	----	14.00	0.50	6.00
AGRICO for Potatoes.....	4.00	----	8.00	0.50	6.00
AGRICO for Tobacco.....	4.00	----	10.00	0.50	6.00
AGRICO for Cotton.....	4.00	----	12.00	0.50	4.00
AGRICO for Truck.....	5.00	----	10.00	0.50	5.00
AGRICO Fertilizer for Lawns, Trees and Shrubs.....	8.00	----	6.00	0.50	6.00
AGRICO for Sweet Potatoes.....	3.00	----	9.00	0.50	18.00
AGRICO.....	5.00	----	9.00	0.50	6.00
AA Steam Bone Meal.....	1.00	29.00	----	----	----
AA Pure Raw Bone.....	3.29	20.00	----	----	----
Ammonium Sulphate.....	20.16	----	----	----	----
Kainit.....	----	----	----	----	14.00
Pulverized Sheep Manure.....	1.44	----	0.75	----	2.00
Muriate of Potash.....	----	----	----	----	48.00
Sulphate of Potash.....	----	----	----	----	48.00
Manure Salts.....	----	----	----	----	30.00
AGRICO for Trees and Shrubs.....	8.00	----	8.00	0.50	6.00
AA Hi-Test Fertilizer 9-18-18.....	9.00	----	18.00	0.50	18.00
AA Hi-Test Fertilizer 8-16-16.....	8.00	----	16.00	0.50	16.00
AA Triumph Fertilizer.....	4.00	----	12.00	0.50	4.00
<b>American Cyanamid Company,</b> 535 Fifth Avenue, New York, New York					
AERO CYANAMID.....	22.00	----	----	----	----
AMMO-PHOS 11-48-0.....	11.00	----	48.00	----	----
AMMO-PHOS 16-20-0.....	16.00	----	20.00	----	----
<b>American Reduction Corporation,</b> 105 West Adams Street, Chicago, Illinois					
SOIL AID.....	1.90	----	0.08	0.50	0.30
<b>Archias Seed Store Corporation,</b> Sedalia, Missouri					
Archias Fairy Brand Plant Food.....	10.00	----	12.00	----	11.00
<b>Arkansas Fertilizer Company,</b> Little Rock, Arkansas					
White Diamond 16 per cent Superphosphate.....	----	----	16.00	0.50	----
White Diamond 18 per cent Superphosphate.....	----	----	18.00	0.50	----
White Diamond 20 per cent Superphosphate.....	----	----	20.00	0.50	----
White Diamond Kali Superphosphate.....	----	----	12.00	----	4.00
White Diamond 0-14-4.....	----	----	14.00	----	4.00
White Diamond Southwest Wheat Grower.....	1.00	----	15.00	----	1.00
White Diamond 2-10-1.....	2.00	----	10.00	----	1.00
White Diamond 20th Century.....	2.00	----	10.00	----	2.00
White Diamond Southern King.....	2.00	----	12.00	----	2.00
White Diamond 2-12-4.....	2.00	----	12.00	----	4.00
White Diamond Tomato Grower.....	2.00	----	12.00	----	6.00
White Diamond Prize Wheat Grower.....	2.00	----	16.00	----	2.00
White Diamond Southern Special.....	3.00	----	9.00	----	3.00
White Diamond 3-12-4.....	3.00	----	12.00	----	4.00
White Diamond 3-8-6.....	3.00	----	8.00	----	6.00
White Diamond Gro Fast.....	4.00	----	12.00	----	----
White Diamond Moore's Special Mixture.....	4.00	----	10.00	----	2.00
White Diamond Old Reliable.....	4.00	----	8.00	----	4.00
White Diamond Farmers Choice.....	4.00	----	10.00	----	4.00
White Diamond Crop Getter.....	4.00	----	12.00	----	4.00
White Diamond Jack Rabbit.....	4.00	----	8.00	----	6.00

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1933 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total from bone	Avail- able	Insolu- ble	
	Percent	Percent	Percent	Percent	Percent
White Diamond Economy.....	5.00	----	10.00	----	3.00
White Diamond Prize Winner.....	6.00	----	10.00	----	4.00
White Diamond Muriate of Potash.....	----	----	----	----	50.00
White Diamond Kainit.....	----	----	----	----	14.00
White Diamond 15 per cent Nitrate of Soda.....	15.00	----	----	----	----
White Diamond 16 per cent Nitrate of Soda.....	16.00	----	----	----	----
White Diamond "Extra Dry" Sulphate of Ammonia.....	20.00	----	----	----	----
White Diamond 4-16-4.....	4.00	----	16.00	----	4.00
<b>Armour Fertilizer Works,</b> Chicago Heights, Illinois					
Armour's Big Crop 16 per cent Superphosphate.....	----	----	16.00	----	----
Armour's Big Crop 20 per cent Superphosphate.....	----	----	20.00	----	----
Armour's Big Crop 0-14-5 Fertilizer.....	----	----	14.00	----	6.00
Armour's Big Crop 2-12-2 Fertilizer.....	2.00	----	12.00	----	2.00
Armour's Big Crop 2-12-6 Fertilizer.....	2.00	----	12.00	----	6.00
Armour's Big Crop 2-16-2 Fertilizer.....	2.00	----	16.00	----	2.00
Armour's Big Crop 2-16-8 Fertilizer.....	2.00	----	16.00	----	8.00
Armour's Big Crop 3-18-3 Fertilizer.....	3.00	----	18.00	----	3.00
Armour's Big Crop 3-18-9 Fertilizer.....	3.00	----	18.00	----	9.00
Armour's Big Crop 4-16-4 Fertilizer.....	4.00	----	16.00	----	4.00
Armour's Big Crop Bone Meal, 2-24t.....	2.00	24.00	----	----	----
Armour's VERT.....	5.00	----	8.00	----	6.00
Armour's NPK 9-18-18 Fertilizer.....	9.00	----	18.00	----	18.00
Armour's Special Turf Fertilizer.....	10.00	----	8.00	----	6.00
<b>Barada and Page, Inc.,</b> 2018 Guinotte Kansas City, Missouri					
Ammonia Sulphate.....	20.50	----	----	----	----
<b>The Barrett Company,</b> 40 Rector Street, New York, New York					
Arcadian Nitrate of Soda.....	16.00	----	----	----	----
Arcadian Sulphate of Ammonia.....	20.56	----	----	----	----
Sulphate of Ammonia.....	20.56	----	----	----	----
<b>Blood and Bone Fertilizer Company,</b> P. O. Box 834, St. Louis, Missouri "Steer Head Brands"					
Special Truck Grower.....	4.00	----	8.00	----	5.00
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 Truck Grower.....	2.00	----	8.00	----	2.00
Special Wheat Grower.....	2.00	----	10.00	----	3.00
Ammoniated Bone Phosphate.....	2.00	----	12.00	----	----
Twelve-Four Fertilizer.....	----	----	12.00	----	4.00
Soluble Bone Phosphate 16 per cent.....	----	----	16.00	----	----
Soluble Bone Phosphate 18 per cent.....	----	----	18.00	----	----
Soluble Bone Phosphate 20 per cent.....	----	----	20.00	----	----
Raw Bone Meal.....	3.28	20.00	----	----	----
St. Louis Bone Meal.....	2.50	24.00	----	----	----
Steam Bone Meal.....	1.00	30.00	----	----	----
<b>Chilean Nitrate Sales Corporation,</b> 120 Broadway, New York, New York					
Champion Brand Nitrate of Soda.....	16.00	----	----	----	----
Standard Chilean Nitrate of Soda.....	15.25	----	----	----	----
<b>Crocker Packing Company,</b> Joplin, Missouri					
Interstate Steam Bone.....	3.00	24.00	----	----	----
Interstate 4-12-4.....	4.00	----	12.00	----	4.00
Interstate 4-8-4.....	4.00	----	8.00	----	4.00
Interstate 2-16-2.....	2.00	----	16.00	----	2.00
Interstate 2-12-2.....	2.00	----	12.00	----	2.00



TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1933 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total from bone	Available	Insoluble	
	Percent	Percent	Percent	Percent	Percent
Interstate 2-12-6.....	2.00	----	12.00	----	6.00
Interstate 2-8-5.....	2.00	----	8.00	----	5.00
Interstate 2-8-10 Potato Special.....	2.00	----	8.00	----	10.00
Interstate 0-16-0, Superphosphate 16 per cent.....	----	----	16.00	----	----
Interstate 0-20-0 Superphosphate 20 per cent.....	----	----	20.00	----	----
Interstate 0.50-15-2.....	0.50	----	15.00	----	2.00
Lawn, Vegetable and Flower Grower.....	4.00	----	8.00	----	6.00
<b>Cudahy Packing Company,</b> 221 North LaSalle Street, Chicago, Illinois					
"Bigwin" Fertilizer Steamed Bone Meal.....	2.50	24.00	----	----	----
"Bigwin" Fertilizer Half and Half.....	1.00	----	13.00	7.00*	----
"Bigwin" High Grade 16 per cent Superphosphate.....	----	----	16.00	1.00	----
"Bigwin" High Grade 18 per cent Superphosphate.....	----	----	18.00	1.00	----
"Bigwin" High Grade 20 per cent Superphosphate.....	----	----	20.00	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 2-12-6.....	2.00	----	12.00	----	6.00
"Bigwin" High Grade Fertilizer 4-8-6.....	4.00	----	8.00	----	6.00
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 per cent Superphosphate.....	----	----	45.00	2.00	----
*From Bone.					
<b>Darling and Company,</b> 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 Farmers Favorite.....	3.00	----	8.00	----	6.00
Darling's Big Harvest.....	2.00	----	12.00	----	2.00
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	----	16.00	----	6.00
Darling's Cotton Special.....	4.00	----	12.00	----	4.00
Darling's Vegetable Grower.....	3.00	----	12.00	----	4.00
Darling's One Twelve Four.....	1.00	----	12.00	----	4.00
Darling's Naught Ten Ten.....	----	----	10.00	----	10.00
Darling's Naught Eight Twenty-Four.....	----	----	8.00	----	24.00
Darling's Potato Brand.....	4.00	----	8.00	----	6.00
Darling's Special Lawn and Garden Fertilizer.....	4.00	----	8.00	----	7.00
Darling's Truck Grower.....	3.00	----	12.00	----	12.00
Darling's Two Fourteen Four.....	2.00	----	14.00	----	4.00
Darling's Two Twelve Four.....	2.00	----	12.00	----	4.00
Darling's Chicago Brand.....	2.00	----	8.00	----	2.00
Darling's Grain Grower.....	1.00	----	12.00	----	1.00
Darling's Naught Fourteen Four.....	----	----	14.00	----	4.00
Darling's Pure Ground Bone.....	1.85	28.00	----	----	----
Darling's Blood and Bone.....	4.50	7.00	----	----	----
Darling's Bone and Superphosphate (Half and Half).....	0.82	----	11.00	12.00*	----
*Insoluble P <sub>2</sub> O <sub>5</sub> is from bone.					
Darling's Nitrate of Soda.....	15.50	----	----	----	----
Darling's Sulphate of Ammonia.....	20.56	----	----	----	----
Darling's 16 per cent Superphosphate.....	----	----	16.00	----	----
Darling's 18 per cent Superphosphate.....	----	----	18.00	----	----
Darling's 20 per cent Superphosphate.....	----	----	20.00	----	----
Darling's Kemfert Potash.....	----	----	----	----	60.00
Darling's Foreign Muriate of Potash.....	----	----	----	----	50.00
M. F. A. 16 per cent Superphosphate.....	----	----	16.00	----	----
M. F. A. 18 per cent Superphosphate.....	----	----	18.00	----	----
M. F. A. 20 per cent Superphosphate.....	----	----	20.00	----	----
M. F. A. 2-12-2.....	2.00	----	12.00	----	2.00
M. F. A. 2-16-6.....	2.00	----	16.00	----	6.00

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1933 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total from bone	Avail- able	Insolu- ble	
	Percent	Percent	Percent	Percent	Percent
M. F. A. 3-8-6	3.00	----	8.00	----	6.00
M. F. A. 4-16-4	4.00	----	16.00	----	4.00
M. F. A. 4-12-4	4.00	----	12.00	----	4.00
M. F. A. 0-10-10	----	----	10.00	----	10.00
M. F. A. 2-12-6	2.00	----	12.00	----	6.00
M. F. A. 3-12-4	3.00	----	12.00	----	4.00
M. F. A. 2-12-4	2.00	----	12.00	----	4.00
M. F. A. 4-8-7	4.00	----	8.00	----	7.00
M. F. A. Pure Ground Bone	1.85	28.00	----	----	2.00
M. F. A. 2-16-2	2.00	----	16.00	----	4.00
M. F. A. Naught Fourteen Four	----	----	14.00	----	4.00
M. F. A. 3-12-12	3.00	----	12.00	----	12.00
M. F. A. Bone and Superphosphate (Half and Half)	0.82	----	11.00	12.00*	----
M. F. A. 0-8-24	----	----	8.00	----	24.00
*Insoluble P <sub>2</sub> O <sub>5</sub> is from Bone.					
The Excell Laboratories, 4535 Ravenswood Avenue, Chicago, Illinois					
Zenke's "New Plant Life" (Liquid) (Domestic Strength)	1.40	----	1.07	0.03	0.54
Zenke's "New Plant Life" (Liquid) (Full Strength)	2.80	----	1.14	0.05	1.08
Flower City Plant Food Co., Inc., Pittsford, New York					
WONDERGRO	10.00	----	12.00	----	11.00
ARCHIA'S Fairy Brand Plant Food	10.00	----	12.00	----	11.00
EXCELSIOR Plant Food	5.00	----	7.00	----	3.00
Japanese Fern and Palm Food	5.00	----	6.00	----	1.00
Floyd Plant Food Company, (Illinois Corp.) Arcade Building, St. Louis, Missouri					
Floyd Money Maker 2-12-2	2.00	----	12.00	----	2.00
Floyd Money Maker 2-16-2	2.00	----	16.00	----	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 4-8-12	4.00	----	8.00	----	12.00
Floyd Money Maker 6-8-6	6.00	----	8.00	----	6.00
Floyd Money Maker 6-16-24	6.00	----	16.00	----	24.00
Floyd Money Maker 0-12-4	----	----	12.00	----	4.00
Floyd Money Maker 0-12-6	----	----	12.00	----	6.00
Floyd Money Maker 0-14-4	----	----	14.00	----	4.00
Floyd Money Maker 0-10-10	----	----	10.00	----	10.00
Garden-Grow (A Plant food for Gardens, Lawns, and Flowers)	5.00	----	10.00	5.00	5.00
Floyd Money Maker Bone and Phosphate Mixture	1.00	----	12.00	8.00*	----
Pure Bone	1.00	30.00*	----	----	----
Raw Bone	3.30	20.00*	----	----	----
Ground Steam Bone	2.50	24.00*	----	----	----
Floyd Money Maker 16 per cent Super Phosphate	----	----	16.00	----	----
Floyd Money Maker 18 per cent Super Phosphate	----	----	18.00	----	----
Floyd Money Maker 20 per cent Super Phosphate	----	----	20.00	----	----
Nitrate of Soda	15.00	----	----	----	----
Sulphate of Ammonia	20.50	----	----	----	----
Muriate of Potash	----	----	----	----	50.00
*From Bone.					
Ford Motor Company, Dearborn, Michigan					
Ford Ammonium Sulphate	20.80	----	----	----	----
Gate City Fertilizer Works, Little Rock, Arkansas					
Red Ball 16 per cent Superphosphate	----	----	16.00	0.50	----
Red Ball 18 per cent Superphosphate	----	----	18.00	0.50	----

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1933 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total from bone	Available	Insoluble	
	Per cent	Per cent	Per cent	Per cent	Per cent
Red Ball 10-12-4.....	---	---	12.00	---	4.00
Red Ball 0-14-4.....	---	---	14.00	---	4.00
Red Ball 1-15-1.....	1.00	---	15.00	---	1.00
Red Ball 3-9-3.....	3.00	---	9.00	---	3.00
Red Ball 4-8-4.....	4.00	---	8.00	---	4.00
<b>Leonard Haefele,</b> St. Louis, Missouri					
Star Brand Ground Steam Bone.....	2.00	20.00	---	---	---
Star Brand Bone Fertilizer.....	4.00	15.00	---	---	---
<b>Koppers Products Company,</b> Pittsburgh, Pennsylvania					
Koppers Velvet Lawn (Sulphate of Ammonia) Fertilizer.....	20.75	---	---	---	---
Koppers Specially Dried Sulphate of Ammonia.....	20.75	---	---	---	---
Commercial Grade Sulphate of Ammonia.....	20.56	---	---	---	---
Sears, Roebuck Sulphate of Ammonia.....	20.75	---	---	---	---
<b>Miles Packing Company,</b> Cape Girardeau, Missouri					
Miles Special Bone Fertilizer.....	5.00	15.00	---	---	---
<b>Missouri Dahlia Farms, Inc.,</b> Wellston Station, St. Louis, Missouri					
Nature's Plant Food Cattle Manure.....	1.00	---	1.00	---	2.00
Nature's Plant Food Sheep Manure.....	2.00	---	1.00	---	2.00
<b>The Nitragin Company, Inc.,</b> 807 S. 14th Street, Milwaukee, Wisconsin					
"FEDEM".....	14.00	---	10.00	---	12.00
<b>N. V. Potash Export My., Inc. of Amsterdam,</b> Holland, 19 West 44th Street, New York, New York					
Muriate of Potash.....	---	---	---	---	48.00
Sulphate of Potash.....	---	---	---	---	48.00
Manure Salts.....	---	---	---	---	30.00
Kainit 20 per cent.....	---	---	---	---	20.00
Kainit 14 per cent.....	---	---	---	---	14.00
<b>The Pulverized Manure Company,</b> Chicago, Illinois					
Wizard Brand Pulverized Sheep Manure.....	2.00	---	1.00	---	2.00
Wizard Brand Cattle Manure.....	2.00	---	1.00	---	1.00
<b>Read Phosphate Company,</b> Nashville, Tennessee					
Red Diamond 4-12-4.....	4.00	---	12.00	3.00	4.00
Red Diamond 4-16-4.....	4.00	---	16.00	2.00	4.00
Red Diamond 3-8-6.....	3.00	---	8.00	5.00	6.00
Red Diamond 2-12-4 Complete Grain Special.....	2.00	---	12.00	3.00	4.00
Red Diamond 2-12-2 Premium Grain Grower.....	2.00	---	12.00	3.00	2.00
Red Diamond 2-12-6.....	2.00	---	12.00	3.00	6.00
Red Diamond 2-16-2.....	2.00	---	16.00	2.00	2.00
Red Diamond 1-12-4 Missouri Grain Grower.....	1.00	---	12.00	3.00	4.00
Red Diamond 0-14-4 Special Potash Mixture.....	---	---	14.00	3.00	4.00
Red Diamond 16 per cent Superphosphate.....	---	---	16.00	2.00	---
Red Diamond 20 per cent Superphosphate.....	---	---	20.00	---	---
Raw Bone Meal.....	3.70	20.00	---	---	---
<b>M. C. Reed,</b> Carthage, Missouri					
Kalosecta 4-12-4.....	4.00	---	12.00	1.00	4.00
<b>Sewerage Commission of the City of Milwaukee,</b> Milwaukee, Wisconsin					
Milorganite.....	5.00	---	2.00	0.75	---

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1933 (Continued)

Fertilizer	Nitro- gen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total from bone	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
<b>Smith Agricultural Chemical Co., Columbus, Ohio</b>					
Sacco Plant Food.....	4.00	----	12.00	----	4.00
Wedo.....	8.00	----	5.00	----	3.00
<b>T. C. Spruit, Encinitas, California</b>					
Pokon.....	16.80	----	21.50	----	27.50
<b>Swift and Company, Fertilizer Works, National Stock Yards, Illinois</b>					
Red Steer 12-12-6.....	12.00	----	12.00	----	6.00
Red Steer 8-24-8.....	8.00	----	24.00	----	8.00
Red Steer 8-16-16.....	8.00	----	16.00	----	16.00
Red Steer 4-16-4.....	4.00	----	16.00	----	4.00
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 6-12-6.....	6.00	----	12.00	----	6.00
Red Steer 3-8-6.....	3.00	----	8.00	----	6.00
Red Steer 2-16-2.....	2.00	----	16.00	----	2.00
Red Steer 2-12-6.....	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 0-16-8.....	----	----	16.00	----	8.00
Red Steer 0-8-24.....	----	----	8.00	----	24.00
Red Steer 0-14-6.....	----	----	14.00	----	6.00
Red Steer 20 per cent Superphosphate (Acid Phos- phate) Fertilizer.....	----	----	20.00	----	----
Red Steer 16 per cent Superphosphate (Acid Phos- phate) Fertilizer.....	----	----	16.00	----	----
Red Steer 45 per cent Superphosphate.....	----	----	45.00	----	----
Raw Bone Fertilizer.....	3.70	23.00	----	----	----
Steam Bone Fertilizer.....	1.00	29.00	----	----	----
Blood Meal.....	12.00	----	----	----	----
Sulphate of Ammonia.....	20.75	----	----	----	----
Nitrate of Soda.....	15.00	----	----	----	----
Muriate of Potash.....	----	----	----	----	50.00
Steam Bone Fertilizer.....	2.25	26.00	----	----	----
Kainit.....	----	----	----	----	14.00
Blood and Bone Tankage.....	4.00	18.00	----	----	----
Sulphate of Potash.....	----	----	----	----	48.00
Vigoro.....	4.00	----	12.00	----	4.00
Red Steer 1-12-4.....	1.00	----	12.00	----	4.00
Red Steer 12-6-4.....	12.00	----	6.00	----	4.00
Red Steer 4-8-6.....	4.00	----	8.00	----	6.00
Red Steer 3-12-4.....	3.00	----	12.00	----	4.00
Red Steer 2-14-4.....	2.00	----	14.00	----	4.00
Red Steer 0-10-10.....	----	----	10.00	----	10.00
<b>Synthetic Nitrogen Products Corporation, 285 Madison Avenue, New York, New York</b>					
Nitrophoska 15-30-15.....	15.00	----	30.00	----	15.00
Urea (Floranid-Urea).....	46.00	----	----	----	----
<b>Tennessee Corporation, Lockland, Ohio</b>					
Loma.....	5.00	----	10.00	0.65	4.00
Soil-Prep.....	4.00	----	2.00	----	2.00
<b>Tobacco By-Products and Chemical Corporation, Louisville, Kentucky</b>					
"Black Leaf" Tobacco-Stem Meal.....	1.30	----	----	----	5.00
<b>United States Gypsum Company, 300 West Adams Street, Chicago, Illinois</b>					
<b>U. S. G. Ben Franklin Agricultural Gypsum</b>					
Powdered Crystalline Calcium Sulphate 90% Calcium Carbonate 0.5 per cent.....	----	----	----	----	----
Magnesium Carbonate Trace.....	----	----	----	----	----

TABLE 4.—BRANDS AND GUARANTEED ANALYSES OF FERTILIZERS REGISTERED AND OFFERED FOR SALE IN MISSOURI; 1933 (Continued)

Fertilizer	Nitrogen	Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )			Potash (K <sub>2</sub> O)
		Total from bone	Avail- able	Insolu- ble	
	Per cent	Per cent	Per cent	Per cent	Per cent
<b>Virginia-Carolina Chemical Corporation, Cincinnati, Ohio Richmond, Virginia</b>					
BloomAid Tablet Form.....	10.00	----	14.00	----	6.00
BloomAid.....	5.00	----	10.00	----	4.00
V-C Fairway Fertilizer.....	8.00	----	6.00	----	5.00
V-C Super 24 Fertilizer 4-16-4.....	4.00	----	16.00	----	4.00
V-C Potato Grower 4-8-6.....	4.00	----	8.00	----	6.00
V-C Corn and Wheat Grower 3-18-9.....	3.00	----	18.00	----	9.00
V-C Grain and Truck 3-12-4.....	3.00	----	12.00	----	4.00
V-C Truck Special 3-8-6.....	3.00	----	8.00	----	6.00
V-C Farmer's Friend 2-12-6.....	2.00	----	12.00	----	6.00
V-C Owl Brand 2-12-2.....	2.00	----	12.00	----	2.00
V-C Farmer's Relief 1-12-4.....	1.00	----	12.00	----	4.00
V-C Potash Formula 14-6.....	----	----	14.00	----	6.00
V-C Superphosphate 20 per cent.....	----	----	20.00	----	----
V-C Superphosphate 16 per cent.....	----	----	16.00	----	----
V-C Steamed Bone Meal 1-29.....	1.00	29.00	----	----	----
V-C Ammoniated Phospho Tobacco 4-16-4.....	4.00	----	16.00	----	4.00
V-C Ammoniated Phospho Tobacco 3-12-4.....	3.00	----	12.00	----	4.00
V-C Ammoniated Phospho Tobacco 2-12-6.....	2.00	----	12.00	----	6.00
V-C Ammoniated Phospho Tobacco 2-12-2.....	2.00	----	12.00	----	2.00
V-C Potash Phospho Tobacco 14-6.....	----	----	14.00	----	6.00
V-C Phospho Tobacco 20 per cent.....	----	----	20.00	----	----
<b>Wallace Brothers Packing Company, Joplin, Missouri</b>					
Wallace's Bone-Meal Fertilizer.....	2.10	26.50	----	----	----
<b>C. L. Weekley and Irwin Cross, Galena, Missouri</b>					
Bat Guano or Manure.....	2.00	----	4.00	1.00	0.50

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 1932			Fertilizer Sales Classified for 1932						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Adair.....	32	18	50	Spring	0	3	13	16	0	0
				Fall	0	5	1	12	0	0
Andrew.....	0	0	0	Spring	0	0	0	0	0	0
				Fall	0	0	0	0	0	0
Atchison.....	0	0	0	Spring	0	0	0	0	0	0
				Fall	0	0	0	0	0	0
Audrain.....	73	123	196	Spring	8	3	9	53	0	0
				Fall	7	10	26	80	0	0
Barry.....	244	148	392	Spring	6	26	44	166	0	2
				Fall	24	15	23	86	0	0
Barton.....	78	614	692	Spring	2	10	5	61	0	0
				Fall	77	104	55	375	0	3
Bates.....	31	157	188	Spring	0	25	6	0	0	0
				Fall	6	85	14	52	0	0
Benton.....	64	148	212	Spring	0	19	9	36	0	0
				Fall	8	24	6	110	0	0
Bollinger.....	164	274	438	Spring	4	52	3	105	0	0
				Fall	9	116	16	133	0	0
Boone.....	33	49	82	Spring	0	8	8	15	0	2
				Fall	0	23	1	25	0	0
Buchanan.....	45	36	81	Spring	0	9	13	14	0	9
				Fall	1	22	1	12	0	0
Butler.....	24	0	24	Spring	0	1	5	17	0	1
				Fall	0	0	0	0	0	0
Caldwell.....	29	22	51	Spring	0	14	3	12	0	0
				Fall	0	22	0	0	0	0
Callaway.....	70	156	226	Spring	2	41	22	5	0	0
				Fall	22	40	27	67	0	0
Camden.....	10	14	24	Spring	4	4	1	1	0	0
				Fall	4	2	0	8	0	0
Cape Girardeau	59	135	194	Spring	6	13	2	38	0	0
				Fall	4	53	3	75	0	0
Carroll.....	7	75	82	Spring	3	1	1	2	0	0
				Fall	0	37	21	17	0	0
Carter.....	15	0	15	Spring	0	1	2	12	0	0
				Fall	0	0	0	0	0	0
Cass.....	9	149	158	Spring	2	2	3	2	0	0
				Fall	5	62	1	81	0	0
Cedar.....	61	195	256	Spring	4	50	0	7	0	0
				Fall	5	120	3	67	0	0
Chariton.....	9	65	74	Spring	0	0	4	5	0	0
				Fall	3	47	4	11	0	0
Christian.....	211	61	272	Spring	1	112	36	62	0	0
				Fall	0	37	0	24	0	0
Clark.....	25	13	38	Spring	0	1	6	18	0	0
				Fall	0	7	1	5	0	0
Clay.....	9	1	10	Spring	2	1	5	1	0	0
				Fall	0	1	0	0	0	0
Clinton.....	21	4	25	Spring	0	11	3	7	0	0
				Fall	0	4	0	0	0	0
Cole.....	81	307	388	Spring	2	8	39	29	0	3
				Fall	7	108	11	181	0	0
Cooper.....	1	34	35	Spring	0	0	1	0	0	0
				Fall	3	15	2	14	0	0
Crawford.....	35	110	145	Spring	7	8	1	18	0	1
				Fall	3	46	10	51	0	0
Dade.....	15	452	467	Spring	0	12	0	3	0	0
				Fall	33	77	151	191	0	0
Dallas.....	26	32	58	Spring	1	10	0	13	0	2
				Fall	8	18	0	6	0	0
Daviess.....	2	15	17	Spring	2	0	0	0	0	0
				Fall	0	8	0	7	0	0
DeKalb.....	35	16	51	Spring	0	15	0	0	0	20
				Fall	0	10	0	6	0	0
Dent.....	65	82	147	Spring	1	3	1	60	0	0
				Fall	6	21	1	54	0	0
Douglas.....	0	22	22	Spring	0	0	0	0	0	0
				Fall	0	5	0	17	0	0
Dunklin.....	130	2	132	Spring	0	0	24	11	0	95
				Fall	0	0	0	0	0	2
Franklin.....	100	587	687	Spring	13	19	19	49	0	0
				Fall	20	205	57	305	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 1932			Fertilizer Sales Classified for 1932						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Gasconade.....	38	186	224	Spring	0	5	4	14	0	15
				Fall	9	69	2	104	2	0
Gentry.....	64	2	66	Spring	0	28	0	16	0	20
				Fall	0	2	0	0	0	0
Greene.....	542	247	789	Spring	6	137	87	302	0	10
				Fall	13	91	7	136	0	0
Grundy.....	32	30	62	Spring	0	11	1	20	0	0
				Fall	0	30	0	0	0	0
Harrison.....	3	15	18	Spring	0	0	1	1	0	1
				Fall	0	10	0	5	0	0
Henry.....	40	89	129	Spring	0	11	3	26	0	0
				Fall	3	23	1	62	0	0
Hickory.....	51	78	129	Spring	0	25	0	26	0	0
				Fall	0	18	0	60	0	0
Holt.....	0	0	0	Spring	0	0	0	0	0	0
				Fall	0	0	0	0	0	0
Howard.....	5	9	14	Spring	0	2	2	1	0	0
				Fall	0	1	1	7	0	0
Howell.....	144	28	172	Spring	0	50	36	58	0	0
				Fall	0	12	3	13	0	0
Iron.....	35	93	128	Spring	3	4	5	23	0	0
				Fall	7	9	7	70	0	0
Jackson.....	290	32	322	Spring	16	22	140	30	0	82
				Fall	12	11	3	6	0	0
Jasper.....	94	493	587	Spring	5	27	7	53	0	2
				Fall	26	102	53	312	0	0
Jefferson.....	37	67	104	Spring	2	15	4	15	0	1
				Fall	4	27	9	27	0	0
Johnson.....	26	67	93	Spring	8	13	4	0	0	1
				Fall	7	42	6	12	0	0
Knox.....	20	22	42	Spring	1	0	16	3	0	0
				Fall	0	0	3	19	0	0
Laclede.....	137	183	320	Spring	0	31	10	96	0	0
				Fall	6	82	9	95	0	0
Lafayette.....	1	15	16	Spring	0	1	0	0	0	0
				Fall	0	10	1	4	0	0
Lawrence.....	213	538	751	Spring	12	125	15	61	0	0
				Fall	73	200	31	234	0	0
Lewis.....	2	112	114	Spring	0	1	1	0	0	0
				Fall	1	39	9	63	0	0
Lincoln.....	193	598	791	Spring	0	20	28	145	0	0
				Fall	18	75	85	419	0	1
Linn.....	101	55	156	Spring	3	37	7	54	0	0
				Fall	0	47	0	8	0	0
Livingston.....	1	24	25	Spring	0	0	1	0	0	0
				Fall	0	23	0	1	0	0
McDonald.....	30	7	37	Spring	0	5	15	10	0	0
				Fall	0	4	1	2	0	0
Macon.....	63	85	148	Spring	2	11	2	46	0	2
				Fall	0	16	5	64	0	0
Madison.....	113	188	301	Spring	14	9	7	83	0	0
				Fall	23	4	8	153	0	0
Maries.....	11	62	73	Spring	0	0	5	6	0	0
				Fall	9	3	3	47	0	0
Marion.....	39	290	329	Spring	1	20	2	7	0	9
				Fall	10	72	13	194	0	1
Mercer.....	20	20	40	Spring	0	8	1	11	0	0
				Fall	0	20	0	0	0	0
Miller.....	20	196	216	Spring	0	1	0	19	0	0
				Fall	2	45	4	145	0	0
Mississippi.....	18	2	20	Spring	1	0	17	0	0	0
				Fall	2	0	0	0	0	0
Moniteau.....	15	127	142	Spring	2	13	0	0	0	0
				Fall	6	38	3	80	0	0
Monroe.....	55	132	187	Spring	5	6	7	37	0	0
				Fall	28	16	15	73	0	0
Montgomery.....	109	341	450	Spring	6	18	12	72	0	1
				Fall	50	89	29	173	0	0
Morgan.....	3	133	136	Spring	0	2	0	1	0	0
				Fall	23	50	16	44	0	0
New Madrid.....	0	0	0	Spring	0	0	0	0	0	0
				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 1932			Fertilizer Sales Classified for 1932						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Newton-----	66	211	277	Spring	0	30	6	30	0	0
				Fall	10	133	1	67	0	0
Nodaway-----	1	10	11	Spring	0	0	1	0	0	0
				Fall	0	8	2	0	0	0
Oregon-----	44	12	56	Spring	0	7	5	31	0	1
				Fall	0	7	0	5	0	0
Osage-----	9	76	85	Spring	0	1	6	2	0	0
				Fall	0	23	0	53	0	0
Ozark-----	3	3	6	Spring	0	1	0	2	0	0
				Fall	0	3	0	0	0	0
Pemiscot-----	0	0	0	Spring	0	0	0	0	0	0
				Fall	0	0	0	0	0	0
Perry-----	50	75	125	Spring	0	22	1	24	0	3
				Fall	0	42	1	32	0	0
Pettis-----	32	151	183	Spring	3	6	5	18	0	0
				Fall	8	44	3	96	0	0
Phelps-----	97	163	260	Spring	1	46	5	44	0	1
				Fall	17	51	2	93	0	0
Pike-----	157	201	358	Spring	0	27	5	119	0	6
				Fall	16	30	10	145	0	0
Platte-----	34	0	34	Spring	0	0	34	0	0	0
				Fall	0	0	0	0	0	0
Polk-----	230	318	548	Spring	20	112	3	95	0	0
				Fall	18	144	4	152	0	0
Pulaski-----	69	121	190	Spring	0	13	7	47	0	2
				Fall	1	29	3	88	0	0
Putnam-----	44	3	47	Spring	0	0	1	43	0	0
				Fall	0	0	0	3	0	0
Ralls-----	2	66	68	Spring	0	0	0	2	0	0
				Fall	10	21	6	29	0	0
Randolph-----	16	49	65	Spring	2	0	6	8	0	0
				Fall	1	14	8	26	0	0
Ray-----	210	57	267	Spring	3	4	56	147	0	0
				Fall	1	17	19	20	0	0
Reynolds-----	39	0	39	Spring	0	8	6	25	0	0
				Fall	0	0	0	0	0	0
Ripley-----	87	0	87	Spring	0	13	4	70	0	0
				Fall	0	0	0	0	0	0
St. Charles-----	31	394	425	Spring	0	8	6	13	0	4
				Fall	21	155	5	213	0	0
St. Clair-----	75	53	128	Spring	0	5	1	69	0	0
				Fall	5	11	2	35	0	1
St. Francois---	234	355	589	Spring	1	39	16	177	0	1
				Fall	8	76	5	266	0	0
Ste. Genevieve	1	26	27	Spring	0	0	0	1	0	0
				Fall	0	5	0	21	0	0
St. Louis-----	932	242	1174	Spring	42	46	355	244	4	241
				Fall	31	62	34	26	0	89
Saline-----	3	27	30	Spring	0	0	1	2	0	0
				Fall	0	10	0	17	0	0
Schuyler-----	20	8	28	Spring	0	7	0	13	0	0
				Fall	0	1	1	6	0	0
Scotland-----	15	18	33	Spring	0	10	0	5	0	0
				Fall	15	3	0	0	0	0
Scott-----	8	0	8	Spring	2	2	2	2	0	0
				Fall	0	0	0	0	0	0
Shannon-----	30	3	33	Spring	0	11	4	15	0	0
				Fall	0	2	0	1	0	0
Shelby-----	38	97	135	Spring	0	3	4	31	0	0
				Fall	29	26	1	41	0	0
Stoddard-----	3	3	6	Spring	0	0	3	0	0	0
				Fall	0	0	0	3	0	0
Stone-----	77	21	98	Spring	0	7	12	58	0	0
				Fall	0	3	1	17	0	0
Sullivan-----	67	3	70	Spring	0	7	7	33	0	20
				Fall	0	3	0	0	0	0
Taney-----	0	0	0	Spring	0	0	0	0	0	0
				Fall	0	0	0	0	0	0
Texas-----	287	369	656	Spring	3	86	6	192	0	0
				Fall	11	101	6	251	0	0
Vernon-----	35	189	224	Spring	0	20	0	15	0	0
				Fall	35	90	17	47	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 1932			Fertilizer Sales Classified for 1932						
	Spring	Fall	Total	Season	Bone	Super-phosphate	High grade	Medium grade	Low grade	Misc.
Warren-----	37	215	252	Spring	0	15	6	15	0	1
				Fall	1	83	11	120	0	0
Washington---	54	83	137	Spring	2	3	8	41	0	0
				Fall	3	40	3	37	0	0
Wayne-----	27	62	89	Spring	0	7	1	19	0	0
				Fall	3	45	1	13	0	0
Webster-----	384	174	558	Spring	0	54	77	251	0	2
				Fall	7	45	4	118	0	0
Worth-----	0	0	0	Spring	0	0	0	0	0	0
				Fall	0	0	0	0	0	0
Wright-----	135	110	245	Spring	0	62	1	72	0	0
				Fall	0	42	1	67	0	0
Totals for Spring-----	8,061				236	1,822	1,389	4,049	4	561
Totals for Fall-----		12,650			838	3,998	904	6,812	2	96
Totals for 1932-----			20,711		1,074	5,820	2,293	10,861	6	657
Percentage of Totals-----	38.9	61.1	100		5.2	28.1	11.1	52.4	0.1	3.1

TABLE 6.—TONNAGE OF PLANT FOOD CONSTITUENTS SOLD IN MISSOURI IN 1932

Kind of fertilizer	Fertilizer tonnage	Plant Food Tonnage				
		Nitrogen	Phosphoric acid from bone	Available phosphoric acid	Insoluble phosphoric acid	Potash
Bone Fertilizer-----	1,085.19	20.87	284.33	-----	-----	-----
Half and Half Brands-----	164.21	1.64	19.79	14.78	-----	-----
Superphosphate-----	5,821.58	-----	-----	1,034.11	-----	-----
High Grade Mixed-----	2,150.88	68.85	-----	287.14	-----	120.41
Medium Grade Mixed-----	10,901.84	223.23	-----	1,290.65	-----	254.56
Low Grade Mixed-----	6.05	0.21	-----	0.39	-----	0.12
Ammonium Sulphate and Sodium Nitrate-----	251.16	46.25	-----	-----	-----	-----
Dried Manure, Sewerage Residue and Tobacco Waste-----	234.43	6.44	-----	2.91	-----	3.30
Potash Salts-----	105.06	-----	-----	-----	-----	18.33
Rock Phosphate-----	60.00	-----	-----	-----	19.80	-----
Totals-----	20,780.40	367.49	304.12	2,629.98	19.80	396.72

TABLE 7.—TONNAGE OF THE LEADING FERTILIZER MIXTURES (BRANDS)  
SOLD IN MISSOURI IN 1932 (APPROXIMATE)

Fertilizer	Tonnage	Fertilizer	Tonnage
2-12-2	9439.28	3-14-6	39.89
0-16-0	3315.42	4-12-8	35.92
0-20-0	2485.71	1-12-3	33.00
4-12-4	507.74	0-16-6	27.95
2-12-4	489.61	0-12-2	26.50
2-12-6	388.53	5-10-5	26.15
2-16-2	305.15	4-10-6	25.63
4-16-4	240.38	2-10-2	25.44
3-8-6	188.27	4-8-12	25.00
4-8-6	170.73	2-8-10	20.65
1-12-4	135.15	0-12-4	18.50
3-12-4	126.55	8-8-6	15.71
0-14-4	109.63	9-18-18	15.56
2-16-6	99.40	0-16-20	15.00
8-16-16	79.40	3-12-12	14.50
0-14-6	74.04	6-6-2	14.46
4-8-8	65.27	3-9-18	13.80
2-14-4	62.29	0-45-0	10.45
4-8-7	54.02	0-18-0	10.00
5-10-4	41.42		



**FINANCIAL STATEMENT**  
**Fertilizer Control Fund**  
of the  
**Missouri Agricultural Experiment Station**

For the year ending December 31, 1932

RECEIPTS

Balance January 1, 1932 .....	\$ 9,922.20	
Receipts from the sale of tags 1932 .....	11,469.75	\$21,391.95

DISBURSEMENTS

Salaries .....	\$ 7,233.49	
Labor .....	2,248.93	
Stationery and Office Supplies .....	286.15	
Scientific Supplies Consumable .....	795.91	
Feeding Stuffs .....	473.30	
Sundry Supplies .....	194.70	
Postage, Telegraph and Telephone .....	184.49	
Travel Expenses .....	251.68	
Freight, Express and Dray .....	73.27	
Publications .....	1,512.09	
Heat, Light, Water and Power .....	284.02	
Repairs .....	254.39	
Furniture and Fixtures .....	101.18	
Libraries .....	304.24	
Scientific Equipment .....	464.56	
Livestock .....	21.90	
Tools, Machinery and Appliances .....	157.50	
Contingent Expenses .....	62.58	14,904.38

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Balance, Cash on Hand December 31, 1932 .....\$ 6,487.57