

1965-66

MISSOURI COMMERCIAL FERTILIZER INSPECTION AND ANALYSIS



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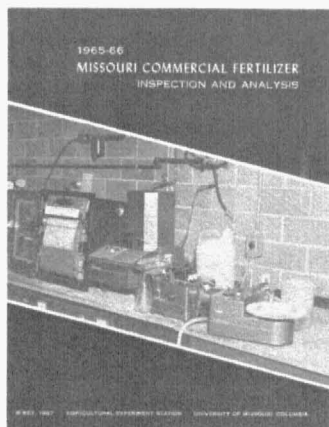
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Cover Photo



Potash is automatically determined with this instrument at a rate of forty analyses per hour. The sample solutions are placed in the turntable at the right, pumped into a flame photometer, and finally the results are recorded on a strip chart recorder. Phosphorus is similarly determined and an automated nitrogen method is being developed. These automated methods have been developed by the Missouri Experiment Station Chemical Laboratories so that the large number of samples necessitated by the increased fertilizer usage can be analyzed efficiently.

Missouri Commercial Fertilizer Inspection and Analysis

July 1, 1965 to June 30, 1966

This bulletin is a summary of work performed and data accumulated in the administration of the Missouri Fertilizer Law during the year ending June 30, 1966. The number and kinds of fertilizers sampled and the manner in which they met or failed to meet guarantee are listed for each guarantor in Table 4.

INSPECTION

The primary purpose of the fertilizer law is to assure that fertilizers offered for sale in the state will be labeled and guaranteed in a standard prescribed manner and that these guarantees will be met. In pursuance of this objective inspection visits are made and samples are collected at points where fertilizer is offered for sale in every county in the State.

Reduction of the frequency of deficiencies in mixed fertilizer from nearly 16% in 1963-64 to 9.26% during 1965-66 reflects a very real and significant improvement in the quality of fertilizer which the industry is providing for sale in the state. This is a highly praiseworthy achievement.

A total of 5906 official samples were collected and analyzed during the 1965-66 fiscal year. This includes 3243 samples of bagged fertilizers and 2663 samples of bulk and liquid fertilizers, and rock phosphate.

On the basis of tonnage of all fertilizers, one sample was secured for each 210 tons sold. Single nutrient materials are generally found deficient much less frequently than mixed fertilizers and, consequently, are sampled less intensively. Thus, only one sample was secured for each 907 tons of straight materials shipped, while mixed fertilizers were checked at a rate of one sample for each 146 tons sold.

In the interest of protecting the consumer, inspection efforts are directed toward detecting and focusing attention on those brands and grades found deficient most frequently so that corrections will be

effected as rapidly as possible. For this reason the percent of deficiencies noted in samples collected does not purport to reflect, with complete accuracy, the over-all performance of the industry or of any particular company.

Under the provisions of the fertilizer law each distributor is required to file copies of invoices covering every lot of fertilizer sold for use in the State. From these invoices information is compiled as to the amounts, kinds, and county destination of fertilizer consumed. These data are listed in Tables 1, 2, and 3, and in accompanying charts.

Other information contained in this bulletin includes a statement of all fertilizer fees and penalties received and expenditures made therefrom, a list of distributors issued permits to sell fertilizers in the state, and the full text of Missouri Fertilizer Laws and Regulations.

PENALTIES

The fertilizer law provides that penalties shall be assessed on any lot of fertilizer as much as 10% below guarantee in any one of the major plant nutrients or 3% deficient in total value. During the year covered by this bulletin, 512 of the 5906 lots of fertilizer sampled were found deficient enough to be subject to penalty. Total penalties assessed during the year amounted to \$19,777.35.

CHEMICAL ANALYSIS

All of the official fertilizer samples collected by the fertilizer inspectors were analyzed in the Experiment Station Chemical Laboratories located at the University of Missouri, Columbia. Each fertilizer sample was reduced and divided by a sample riffle to two like portions of approximately one pound each. One half of the reduced sample was ground and prepared for the laboratories and analyzed for nitrogen,

phosphorus, and potassium. The other half was placed in reserve for future reference. For samples which were found significantly low in any one plant food element or over-all value by the "first run" analysis, an additional, independent determination was made to confirm the "first run" result. For samples which were classed as "misbranded" in any one plant food element or over-all value on the basis of "first run" analyses, the reserve portion of the sample was divided, ground, and analyzed. Before any sample was labeled "misbranded" the results obtained on both the first and reserve portions agreed within laboratory analytical tolerance.

The analytical procedures used for all determinations were Official Methods of the Association of Official Agricultural Chemists or equivalent. These methods are as follows:

- (1) Nitrogen
 - a) Solid fertilizers-Improved Kjeldahl method (2.045), reduced iron method (2.047) and chromium powder method (2.049).
 - b) Liquid samples-Reduced iron method (2.047) and Chromium powder method (2.049).
- (2) Phosphorus-Photometric method for direct determination of available phosphorus (2.036), photometric method (2.018), and Quimociac method (2.039).
- (3) Potassium-Flame photometric method (2.077) and sodium tetraphenylboron method (2.083).

SUMMARY OF TONNAGE DATA

During the year ending June 30, 1966, registered distributors reported a total of 1,242,702 tons of fertilizer shipped for use in Missouri. This represents an increase of 14% over 1964-65. The following chart shows how this increase was distributed among the various kinds of fertilizers and fertilizer constituents.

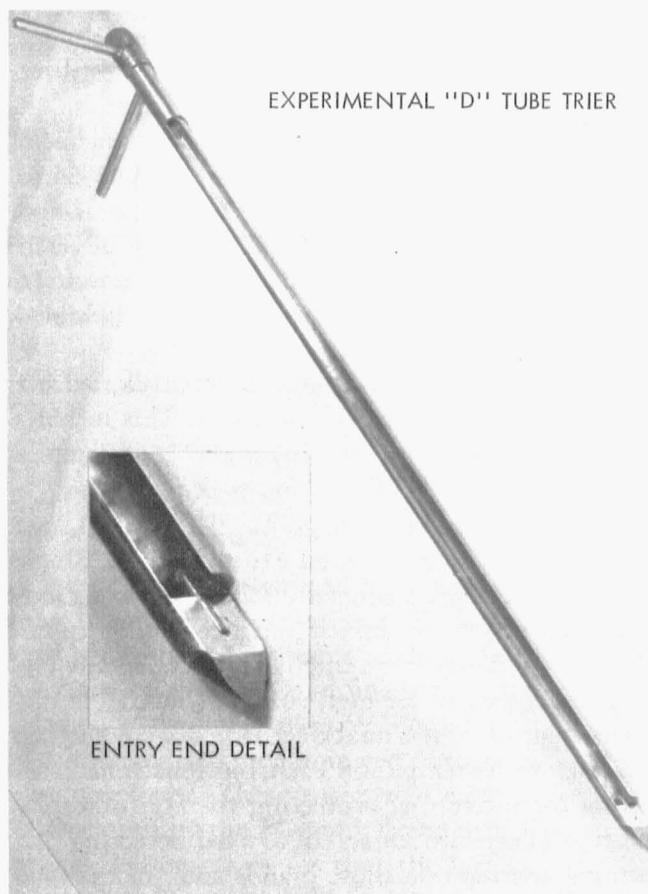
	1964-65	1965-66	% Change
Mixed Fertilizers	650,435	791,924	+ 21.8
Fertilizer Materials	286,993	270,049	- 5.9
Rock Phosphate	151,265	180,729	+ 19.5
Nitrogen	194,342	208,003	+ 7.0
Available P_2O_5	112,792	132,085	+ 17.1
Potash	108,887	134,910	+ 23.9
Liquid Mixed Fertilizers	49,163	68,062	+ 38.4
Bulk Dry Blends	200,893	284,468	+ 41.6

The average composition of all mixed fertilizers sold during the first six months of 1966 was approximately 11.3% N, 16.5% available P_2O_5 , and 15.7% K_2O . For more detailed tonnage data see tables and charts on the following pages.

BULK FERTILIZER SAMPLING STUDY

In addition to the routine work of administering the Missouri Fertilizer Law, during 1965 and 1966 Experiment Station personnel directed and participated in a four-state collaborative study in the sampling of bulk fertilizers. This study led to the adoption, by the Association of Official Analytical Chemists, of new official methods for sampling bulk fertilizers.

In a separate related study, some of the mechanisms leading to sampling bias were investigated and a new and basically different bulk fertilizer sampling tube was developed. This sampler (see picture) avoids the known mechanisms of sampler bias, related to filling action, by encompassing a core in place rather than requiring the fertilizer to flow into the tube.



LABELING STATEMENT REQUIRED ON FERTILIZERS SOLD IN BULK

The Missouri Fertilizer Law provides that all fertilizers offered for sale in the state, including lots stored or delivered in bulk, shall have attached or be accompanied by a label stating the guaranteed analysis and the name and address of the person guaranteeing the fertilizer.

When bulk fertilizer has passed into the bin or tank of a dealer it no longer is under the control of the original manufacturer and the brand and guaranteed analysis becomes the sole responsibility of the dealer.

Examples of proper bin or tank labeling follow:

Bulk Rock Phosphate

Guarantee:

31% Total P_2O_5

3% Available P_2O_5

70% / 200 mesh sieve

John Doe Phosphate Co.

Centerburg, Missouri

Bulk 10-10-10

Guarantee:

10% Nitrogen

10% Available P_2O_5

10% Potash

John Doe Fertilizer Co.

Centerburg, Missouri

Such a label must be displayed in a conspicuous place on the outside of bin or tank by the bulk fertilizer dealer.

Fertilizers in transit from supplier to dealer, or from dealer to consumer, must be accompanied by a label giving the statements shown above. An invoice or sales ticket printed with the required information will suffice.

For bulk blended fertilizer billed on the basis of materials used, the guaranteed analysis must be stated and the plant food claimed therein must agree with the amount of plant food for which the purchaser is billed.

TABLE 1--MISSOURI FERTILIZER TONNAGE REPORT, FALL, 1965

MIXED FERTILIZER

<u>Grades</u>	<u>Bagged Tons</u>	<u>Bulk Mfgd. Tons</u>	<u>Bulk Dry Blends Ratio</u>	<u>Tons</u>	<u>Mixed Liquids Grades</u>	<u>Tons</u>
0-20-20	172	513	0-1-3	3,087	2-6-12	852
0-25-25	507	424	0-1-2	599	3-10-8	2,565
5-20-20	3,945	378	0-1-1	2,558	6-12-18	1,338
6-24-24	11,682	3,636	1-4-4	4,903	8-8-8	1,063
8-24-8	3,718	266	1-3-1	787	9-9-9	1,415
8-32-16	5,108	723	1-2-2	1,925	12-6-6	551
10-6-4	904	17	1-2-1	1,137	12-8-6	1,093
10-20-10	3,361	71	1-1-1	16,302	12-8-8	475
10-20-20	2,100	593	2-1-1	5,071	14-7-7	659
12-12-12	48,206	4,792	3-2-2	9,499	15-5-5	421
12-24-12	2,148	138	Misc.	39,916	15-10-5	610
13-13-13	6,322	737	<u>Total</u>	<u>85,784</u>	Misc.	4,783
15-10-10	2,573	2,152			<u>Total</u>	<u>15,825</u>
15-15-15	2,557	506				
16-8-8	527	52				
16-16-16	1,492	706				
18-46-0	512	934				
20-10-10	879	1,615				
Misc.	10,752	1,085	<u>Total Mixed Fertilizer</u>	-	<u>228,412</u>	
<u>Total</u>	<u>107,465</u>	<u>19,338</u>				

FERTILIZER MATERIALS

<u>NITROGENOUS MATERIALS</u>	<u>Tons</u>	<u>PHOSPHATIC MATERIALS</u>	<u>Tons</u>
Sodium Nitrate	145	Colloidal Phosphate	---
Ammonium Sulfate	147	Rock Phosphate	111,698
Aqua Ammonia	1,548	<u>Total</u>	<u>111,698</u>
Nitrogen Solutions (28-32%)	6,726	<u>POTASSIC MATERIALS</u>	
Nitrogen Solutions (37-41%)	1,884	Muriate of Potash	6,843
Ammonium Nitrate	27,146	Other Potash Materials	263
Urea	5,483	<u>Total</u>	<u>7,106</u>
Anhydrous Ammonia	9,151		
Other Nitrogen Materials	46		
<u>Total</u>	<u>52,276</u>		
<u>PHOSPHATIC MATERIALS</u>		<u>MISCELLANEOUS MATERIALS</u>	
Normal Superphosphate	71	Organics	1,729
Conc. Superphosphate	2,488	Other	352
<u>Total</u>	<u>2,559</u>	<u>Total</u>	<u>2,081</u>
<u>Total Materials</u>	-	<u>175,720</u>	

Fertilizers with Pesticides 28*
 Fertilizers with Borax 3,306*
 (*Included in above totals)

TOTALS FOR 1965

Spring - 714,875
 Fall - 404,132
Total 1,119,007

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MIXED FERTILIZER

[illegible]

<u>Misc. Materials</u>	
Organics	2,099
Other	135
<u>Total</u>	<u>2,234</u>

<u>Total Materials</u>	<u>275,058</u>
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<u>Total</u>	<u>1,242,702</u>
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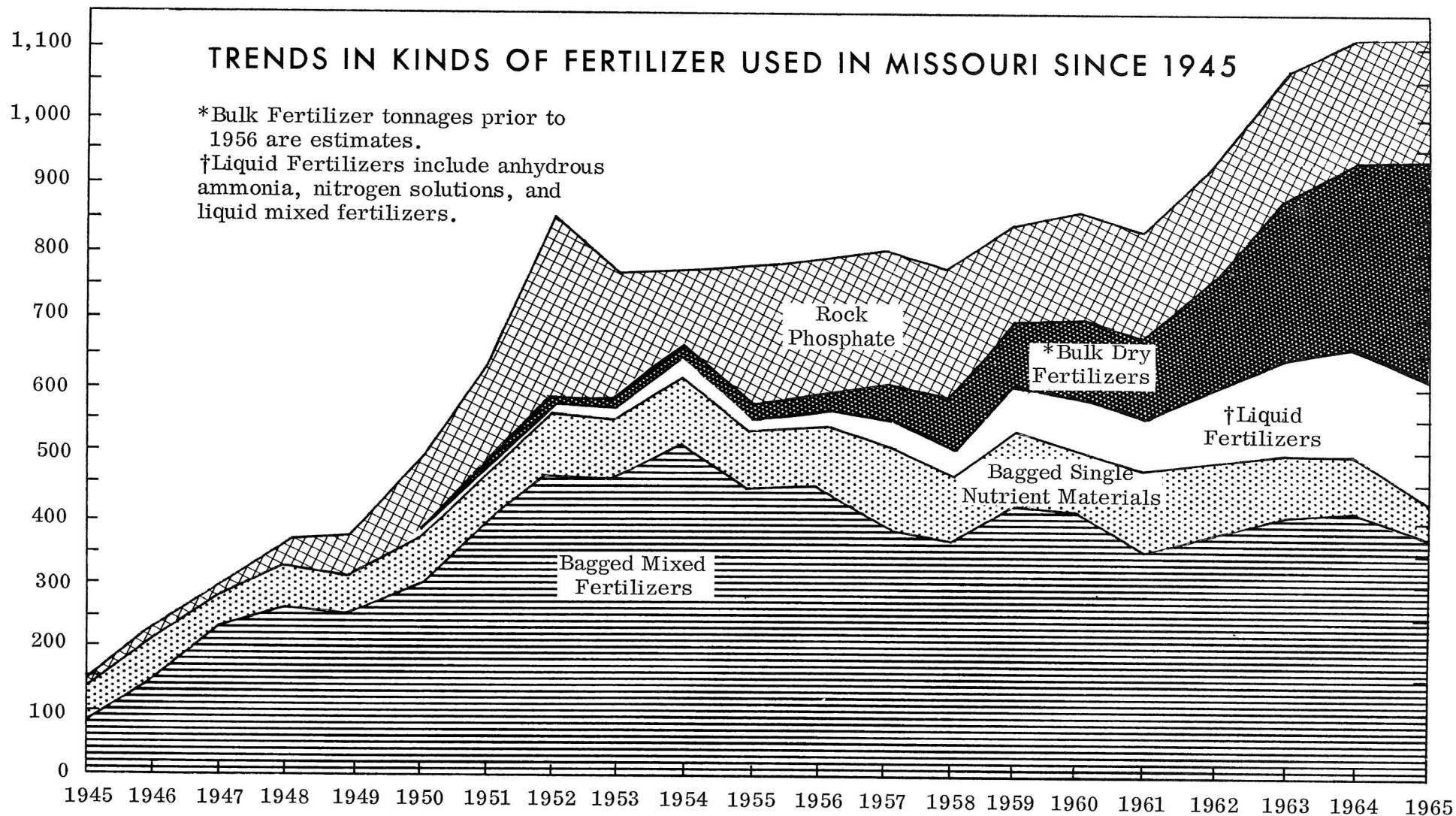
TABLE 3--FERTILIZER AND PLANT FOOD TONNAGES SHIPPED FOR USE IN MISSOURI SINCE 1941

Year	Total Tons Fertilizer	Total Tons of Plant Foods				Mixed Fertilizers			Fertilizer Materials*				Rock Phosphate
		Nitrogen	Available P ₂ O ₅	Total P ₂ O ₅ in Rock	K ₂ O	Total Tons	Average Composition	Per Cent	Total Tons	Tons N	Tons P ₂ O ₅	Tons K ₂ O	
1941	68,626	1,018	10,293	286	2,185	35,647	2.33-12.14-4.83	19.3	32,057	187	5,965	463	922
1942	59,854	801	9,236	168	2,368	28,420	2.17-11.99-6.90	21.1	30,892	184	5,828	407	542
1943	83,375	903	12,310	284	3,893	44,357	1.89-11.94-7.83	21.7	38,102	65	7,014	420	916
1944	120,937	1,811	17,849	418	4,800	67,005	2.30-11.88-6.82	21.0	52,585	270	9,889	230	1,347
1945	135,140	2,309	19,219	547	6,279	83,411	2.37-11.90-6.96	21.2	49,963	332	9,293	474	1,766
1946	221,753	4,665	31,045	1,231	9,964	149,829	2.60-11.95-6.43	21.0	67,953	769	13,140	330	3,971
1947	293,705	10,282	36,192	3,671	13,470	227,688	2.94-12.01-5.84	20.8	54,176	3,588	8,847	173	11,841
1948	355,283	11,366	45,138	9,085	17,278	263,936	3.03-12.11-6.25	21.4	62,041	3,369	13,175	782	29,306
1949	364,677	13,426	42,472	17,815	18,895	248,000	3.26-12.77-7.08	23.1	59,209	5,341	10,802	1,337	57,468
1950	482,123	21,865	52,641	36,100	26,047	290,497	3.80-13.93-8.19	25.9	75,175	10,826	12,175	2,255	116,451
1951	647,393	30,988	61,989	56,520	38,371	390,292	4.34-14.11-8.94	27.4	74,777	14,049	6,919	3,479	182,324
1952	847,284	48,478	75,344	85,702	52,590	468,347	5.30-14.75-9.40	29.5	102,478	23,656	6,263	8,565	276,459
1953	763,276	57,681	72,427	62,135	55,483	458,042	6.40-14.88-10.16	31.4	104,798	28,376	4,270	8,944	200,436
1954	771,375	76,960	81,136	37,332	68,070	517,244	7.30-14.42-10.80	32.5	132,383	39,185	6,529	12,232	121,748
1955	771,556	66,771	70,223	65,601	61,379	449,871	7.88-14.19-11.19	33.3	109,270	31,339	6,398	11,019	212,415
1956	785,949	74,337	71,302	63,403	65,953	454,525	8.33-14.10-11.85	34.3	126,344	36,357	7,040	11,972	205,080
1957	801,210	90,845	67,419	64,592	63,418	413,044	9.02-14.06-11.83	34.9	179,387	53,589	9,331	14,560	208,779
1958	790,651	83,403	64,886	70,256	60,553	432,811	9.67-13.47-11.87	35.0	131,030	41,534	6,599	9,173	226,810
1959	840,762	110,045	84,860	44,827	75,671	525,322	10.05-14.35-12.24	36.6	170,514	57,269	9,458	11,380	144,926
1960	858,993	116,626	81,787	52,086	74,320	510,655	10.47-14.51-12.51	37.5	180,069	63,155	7,706	10,433	168,269
1961	824,086	118,992	76,645	50,354	67,826	465,360	10.71-15.04-12.43	38.2	196,180	69,149	6,775	9,995	162,546
1962	927,512	134,505	87,432	56,694	81,429	531,664	10.98-15.32-13.03	39.3	212,712	76,131	5,960	12,166	183,136
1963	1,057,377	172,048	102,301	58,411	95,666	605,032	11.03-16.04-13.60	40.7	263,822	105,289	5,281	13,384	188,523
1964	1,109,851	192,993	110,695	52,916	106,039	644,205	11.23-16.33-14.27	41.8	294,945	120,635	5,519	14,110	170,701
1965	1,119,007	191,265	115,139	54,389	113,293	679,252	11.61-16.25-14.72	42.6	264,305	112,365	4,713	13,319	175,450
1966†	,838,570	157,840	95,044	21,377	96,826	563,512	11.25-16.55-15.70	43.5	206,027	94,459	1,772	8,408	69,031

*Does not include Rock Phosphate

†First six months only

Thousands
of tons



Missouri Fertilizer Tonnage by Counties 1965-1966*

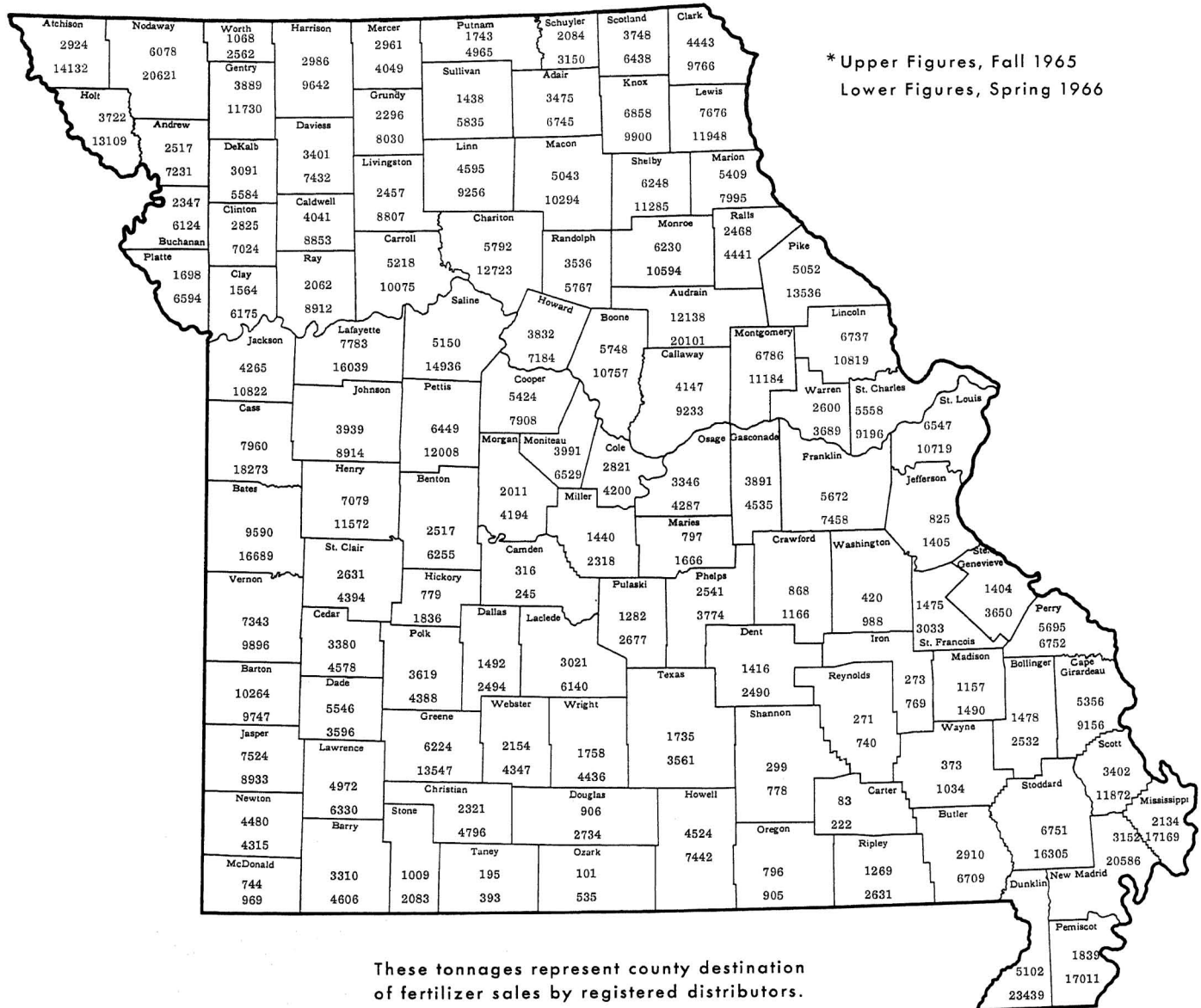


TABLE 4 - SUMMARY OF OFFICIAL FERTILIZER SAMPLES ANALYZED JULY 1, 1965 - JUNE 30, 1966

This table is a summary presentation of all official fertilizer samples collected and analyzed by the Missouri Agricultural Experiment Station in carrying out the provisions of the Missouri Fertilizer Law during the year ending June 30, 1966. The detailed analyses are not presented here, but they have been published in quarterly reports which are available on request.

The deficiencies indicated are based on tolerances established for assessment of penalties by Section 266.343 of the fertilizer law.

The reader may determine by this table the relative manner in which the fertilizers of the various manufacturers met guarantee. Totals at the end of this table show how these fertilizers compared by the categories in which they were separated.

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Adrian Grain & Supply Co., Adrian, Mo.	Bulk Multinutrient	5	0	.00	100.74
A. C. Feed Mills, Inc., Appleton City, Mo.	Bulk Multinutrient	6	3	50.00	99.86
	Bulk Single Nutrient	2	0	-----	101.36
	Liquid Multinutrient	3	0	-----	109.30
	Liquid Single Nutrient	2	0	-----	100.40
	Rock Phosphate	1	0	-----	103.35
Aggieville, Liberal, Mo.	Bulk Multinutrient	4	1	-----	99.46
Agricultural Chemicals, Inc., Old Monroe, Mo.	Liquid Multinutrient	7	0	.00	100.51
Alaska Fertilizer Co., Seattle, Wash.	Liquid Multinutrient	1	0	-----	121.81
Alldredge Feed & Seed, Stanberry, Mo.	Bulk Multinutrient	7	1	14.29	99.39
	Bulk Single Nutrient	2	0	-----	100.41
	Liquid Multinutrient	1	0	-----	98.77
	Liquid Single Nutrient	2	0	-----	101.22
Alldredge Feed & Supply, St. Joseph, Mo.	Bulk Multinutrient	6	0	.00	99.95
Allendale Produce Co., Allendale, Mo.	Liquid Single Nutrient	1	0	-----	99.32
Allman Produce & Feed, Wheaton, Mo.	Bulk Multinutrient	1	0	-----	101.51
Alma Farmers Cooperative Assn., Alma, Mo.	Bulk Multinutrient	4	1	-----	102.42
Agrico Chemical Co., National Stock Yards, Ill. & Olathe, Kansas	Bagged Multinutrient	108	5	4.63	101.26
	Bagged Single Nutrient	1	0	-----	101.35
	Bulk Multinutrient	13	0	.00	100.02
	Rock Phosphate	4	0	-----	100.08
	Anhydrous Ammonia	3	0	-----	-----#
American Cyanamid Co., Princeton, N.J.	Bagged Single Nutrient	1	0	-----	101.70
	Rock Phosphate	2	0	-----	105.08
Annada Elevator, Annada, Mo.	Liquid Multinutrient	11	0	.00	100.90
Armour Agricultural Chemical Co., Centralia, Mo.	Bulk Multinutrient	3	1	-----	100.37
	Liquid Multinutrient	13	0	.00	101.77
	Rock Phosphate	1	0	-----	100.90
Armour Agricultural Chemical Co., Caruthersville, Mo.	Bulk Multinutrient	1	0	-----	107.19
	Anhydrous Ammonia	1	0	-----	-----#
Armour Agricultural Chemical Co., East St. Louis, Ill.	Bagged Multinutrient	261	26	9.96	101.06
	Bagged Single Nutrient	1	0	-----	98.50
Armour Agricultural Chemical Co., North Kansas City, Mo.	Bagged Multinutrient	63	7	11.11	102.13
	Bagged Single Nutrient	2	0	-----	99.75
	Rock Phosphate	2	0	-----	102.14
Arnold Bros. Feed & Grain, Orrick, Mo.	Bulk Multinutrient	5	0	.00	99.77

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Atchison County Cooperative Assn., Rock Port, Mo.	Bulk Multinutrient	5	2	40.00	102.20
	Bulk Single Nutrient	3	0	-----	101.01
	Anhydrous Ammonia	1	0	-----	-----#
Atlanta Grain Elevator Atlanta, Mo.	Bulk Multinutrient	3	0	-----	101.22
	Liquid Single Nutrient	1	0	-----	100.82
Audrain Soil Service, Inc., Mexico, Mo.	Bulk Multinutrient	10	0	.00	101.90
	Anhydrous Ammonia	1	0	-----	-----#
Audrain Soil Service, Inc., Ladonia, Mo.	Bagged Multinutrient	3	1	-----	103.41
	Bulk Multinutrient	13	0	.00	104.14
	Anhydrous Ammonia	1	0	-----	-----#
Billy L. Baker Hurdland, Mo.	Liquid Multinutrient	4	0	-----	102.16
	Liquid Single Nutrient	1	0	-----	101.06
B & R Fertilizer Co., Silex, Mo.	Liquid Multinutrient	3	0	-----	101.36
	Liquid Single Nutrient	1	0	-----	100.56
Bartlett & Co., Hardin, Mo.	Bulk Multinutrient	3	0	-----	101.11
Barco Mfg. Co., Inc., Worcester, Mass.	Bagged Multinutrient	1	1	-----	90.71
Barnard Elevator, Barnard, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Barton County Plant Foods, Lamar, Mo.	Bulk Multinutrient	1	0	-----	102.18
	Bulk Single Nutrient	2	0	-----	98.17
	Liquid Single Nutrient	2	0	-----	101.15
	Rock Phosphate	1	0	-----	101.70
Beaufort Feed Store, Beaufort, Mo.	Bulk Multinutrient	5	1	20.00	97.54
Becking Fertilizer Sales, Bernie, Mo.	Bulk Multinutrient	3	1	-----	99.04
Benton County Plant Food Co., Cole Camp, Mo.	Bulk Multinutrient	3	0	-----	102.42
Bess Grain, Puxico, Mo.	Bulk Multinutrient	2	0	-----	102.07
Bethany Mill & Implement Co., Bethany, Mo.	Bulk Multinutrient	6	0	.00	101.56
	Liquid Single Nutrient	1	0	-----	102.70
C. J. Beville, Philadelphia, Mo.	Bulk Multinutrient	4	0	-----	100.42
Gerald Bird, Advance, Mo.	Bagged Multinutrient	3	2	-----	94.94
	Bulk Multinutrient	3	0	-----	103.00
Blair Feed & Grain Co., New Melle, Mo.	Bulk Multinutrient	5	0	.00	100.52
Frank Blum, Sullivan, Mo.	Bulk Multinutrient	1	0	-----	102.27
	Rock Phosphate	1	1	-----	91.80
Bolivar Farmers Exchange, Bolivar, Mo.	Bulk Multinutrient	16	3	18.75	101.04
Boeving Gin, Campbell, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Boone County Farm Bureau Service Co., Columbia, Mo.	Bulk Multinutrient	6	0	.00	102.48
	Anhydrous Ammonia	1	0	-----	-----#
Bootheel Liquid Fertilizer Co., Portageville, Mo.	Liquid Multinutrient	9	4	44.44	97.98
	Anhydrous Ammonia	1	0	-----	-----#

TABLE 4 - CONTINUED

11

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Boss Fertilizer Co., Moberly, Mo.	Bulk Multinutrient	7	0	.00	100.43
	Liquid Multinutrient	5	1	20.00	100.24
	Liquid Single Nutrient	4	0	-----	99.06
Boudreau Store, Steffenville, Mo.	Bulk Multinutrient	8	0	.00	99.29
	Bulk Single Nutrient	1	0	-----	100.62
Brickhaus Fertilizer Service, McBride, Mo.	Bulk Multinutrient	7	0	.00	101.33
	Rock Phosphate	1	0	-----	105.41
Brock Milling Co., Maysville, Mo.	Bulk Multinutrient	12	4	33.33	103.23
	Rock Phosphate	1	0	-----	102.77
C. J. Brownsberger, Montrose, Mo.	Bulk Multinutrient	5	0	.00	100.07
Brockman Seed Co., Cairo, Mo.	Bulk Multinutrient	4	0	-----	100.17
	Liquid Single Nutrient	2	0	-----	98.25
Brumbaugh Feed Store, Taylor, Mo.	Bulk Multinutrient	3	2	-----	98.49
Bryan Produce & Feed, Princeton, Mo.	Bulk Multinutrient	1	0	-----	107.68
Buerge Farm Supply Butler, Mo.	Bulk Multinutrient	2	0	-----	103.69
	Liquid Multinutrient	2	0	-----	99.29
	Liquid Single Nutrient	2	0	-----	102.61
Buerge Bros., Archie, Mo.	Bulk Multinutrient	2	0	-----	102.14
Butler Grain Co., Inc., Butler, Mo.	Bulk Multinutrient	5	1	20.00	107.76
	Bulk Single Nutrient	1	1	-----	95.72
	Rock Phosphate	2	0	-----	100.11
Butterfield Grain Co., Meadville, Mo.	Bulk Multinutrient	11	2	18.18	99.95
	Liquid Single Nutrient	1	0	-----	98.14
Cameron Cooperative Elevator Assn., Cameron, Mo.	Bulk Multinutrient	9	2	22.22	102.20
	Anhydrous Ammonia	1	0	-----	-----#
Campbell Fertilizer Co., Campbell, Mo.	Bulk Multinutrient	3	0	-----	101.08
	Bulk Single Nutrient	1	0	-----	100.21
Campbell Kirksey Gin, Risco, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Glenn E. Carroll, Lees Summit, Mo.	Liquid Multinutrient	1	0	-----	101.82
	Liquid Single Nutrient	1	0	-----	98.57
Caseys Highway Market Billings, Mo.	Bulk Multinutrient	4	0	-----	99.62
Cass County Plant Foods, Inc., Harrisonville, Mo.	Bulk Multinutrient	2	0	-----	98.46
	Liquid Single Nutrient	1	0	-----	106.14
Castle Brothers, Otterville, Mo.	Rock Phosphate	1	0	-----	105.65
Cathey Feed & Seed, Brookfield, Mo.	Liquid Single Nutrient	2	0	-----	100.64
Central Soya of Mo., Inc., Salisbury, Mo.	Bulk Multinutrient	4	0	-----	100.34
	Liquid Single Nutrient	2	0	-----	98.08
Central Cooperatives Services, Inc., Pleasant Hill, Mo.	Bulk Multinutrient	3	0	-----	102.94
Central Cooperative Services, Inc., Odessa, Mo.	Bulk Multinutrient	4	0	-----	102.07
	Rock Phosphate	1	0	-----	103.22
Central Farmers Fertilizer Co., Chicago, Ill.	Bagged Single Nutrient	1	0	-----	102.48
	Rock Phosphate	1	0	-----	101.54

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Chem-Grow, Inc., Auxvasse, Mo.	Bagged Multinutrient	8	1	12.50	102.59
	Bulk Multinutrient	7	2	28.57	103.46
	Anhydrous Ammonia	1	0	-----	-----#
Chem-Grow, Inc., Bowling Green, Mo.	Bagged Multinutrient	4	1	-----	100.11
	Bulk Multinutrient	14	0	.00	101.96
Chem-Grow, Inc., Montgomery City, Mo.	Bulk Multinutrient	12	1	8.33	102.73
	Rock Phosphate	1	0	-----	99.83
Chevron Chemical Co., Ft. Madison, Iowa	Bagged Multinutrient	102	0	.00	100.72
	Bagged Single Nutrient	1	0	-----	102.36
	Bulk Multinutrient	5	0	.00	100.33
Chevron Chemical Co., Burlington Jct., Mo.	Liquid Single Nutrient	2	0	-----	102.25
Chevron Chemical Co., Skidmore, Mo.	Liquid Single Nutrient	2	0	-----	104.75
Chesterfield Farmers Elevator & Supply Chesterfield, Mo.	Liquid Single Nutrient	1	0	-----	98.68
Chula Farmers Cooperative, Chula, Mo.	Bulk Multinutrient	4	0	-----	102.06
Clarkton Fertilizer Co., Clarkton, Mo.	Bulk Multinutrient	4	0	-----	102.06
Coastal Chemical Corp., Yazoo City, Miss.	Bagged Multinutrient	9	0	.00	102.00
Colliers Store, Foster, Mo.	Bulk Multinutrient	3	0	-----	100.56
Community Elevator, Craig, Mo.	Bulk Multinutrient	3	0	-----	101.29
	Bulk Single Nutrient	3	0	-----	101.66
Concordia Lumber Co., Concordia, Mo.	Bulk Multinutrient	4	0	-----	103.55
	Rock Phosphate	1	0	-----	102.40
J. A. Conover, Lewistown, Mo.	Bulk Multinutrient	2	0	-----	99.09
Consumers Cooperative Assn., Kansas City, Mo.	Bagged Multinutrient	129	3	2.33	100.78
	Bagged Single Nutrient	2	0	-----	102.40
	Rock Phosphate	2	0	-----	102.01
Cooperative Fertilizer Service Center, Clinton, Mo.	Bulk Multinutrient	8	0	.00	103.43
Cooperative Fertilizer Service Center, Delta, Mo.	Bulk Multinutrient	3	0	-----	106.24
	Rock Phosphate	2	0	-----	106.91
Cooperative Fertilizer Service Center, New Florence, Mo.	Bulk Multinutrient	5	0	.00	101.28
Consumers Oil Co., Maryville, Mo.	Bagged Multinutrient	8	0	.00	104.40
	Bulk Multinutrient	3	1	-----	100.29
	Liquid Single Nutrient	2	0	-----	99.98
	Rock Phosphate	1	0	-----	102.32
	Anhydrous Ammonia	1	0	-----	-----#
Consumers Oil Co., Ridgeway, Mo.	Bulk Multinutrient	4	1	-----	101.80
	Bulk Single Nutrient	3	0	-----	100.90
Consumers Oil Co., Savannah, Mo.	Bulk Multinutrient	14	3	21.43	101.10
	Liquid Single Nutrient	1	0	-----	99.88
	Rock Phosphate	1	0	-----	99.58
	Anhydrous Ammonia	1	0	-----	-----#
Consumers Oil Co., Stanberry, Mo.	Bulk Multinutrient	10	2	20.00	98.09
	Bulk Single Nutrient	2	0	-----	101.18
	Liquid Single Nutrient	1	0	-----	100.09
	Rock Phosphate	1	0	-----	101.29

TABLE 4 - CONTINUED

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Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Consumers Oil & Supply, Braymer, Mo.	Bulk Multinutrient Rock Phosphate	2	1	-----	103.99
		1	0	-----	101.57
Russell Cooley, Lucerne, Mo.	Bulk Multinutrient Liquid Single Nutrient	9	0	.00	100.25
		1	0	-----	101.71
Cooter Produce Milan, Mo.	Bulk Multinutrient	3	0	-----	103.66
Craig Supply Co., Craig, Mo.	Liquid Single Nutrient	1	0	-----	100.75
Lloyd Cullifer, Edina, Mo.	Liquid Multinutrient Liquid Single Nutrient	3	0	-----	100.63
		1	0	-----	99.72
D & L Plant Food Co., Carrollton, Mo.	Liquid Single Nutrient	1	0	-----	99.03
Danner Milling & Supply, Blackwater, Mo.	Bulk Multinutrient Liquid Single Nutrient	2	1	-----	99.08
		1	0	-----	100.94
Danner Milling & Supply, Wellington, Mo.	Bulk Multinutrient	1	1	-----	91.31
Darling & Company, East St. Louis, Ill.	Bagged Multinutrient	282	30	10.64	101.30
Davis Fertilizer Co., Graham, Mo.	Bulk Multinutrient	1	0	-----	102.38
Davison Chemical Div., W. R. Grace & Co., Joplin, Mo.	Bagged Multinutrient	293	9	3.07	100.20
	Bagged Single Nutrient	2	0	-----	98.74
	Bulk Multinutrient	1	0	-----	97.96
	Liquid Single Nutrient	1	0	-----	103.22
Deering Seed & Fertilizer Co., Inc., Deering, Mo.	Liquid Single Nutrient	2	0	-----	98.63
Delta Custom Farm Services, Inc., Sikeston, Mo.	Bagged Multinutrient	2	0	-----	100.66
Delta Liquid Plant Food, Inc., Portageville, Mo.	Liquid Multinutrient Liquid Single Nutrient	4	0	-----	101.18
		1	0	-----	100.59
Delta Grain Assn., Inc., Gideon, Mo.	Bulk Multinutrient	2	0	-----	106.06
Dishman Lime & Phosphate Co., Helena, Mo.	Bulk Multinutrient	2	1	-----	102.72
	Liquid Single Nutrient	2	0	-----	100.39
	Rock Phosphate	1	0	-----	104.13
Dogwood Store, East Prairie, Mo.	Bulk Multinutrient	2	0	-----	99.03
Douglas County Milling Co., Ava, Mo.	Bulk Multinutrient Bulk Single Nutrient	4	0	-----	104.50
		1	0	-----	100.39
Drury Produce, Greentop, Mo.	Bulk Multinutrient	2	0	-----	101.27
Dufur Elevator, Queen City, Mo.	Liquid Multinutrient Liquid Single Nutrient	6	1	16.67	100.87
		2	0	-----	99.21
Dunard Brothers, Troy, Mo.	Liquid Multinutrient Liquid Single Nutrient	7	0	.00	102.85
		2	0	-----	101.58
G. C. Dunn & Sons, Middletown, Mo.	Liquid Multinutrient Liquid Single Nutrient	4	0	-----	100.80
		1	0	-----	98.93
E. I. Du Pont De Nemours Co., Wilmington, Del.	Bagged Single Nutrient	1	0	-----	100.24
Duval Sulphur & Potash Co., Carlsbad, N. M.	Bagged Single Nutrient	1	0	-----	102.20

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Dye Phosphate & Grain Co., Hale, Mo.	Bulk Multinutrient	6	2	33.33	103.11
East Lynne Elevator, East Lynne, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Lloyd Eby, Sikeston, Mo.	Liquid Multinutrient	2	0	-----	102.52
	Liquid Single Nutrient	1	0	-----	101.54
Econogas Co., Rushville, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Erdel & Garnett, Ladonia, Mo.	Liquid Single Nutrient	1	0	-----	100.25
Elanco Products Co., Indianapolis, Ind.	Bagged Multinutrient	9	0	.00	108.71
Essex M.F.A. Elevator, Essex, Mo.	Bulk Multinutrient	3	1	-----	102.63
Everett Quarries, Inc., Plattsburg, Mo.	Rock Phosphate	1	0	-----	104.23
Fairfax Fertilizer Service, Fairfax, Mo.	Liquid Single Nutrient	2	0	-----	100.03
Farm Bureau Services, Inc., Boonville, Mo.	Bulk Multinutrient	6	1	16.67	101.61
	Rock Phosphate	1	0	-----	101.29
Farm Bureau Services, Inc., Fulton, Mo.	Bulk Multinutrient	3	0	-----	102.31
	Liquid Single Nutrient	1	0	-----	98.41
Farm Bureau Services, Inc., Sedalia, Mo.	Bulk Multinutrient	3	0	-----	103.45
	Anhydrous Ammonia	1	0	-----	-----#
Farmers Coal & Grain, Maitland, Mo.	Bulk Multinutrient	1	0	-----	100.54
	Liquid Single Nutrient	1	0	-----	103.93
Farmers Cooperative Elevator, Hawk Point, Mo.	Bulk Multinutrient	6	1	16.67	99.96
Farmers Cooperative Services, Inc., Ewing, Mo.	Bulk Multinutrient	2	0	-----	100.52
Farmers Cooperative Services, Inc., Palmyra, Mo.	Bulk Multinutrient	4	1	-----	100.86
Farmers Cooperative Services, Inc., Rensselaer, Mo.	Bulk Multinutrient	2	0	-----	103.09
Farmers Elevator Co., Barnard, Mo.	Liquid Single Nutrient	1	0	-----	99.97
Farmers Elevator, Hume, Mo.	Bulk Multinutrient	2	0	-----	101.00
Farmers Elevator, Jonesburg, Mo.	Bulk Multinutrient	2	0	-----	99.84
Farmers Elevator & Supply, Clinton, Mo.	Rock Phosphate	2	0	-----	102.77
Farmers Feed Store, Breckenridge, Mo.	Bulk Multinutrient	7	1	14.29	101.38
Farmers Fertilizer, Inc., Charleston, Mo.	Bulk Multinutrient	1	0	-----	102.03
Farmers Grain & Fertilizer Co., Gallatin, Mo.	Bulk Multinutrient	10	1	10.00	105.81
	Bulk Single Nutrient	3	0	-----	101.08
	Liquid Single Nutrient	1	0	-----	100.34
	Rock Phosphate	1	0	-----	98.09
Farmers Liquid Plant Food, Inc., Malden, Mo.	Liquid Multinutrient	7	0	.00	100.29
	Liquid Single Nutrient	2	1	-----	94.94

TABLE 4 - CONTINUED

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Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Farmers Rock & Lime Co., Nettleton, Mo.	Bulk Multinutrient	1	0	-----	102.15
	Rock Phosphate	1	0	-----	97.84
Farmers Store, Greencastle, Mo.	Bulk Multinutrient	4	0	-----	100.34
Faucett Fertilizer Co., Faucett, Mo.	Bagged Multinutrient	6	1	16.67	108.43
	Bulk Multinutrient	10	2	20.00	101.15
Federal Chemical Co., Louisville, Ky.	Bagged Multinutrient	2	1	-----	103.92
Fletcher Grain Co., Marshall, Mo.	Bulk Multinutrient	8	0	.00	100.31
Food Machinery & Chemical Corp., Lawrence, Kans.	Liquid Single Nutrient	3	0	-----	100.69
Four Valleys Plant Food Co., Sheridan, Mo.	Bulk Multinutrient	5	0	.00	101.47
	Liquid Single Nutrient	1	0	-----	107.00
	Rock Phosphate	1	0	-----	104.54
Fowler Elevator, Newtown, Mo.	Bulk Multinutrient	5	0	.00	100.86
	Liquid Single Nutrient	1	0	-----	99.56
Frerking Elevator, Corder, Mo.	Bulk Multinutrient	7	2	28.57	100.06
	Bulk Single Nutrient	1	0	-----	100.49
Fuqua Feed & Seed, New London, Mo.	Liquid Multinutrient	3	0	-----	100.70
Garden City Elevator, Garden City, Mo.	Bulk Multinutrient	5	0	.00	99.03
Gateway Seed Co., St. Louis, Mo.	Bagged Multinutrient	1	0	-----	111.50
James Gibson, Dexter, Mo.	Bulk Multinutrient	6	0	.00	102.17
Gideon-Anderson Lumber Co., Gideon, Mo.	Bagged Multinutrient	2	2	-----	93.78
	Bulk Multinutrient	3	2	-----	99.77
	Bulk Single Nutrient	1	0	-----	102.33
B. Gill Mercantile Co., Puxico, Mo.	Liquid Multinutrient	1	1	-----	109.40
	Liquid Single Nutrient	1	0	-----	98.36
Glasgow Cooperative Assn., Glasgow, Mo.	Bagged Multinutrient	7	0	.00	102.43
	Bulk Multinutrient	10	0	.00	105.64
	Bulk Single Nutrient	2	0	-----	101.68
G. Goe Truck Lines, Brunswick, Mo.	Bulk Multinutrient	2	0	-----	104.30
Golden Acres Fertilizer Co., Amarillo, Texas	Bagged Multinutrient	2	0	-----	115.10
Goldin Fertilizer Service, Marshall, Mo.	Liquid Single Nutrient	1	0	-----	107.68
Good Earth Chemical, Inc., Bonne Terre, Mo.	Bagged Multinutrient	3	0	-----	101.43
Gordon Chemical Co., Inc., Kansas City, Kansas	Bagged Multinutrient	1	0	-----	105.33
Goulard & Olena, Inc., Skillman, N. J.	Bagged Multinutrient	6	1	16.67	108.94
	Bagged Single Nutrient	1	0	-----	98.00
W. R. Grace & Co., Malden, Mo.	Liquid Multinutrient	29	5	17.24	101.35
W. R. Grace & Company, Memphis, Tenn.	Bagged Multinutrient	2	0	-----	101.47
	Anhydrous Ammonia	2	0	-----	-----#

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
W. R. Grace & Co., Slater, Mo.	Liquid Multinutrient	35	6	17.14	99.16
W. R. Grace & Co., Murphysboro, Ill.	Bagged Multinutrient	2	0	-----	98.65
	Liquid Multinutrient	3	2	-----	100.04
Gray Chemicals, Inc., Gloucester, Mass.	Bagged Multinutrient	1	0	-----	116.08
Great Atlantic & Pacific Tea Co., New York, N.Y.	Bagged Multinutrient	1	0	-----	109.11
Green Acres Farm Supply, Inc., Centralia, Mo.	Liquid Multinutrient	4	1	-----	100.95
	Liquid Single Nutrient	1	0	-----	99.84
Graham Bros., Pattonsburg, Mo.	Liquid Multinutrient	1	0	-----	98.86
	Liquid Single Nutrient	1	0	-----	99.84
Green City Fertilizer Co., Green City, Mo.	Bulk Multinutrient	6	1	16.67	100.49
Ansel Grote, St. Clements, Mo.	Liquid Multinutrient	4	0	-----	102.04
	Liquid Single Nutrient	1	0	-----	98.00
Gro-Mo-Co., Inc., Blythedale, Mo.	Bulk Multinutrient	4	0	-----	100.55
	Bulk Single Nutrient	2	0	-----	101.10
	Rock Phosphate	1	0	-----	100.54
Halferty Brothers, Dearborn, Mo.	Bulk Multinutrient	9	1	11.11	102.70
	Bulk Single Nutrient	2	0	-----	101.86
Hanna Soil & Farm Service, Savannah, Mo.	Liquid Single Nutrient	1	0	-----	102.00
Handleys Tri-County Gas & Fertilizer Co., Hayti, Mo.	Bulk Multinutrient	2	1	-----	100.89
Hargis Plant Food Service, Lebanon, Mo.	Bulk Multinutrient	4	0	-----	100.09
	Bulk Single Nutrient	1	0	-----	99.13
Harlan Hartley, Butler, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Roy Hartung Feed Store, Bourbon, Mo.	Bulk Multinutrient	1	0	-----	100.94
Harrison County Fertilizer Co., Bethany, Mo.	Bulk Multinutrient	5	1	20.00	103.53
	Bulk Single Nutrient	3	0	-----	100.76
Hayti Liquid Fertilizer Co., Hayti, Mo.	Liquid Multinutrient	3	0	-----	99.23
	Liquid Single Nutrient	1	0	-----	100.97
Heck Fertilizer Co., Mound City, Mo.	Liquid Single Nutrient	2	0	-----	100.19
Harwood Elevator Co., Harwood, Mo.	Bulk Multinutrient	6	0	.00	99.75
R. V. Hedrick Co., Buckner, Mo.	Bulk Multinutrient	5	0	.00	102.36
	Rock Phosphate	2	1	-----	97.75
	Anhydrous Ammonia	1	0	-----	-----#
Ed. Helmreich Fertilizer Service, Boonville, Mo.	Bulk Multinutrient	2	0	-----	99.10
	Bulk Single Nutrient	1	0	-----	102.07
Herrick Feed & Produce, Westboro, Mo.	Bulk Multinutrient	5	0	.00	100.32
	Bulk Single Nutrient	4	1	-----	98.61
Heritage House Products, Inc., Pittsburg, Pa.	Bagged Multinutrient	2	1	-----	108.11
Hercules Powder Co., Wilmington, Delaware	Bagged Single Nutrient	2	0	-----	100.43

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Hi Yield Fertilizer Co., Bonham, Texas	Bagged Multinutrient	5	1	20.00	103.37
Highway 79 Farm Center, O'Fallon, Mo.	Bulk Multinutrient	4	0	-----	102.25
Joe Herigon, Chamois, Mo.	Liquid Single Nutrient	1	0	-----	100.19
Hoffman & Reed Farm Supply, Trenton, Mo.	Bulk Multinutrient	8	0	.00	103.24
	Anhydrous Ammonia	1	0	-----	-----#
Holden Fertilizer Service, Holden, Mo.	Bagged Multinutrient	3	0	-----	100.28
	Bulk Multinutrient	3	0	-----	101.02
	Liquid Single Nutrient	4	0	-----	99.66
	Rock Phosphate	1	0	-----	99.09
Holland Liquid Fertilizer Co., Holland, Mo.	Liquid Multinutrient	4	0	-----	100.85
Holliday Farm Service Center, Holliday, Mo.	Bulk Multinutrient	5	1	20.00	101.18
Holt County Cooperative Assn., Mound City, Mo.	Bulk Multinutrient	6	0	.00	103.36
	Bulk Single Nutrient	2	0	-----	100.58
	Liquid Single Nutrient	1	0	-----	102.63
Holt County Fertilizer Co., Inc., Forest City, Mo.	Bagged Multinutrient	2	1	-----	104.50
	Bulk Multinutrient	6	1	16.67	103.23
Hooker Brothers, Chula, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Howard County Farm Supply, Fayette, Mo.	Liquid Multinutrient	4	0	-----	101.28
	Liquid Single Nutrient	4	0	-----	98.83
Houston Mill, Houston, Mo.	Bulk Multinutrient	4	1	-----	99.35
D. D. Humphrey, Moscow Mills, Mo.	Liquid Multinutrient	3	0	-----	100.94
Humphrey Produce, Monticello, Mo.	Bulk Multinutrient	8	0	.00	101.40
Noble Hudson, & Son, Lebanon, Mo.	Bulk Multinutrient	4	0	-----	100.14
Hutcherson Grain Elevator, Clarence, Mo.	Bulk Multinutrient	4	0	-----	99.42
Hy-Brid Sales Co., Council Bluffs, Iowa	Bagged Single Nutrient	1	1	-----	76.06
International Minerals & Chemical Corp., Ft. Worth, Texas	Bagged Multinutrient	2	0	-----	102.01
International Min. & Chem. Corp., Skokie, Ill.	Bagged Single Nutrient	1	0	----	101.70
	Bulk Single Nutrient	1	0	-----	100.85
	Rock Phosphate	4	0	-----	101.76
International Min. & Chem. Corp., Texarkana, Ark.	Bagged Multinutrient	3	0	-----	101.37
Francis Irle, Warrensburg, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Jamesport Farm Supply Co., Jamesport, Mo.	Bulk Multinutrient	3	0	-----	102.65
	Liquid Single Nutrient	1	0	-----	100.63
Jasper Implement Co., Jasper, Mo.	Bulk Multinutrient	2	0	-----	100.40
Jerman Farm Supply, Inc., Vandalia, Mo.	Liquid Multinutrient	9	1	11.11	100.02

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Damon Johnson, Hayti, Mo.	Liquid Multinutrient	2	1	-----	99.41
Johnson Seed Service, St. Joseph, Mo.	Bulk Multinutrient	1	0	-----	99.78
Johnson Fertilizer Service, Mt. Vernon, Mo.	Bulk Multinutrient	6	1	16.67	100.35
	Bulk Single Nutrient	1	0	-----	99.85
	Rock Phosphate	1	0	-----	100.35
Kelsay Feed & Grain, Urich, Mo.	Bulk Multinutrient	2	0	-----	103.43
Kennett Liquid Fertilizer Co., Kennett, Mo.	Liquid Multinutrient	6	1	16.67	100.13
	Liquid Single Nutrient	3	0	-----	100.77
Kalium Chemicals, LTD., Regina, Saskatchewan	Bagged Single Nutrient	1	0	-----	101.55
Kersting & Fennewald, Martinsburg, Mo.	Liquid Multinutrient	4	0	-----	103.20
	Rock Phosphate	1	0	-----	99.87
Kerr Grain & Seed Co., Memphis, Mo.	Bulk Multinutrient	5	0	.00	100.83
Kilkenny Fertilizer Co., West Plains, Mo.	Bulk Multinutrient	3	1	-----	101.84
	Bulk Single Nutrient	1	0	-----	102.21
King City Elevator, King City, Mo.	Bulk Multinutrient	2	0	-----	100.64
	Bulk Single Nutrient	2	0	-----	101.86
	Rock Phosphate	1	0	-----	99.63
Kingdom Feed Service, Fulton, Mo.	Liquid Multinutrient	1	0	-----	103.40
	Liquid Single Nutrient	2	0	-----	100.32
C. G. King & Co., Inc., Poplar Bluff, Mo.	Bagged Multinutrient	4	2	-----	103.13
	Bulk Multinutrient	12	5	41.67	100.81
	Anhydrous Ammonia	1	0	-----	-----#
James Kircher, Harrisonville, Mo.	Liquid Single Nutrient	1	0	-----	99.97
Kirchner & Sons, St. Patrick, Mo.	Bulk Multinutrient	2	0	-----	100.31
Kirgan Elevator, St. James, Mo.	Bulk Multinutrient	5	0	.00	100.63
Kirksville Agriculture Center, Kirksville, Mo.	Liquid Single Nutrient	2	0	-----	100.32
Kochs Fertilizer Service, Inc., Brunswick, Mo.	Bagged Multinutrient	2	0	-----	100.07
	Bulk Multinutrient	1	0	-----	98.21
	Liquid Multinutrient	3	0	-----	100.13
	Liquid Single Nutrient	5	0	.00	100.42
Lafayette M.F.A., Lexington, Mo.	Liquid Multinutrient	4	0	-----	99.86
Dale M. Lacy, Drexel, Mo.	Liquid Multinutrient	4	0	-----	104.00
	Liquid Single Nutrient	2	0	-----	102.61
Lammers Elevator Co., Boonville, Mo.	Liquid Single Nutrient	2	0	-----	100.72
Clifford LaPlant, Sikeston, Mo.	Bulk Multinutrient	2	0	-----	101.54
Leeton Elevator, Leeton, Mo.	Bulk Multinutrient	7	1	14.29	102.98
	Bulk Single Nutrient	1	0	-----	102.53
Leuthart Elevator, Amsterdam, Mo.	Bulk Multinutrient	2	0	-----	100.06
Levasy Elevator Co., Levasy, Mo.	Liquid Multinutrient	2	0	-----	99.58
	Liquid Single Nutrient	2	0	-----	100.04

TABLE 4 - CONTINUED

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Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Liberal Produce, Liberal, Mo.	Bulk Multinutrient	6	0	.00	100.37
Lilbourn Liquid Fertilizer, Lilbourn, Mo.	Liquid Multinutrient	1	1	-----	88.87
Lincoln County Farm Bureau Service Co., Troy, Mo.	Bulk Multinutrient	10	0	.00	102.63
	Anhydrous Ammonia	1	0	-----	-----#
Liquid Fertility & Chemical Co., Monett, Mo.	Liquid Multinutrient	1	1	-----	96.58
Lite Weight Products, Inc., Kansas City, Mo.	Bagged Multinutrient	3	0	-----	103.37
Loeffler Fertilizer Service, Lees Summit, Mo.	Liquid Multinutrient	3	2	-----	101.50
	Liquid Single Nutrient	1	0	-----	100.97
Gabe Logsdon & Sons, Wayland, Mo.	Bulk Multinutrient	3	0	-----	101.36
Loida Farm Supply, Ste. Genevieve, Mo.	Liquid Multinutrient	2	0	-----	98.96
Loncala Phosphate Co., High Springs, Fla.	Liquid Single Nutrient	1	0	-----	105.14
Charles H. Long, Urich, Mo.	Bulk Multinutrient	5	0	.00	100.30
Ludlow Elevator, Ludlow, Mo.	Bulk Multinutrient	4	1	-----	101.87
	Liquid Single Nutrient	2	0	-----	100.42
McHoney Seed Company, Holden, Mo.	Liquid Multinutrient	1	0	-----	101.07
	Liquid Single Nutrient	1	0	-----	99.57
McQuerter Chemical Co., Inc., Mt. Vernon, Mo.	Bagged Multinutrient	11	2	18.18	104.12
	Bulk Multinutrient	3	0	-----	102.79
Maczuk, Inc., Hughesville, Mo.	Liquid Multinutrient	3	0	-----	102.08
	Liquid Single Nutrient	1	0	-----	100.70
Maczuk, Inc., New Haven, Mo.	Liquid Multinutrient	12	0	.00	102.90
	Liquid Single Nutrient	1	0	-----	100.63
Mainord Warehouse, East Prairie, Mo.	Bulk Multinutrient	3	0	-----	100.42
	Anhydrous Ammonia	1	0	-----	-----#
Marshall Feed & Supply, Jamestown, Mo.	Liquid Single Nutrient	1	0	-----	100.66
Masterson Feed & Grain, Lamar, Mo.	Bulk Multinutrient	5	0	.00	100.72
Marthasville Feed & Supply, Marthasville, Mo.	Liquid Single Nutrient	1	0	-----	102.79
Maryville Feeders Supply, Maryville, Mo.	Bulk Multinutrient	9	2	22.22	100.13
J. H. Melies, Marshall, Mo.	Liquid Multinutrient	3	0	-----	100.65
	Liquid Single Nutrient	2	0	-----	99.93
Mendon Feed & Grain Co., Mendon, Mo.	Bulk Multinutrient	2	0	-----	101.56
Mid Missouri Farmers Cooperative, Fayette, Mo.	Bulk Multinutrient	5	0	.00	103.79
	Liquid Single Nutrient	1	0	-----	99.57
	Rock Phosphate	3	0	-----	103.09
Midwest Plant Food & Supply Co., Springfield, Mo.	Bulk Multinutrient	8	1	12.50	102.04
	Bulk Single Nutrient	1	0	-----	99.64
	Rock Phosphate	2	0	-----	105.98
Midway Feed & Supply Co., Chillicothe, Mo.	Bulk Multinutrient	6	0	.00	99.85

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Miller Agricultural Chemical Co., Granger, Mo.	Bagged Multinutrient	6	0	.00	102.34
	Bulk Multinutrient	2	0	-----	100.76
	Bulk Single Nutrient	1	0	-----	103.57
	Liquid Multinutrient	5	0	.00	100.89
	Liquid Single Nutrient	1	0	-----	98.09
Milnes Feed & Produce, Paris, Mo.	Bulk Multinutrient	1	1	-----	96.71
Mississippi County Fertilizer Co., East Prairie, Mo.	Bulk Multinutrient	2	0	-----	101.64
Mississippi Valley Chemical Co., Palmyra, Mo.	Bulk Single Nutrient	2	0	-----	102.47
	Liquid Multinutrient	6	2	33.33	99.18
Missouri Delta Chemical Co., Advance, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Missouri Farmers Association, Columbia, Mo.	Bagged Multinutrient	443	33	7.45	101.51
	Bagged Single Nutrient	3	0	-----	101.38
	Bulk Multinutrient	2	1	-----	101.54
M.F.A. Plant Food Div., Albany, Mo.	Bulk Multinutrient	10	1	10.00	102.88
M.F.A. Plant Food Div., Aurora, Mo.	Bulk Multinutrient	13	1	7.69	101.53
	Rock Phosphate	1	0	-----	102.00
M.F.A. Plant Food Div., Brookfield, Mo.	Bulk Multinutrient	5	1	20.00	100.12
M.F.A. Plant Food Div., Browning, Mo.	Bulk Multinutrient	7	0	.00	101.93
M.F.A. Plant Food Div., Butler, Mo.	Bulk Multinutrient	12	3	25.00	102.56
	Bulk Single Nutrient	1	0	-----	98.64
	Rock Phosphate	3	0	-----	101.74
M.F.A. Plant Food Div., Cabool, Mo.	Bulk Multinutrient	12	0	.00	100.06
M.F.A. Plant Food Div., California, Mo.	Bulk Multinutrient	5	0	.00	102.24
M.F.A. Plant Food Div., Carthage, Mo.	Bulk Multinutrient	6	0	.00	101.39
	Bulk Single Nutrient	1	0	-----	100.90
M.F.A. Plant Food Div., Centralia, Mo.	Bulk Multinutrient	6	0	-----	102.88
	Rock Phosphate	1	0	-----	101.06
M.F.A. Plant Food Div., Chillicothe, Mo.	Bulk Multinutrient	5	2	40.00	99.90
	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Plant Food Div., Cole Camp, Mo.	Bulk Multinutrient	8	1	12.50	101.34
	Bulk Single Nutrient	1	0	-----	99.09
M.F.A. Plant Food Div., Columbia, Mo.	Bulk Multinutrient	4	0	-----	104.74
M.F.A. Plant Food Div., Eldon, Mo.	Bulk Multinutrient	11	0	.00	102.45
M.F.A. Plant Food Div., Eldorado Springs, Mo.	Bulk Multinutrient	16	1	6.25	101.70
M.F.A. Plant Food Div., Elsberry, Mo.	Bulk Multinutrient	5	0	.00	102.19
M.F.A. Plant Food Div., Fairfax, Mo.	Bulk Multinutrient	5	0	.00	101.76
	Bulk Single Nutrient	3	0	-----	101.61
	Rock Phosphate	1	0	-----	101.51
M.F.A. Plant Food Div., Freeburg, Mo.	Bulk Multinutrient	15	3	20.00	101.54
	Bulk Single Nutrient	1	0	-----	100.67

TABLE 4 - CONTINUED

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Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
M.F.A. Plant Food Div., Gallatin, Mo.	Bulk Multinutrient	12	1	8.33	101.77
	Bulk Single Nutrient	3	0	-----	101.10
	Rock Phosphate	2	0	-----	100.89
	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Plant Food Div., Higginsville, Mo.	Bulk Multinutrient	4	0	-----	104.66
	Rock Phosphate	1	0	-----	102.16
M.F.A. Plant Food Div., Iantha, Mo.	Bulk Multinutrient	4	0	-----	106.50
M.F.A. Plant Food Div., Jefferson City, Mo.	Bulk Multinutrient	9	0	.00	100.13
	Rock Phosphate	2	1	-----	100.03
M.F.A. Plant Food Div., Kirksville, Mo.	Bulk Multinutrient	10	2	20.00	102.68
M.F.A. Plant Food Div., Kahoka, Mo.	Bulk Multinutrient	1	0	-----	101.37
M.F.A. Plant Food Div., La Belle, Mo.	Bulk Multinutrient	12	0	.00	103.77
M.F.A. Plant Food Div., Lebanon, Mo.	Bulk Multinutrient	16	1	6.25	101.02
	Bulk Single Nutrient	1	0	-----	101.85
	Rock Phosphate	1	0	-----	102.41
M.F.A. Plant Food Div., Milan, Mo.	Bulk Multinutrient	5	0	.00	103.61
M.F.A. Plant Food Div., Lockwood, Mo.	Bulk Multinutrient	20	0	.00	101.13
	Bulk Single Nutrient	2	0	-----	101.27
M.F.A. Plant Food Div., McKittrick, Mo.	Bulk Multinutrient	8	0	.00	104.39
	Rock Phosphate	1	0	-----	102.19
M.F.A. Plant Food Div., Macon, Mo.	Bulk Multinutrient	8	1	12.50	103.00
M.F.A. Plant Food Division, Neosho, Mo.	Bulk Multinutrient	4	0	-----	101.01
	Bulk Single Nutrient	1	0	-----	100.77
	Rock Phosphate	1	0	-----	100.00
M.F.A. Plant Food Div., Mansfield, Mo.	Bulk Multinutrient	8	0	.00	100.83
	Rock Phosphate	2	0	-----	100.59
M.F.A. Plant Food Div., Martinsburg, Mo.	Bulk Multinutrient	10	0	.00	102.21
	Bulk Single Nutrient	1	0	-----	101.28
M.F.A. Plant Food Div., Maysville, Mo.	Bulk Multinutrient	11	1	9.09	104.30
M.F.A. Plant Food Div., Moberly, Mo.	Bulk Multinutrient	4	0	-----	102.75
M.F.A. Plant Food Div., Owensville, Mo.	Bulk Multinutrient	16	1	6.25	103.17
M.F.A. Plant Food Div., Pendleton, Mo.	Bulk Multinutrient	9	1	11.11	100.73
	Bulk Single Nutrient	1	0	-----	100.63
	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Plant Food Div., Rolla, Mo.	Bulk Multinutrient	17	0	.00	100.75
	Bulk Single Nutrient	1	0	-----	100.90
M.F.A. Plant Food Div., Salem, Mo.	Bulk Multinutrient	5	0	.00	100.75
	Rock Phosphate	2	0	-----	100.59
M.F.A. Plant Food Div., Slater, Mo.	Bulk Multinutrient	2	1	-----	102.12
M.F.A. Plant Food Div., Springfield, Mo.	Bulk Multinutrient	24	2	8.33	104.19
	Rock Phosphate	1	0	-----	100.70
M.F.A. Plant Food Div., Sweet Springs, Mo.	Bulk Multinutrient	1	0	-----	101.26
	Rock Phosphate	1	0	-----	101.64

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
M.F.A. Plant Food Div., Trenton, Mo.	Bulk Multinutrient	4	0	-----	102.75
M.F.A. Plant Food Div., Union, Mo.	Bulk Multinutrient	19	1	5.26	100.12
	Rock Phosphate	1	0	-----	105.51
M.F.A. Plant Food Div., Unionville, Mo.	Bulk Multinutrient	2	0	-----	102.83
M.F.A. Plant Food Div., Vandalia, Mo.	Bulk Multinutrient	5	0	.00	100.91
	Rock Phosphate	1	0	-----	103.03
	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Plant Food Div., Weaubleau, Mo.	Bulk Multinutrient	7	0	.00	104.07
	Bulk Single Nutrient	1	0	-----	101.10
M.F.A. Plant Food Div., Wentzville, Mo.	Bulk Multinutrient	17	1	5.88	101.93
M.F.A. Plant Food Division, West Plains, Mo.	Bulk Multinutrient	7	0	.00	99.21
M.F.A. Plant Food Div., Windsor, Mo.	Bulk Multinutrient	2	0	-----	100.98
M.F.A. Central Cooperative, Bethany, Mo.	Rock Phosphate	1	0	-----	103.87
M.F.A. Central Cooperative, Bernie, Mo.	Bagged Multinutrient	1	0	-----	103.94
	Bulk Multinutrient	8	3	37.50	103.24
	Bulk Single Nutrient	2	0	-----	101.32
M.F.A. Central Cooperative, Boonville, Mo.	Bulk Multinutrient	3	0	-----	104.19
M.F.A. Central Cooperative, Cameron, Mo.	Bulk Multinutrient	2	0	-----	104.19
M.F.A. Central Cooperative, Canton, Mo.	Bulk Multinutrient	3	0	-----	104.29
M.F.A. Central Cooperative, Centerview, Mo.	Bulk Multinutrient	1	1	-----	111.95
	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Central Cooperative, Farmington, Mo.	Bulk Multinutrient	6	2	33.33	96.89
M.F.A. Central Cooperative, Fulton, Mo.	Bulk Multinutrient	5	3	60.00	108.18
	Rock Phosphate	1	0	-----	98.93
M.F.A. Central Cooperative, Harrisonville, Mo.	Bulk Multinutrient	7	4	57.14	100.45
	Rock Phosphate	1	0	-----	100.74
M.F.A. Central Cooperative, Jackson, Mo.	Bulk Multinutrient	2	1	-----	112.59
M.F.A. Central Cooperative, Louisiana, Mo.	Bulk Multinutrient	5	3	60.00	102.49
	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Central Cooperative, Marshall, Mo.	Bulk Multinutrient	3	0	-----	101.49
M.F.A. Central Cooperative, Perry, Mo.	Bulk Multinutrient	2	0	-----	102.12
M.F.A. Central Cooperative, Perryville, Mo.	Bulk Multinutrient	3	0	-----	99.32
	Rock Phosphate	1	0	-----	102.87
M.F.A. Central Cooperative, Shelbina, Mo.	Bulk Multinutrient	5	0	.00	101.84
M.F.A. Central Cooperative, Ste. Genevieve, Mo.	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Central Cooperative, Syracuse, Mo.	Bulk Multinutrient	5	0	.00	108.96

TABLE 4 - CONTINUED

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Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
M.F.A. Central Cooperative, Sedalia, Mo.	Anhydrous Ammonia	1	0	-----	-----#
M.F.A. Central Cooperative, Wyaconda, Mo.	Bulk Multinutrient	2	0	-----	103.12
M.F.A. Cooperative Association, California, Mo.	Rock Phosphate	1	0	-----	105.46
M.F.A. State Exchange, Maryville, Mo.	Bulk Multinutrient	7	1	14.29	101.53
	Rock Phosphate	2	0	-----	102.12
C. E. Mollet, Mexico, Mo.	Liquid Multinutrient	1	0	-----	103.11
Missouri Growers, Carrollton, Mo.	Liquid Single Nutrient	1	0	-----	101.57
Monsanto Company, East Prairie, Mo.	Bulk Multinutrient	2	0	-----	100.58
Monsanto Company, Essex, Mo.	Bulk Multinutrient	8	1	12.50	102.50
	Anhydrous Ammonia	1	0	-----	-----#
Monsanto Co., Charleston, Mo.	Bulk Multinutrient	4	0	-----	102.56
Monsanto Company, Kennett, Mo.	Bulk Multinutrient	5	0	.00	102.89
	Liquid Multinutrient	2	0	-----	98.39
	Liquid Single Nutrient	1	0	-----	103.53
	Anhydrous Ammonia	1	0	-----	-----#
Monsanto Co., Mt. Vernon, Mo.	Bulk Multinutrient	7	3	42.86	99.20
Monsanto Company, Portageville, Mo.	Bulk Multinutrient	2	0	-----	100.71
	Anhydrous Ammonia	1	0	-----	-----#
Monsanto Company, St. Louis, Mo.	Bagged Multinutrient	35	4	11.43	102.10
	Bulk Multinutrient	1	0	-----	106.73
	Liquid Single Nutrient	1	0	-----	100.24
Morgan County Crop Service, Stover, Mo.	Bulk Multinutrient	6	0	.00	100.21
Morley Farm Supply, Morley, Mo.	Bulk Multinutrient	2	0	-----	98.02
C. Q. Myers, Knox City, Mo.	Bulk Multinutrient	4	0	-----	103.04
Nachurs Plant Food Co., Marion, Ohio	Liquid Multinutrient	11	1	9.09	99.28
National Gas Co. of Missouri Poplar Bluff, Mo.	Liquid Multinutrient	2	0	-----	100.37
	Liquid Single Nutrient	1	0	-----	100.54
National Gas Company of Missouri, Sikeston, Mo.	Liquid Multinutrient	1	0	-----	101.96
	Liquid Single Nutrient	1	0	-----	100.41
National Phosphate Co., Marseilles, Ill.	Bulk Multinutrient	1	0	-----	102.15
Naylor Fertilizer Service, Salisbury, Mo.	Bulk Multinutrient	1	0	-----	107.69
Neelyville Grain Co., Neelyville, Mo.	Bulk Multinutrient	6	1	16.67	100.60
Neils Fertilizer Service, Fairport, Mo.	Liquid Single Nutrient	1	0	-----	99.69
Garland Nelson, Drexel, Mo.	Bulk Multinutrient	2	0	-----	101.23

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Howard Nelson, Drexel, Mo.	Bulk Multinutrient	6	0	.00	104.86
	Rock Phosphate	1	0	-----	101.35
Nevada Fertilizers, Inc., Nevada, Mo.	Bagged Multinutrient	8	2	25.00	100.43
	Bulk Multinutrient	10	1	10.00	102.50
	Bulk Single Nutrient	1	0	-----	102.75
	Rock Phosphate	1	0	-----	102.16
Newman Farm Chemical Supply, Breckenridge, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Nipak, Inc., Dallas, Texas	Bagged Multinutrient	58	4	6.90	103.46
	Bagged Single Nutrient	4	0	-----	100.83
	Bulk Multinutrient	1	0	-----	108.15
	Bulk Single Nutrient	1	0	-----	101.80
Nitrogen Div., Allied Chemical Corp., S. Omaha, Nebr.	Liquid Single Nutrient	6	0	.00	99.55
Norris Grain Co., Lamar, Mo.	Liquid Multinutrient	5	1	20.00	99.17
	Liquid Single Nutrient	2	1	-----	99.43
Norris Implement Co., Unionville, Mo.	Bulk Multinutrient	9	0	.00	99.96
Northeast Missouri Cooperative Services, Edina, Mo.	Bulk Multinutrient	28	4	14.29	101.67
Oakville Gin Co., Steele, Mo.	Liquid Multinutrient	3	0	-----	102.07
O'Connell Farm Supply, Oregon, Mo.	Liquid Single Nutrient	1	0	-----	100.69
Olin Mathieson Chemical Corp., Little Rock, Ark.	Bagged Multinutrient	265	16	6.04	101.81
	Bagged Single Nutrient	1	0	-----	100.42
	Bulk Multinutrient	2	0	-----	100.61
Osborn Farm Service, Inc., Osborn, Mo.	Bulk Multinutrient	5	1	20.00	96.64
Organic Compost Corp., Germantown, Wisc.	Bagged Multinutrient	1	0	-----	395.00
Passaic Grain & Wholesale Co., Inc., Passaic, Mo.	Bulk Multinutrient	5	1	20.00	99.55
	Bulk Single Nutrient	2	0	-----	100.88
	Liquid Single Nutrient	1	0	-----	111.21
	Rock Phosphate	1	0	-----	102.35
Parman Sales Co., Albany, Mo.	Liquid Single Nutrient	1	0	-----	100.78
Pearce Produce & Hatchery, Fairfax, Mo.	Liquid Multinutrient	1	1	-----	96.95
George M. Pease, Vandalia, Mo.	Liquid Multinutrient	4	1	-----	103.80
Peoples Elevator, Rich Hill, Mo.	Bulk Multinutrient	5	0	.00	99.67
Perkins Feed & Fertilizer, Perkins, Mo.	Bulk Multinutrient	1	0	-----	101.49
	Bulk Single Nutrient	1	0	-----	102.45
Wren Peve Produce, Hopkins, Mo.	Bulk Multinutrient	3	0	-----	104.38
Plantabbs Corp., Timonium, Maryland	Bagged Multinutrient	1	0	-----	128.48
John W. Pitzer, Louisiana, Mo.	Liquid Single Nutrient	1	0	-----	100.66
	Anhydrous Ammonia	1	0	-----	-----#
Plant Shine Co., St. Louis, Mo.	Bagged Multinutrient	1	0	-----	100.15

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Pleasant Hill Grain & Supply, Inc., Pleasant Hill, Mo.	Bulk Multinutrient Anhydrous Ammonia	2 1	0 0	----- -----	101.84 -----#
Polley Brothers Feed, Grain & Fertilizer, Ridgeway, Mo.	Bulk Multinutrient	2	0	-----	103.08
Polo Farm Supply, Polo, Mo.	Bulk Multinutrient Liquid Single Nutrient	4 1	0 0	----- -----	99.11 99.11
Portageville Seed & Supply, Portageville, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Potash Co. of America, Carlsbad, N.M.	Bagged Single Nutrient Bulk Single Nutrient	1 1	0 0	----- -----	101.72 99.68
Prairie Gold Implement Co., Trenton, Mo.	Liquid Multinutrient Liquid Single Nutrient	1 1	0 0	----- -----	100.45 103.18
Prairie Milling Co., Bellflower, Mo.	Bulk Multinutrient	3	0	-----	100.01
Producers Grain Co., Eldorado Springs, Mo.	Rock Phosphate	1	0	-----	101.29
Producers Exchange #138, Marshfield, Mo.	Bulk Multinutrient	12	0	.00	101.79
Prost Alfalfa Mill, Perryville, Mo.	Bulk Multinutrient	1	0	-----	103.45
Pyeatt Fertilizer Service, Butler, Mo.	Liquid Single Nutrient	1	0	-----	101.13
Ambrose Quinn, Monroe City, Mo.	Bulk Multinutrient	2	0	-----	103.54
Rains & Legrand, Poplar Bluff, Mo.	Bulk Multinutrient	1	0	-----	98.18
Randolph County Phosphate Co., Cairo, Mo.	Bulk Multinutrient	8	0	.00	100.84
Ra-Pid-Gro Corp., Danville, N.Y.	Bagged Multinutrient	3	1	-----	101.57
Raspberry Gin Co., Holcomb, Mo.	Bulk Multinutrient	3	0	-----	100.94
Ray-Carroll County Grain Growers, Carrollton, Mo.	Bagged Multinutrient Bulk Multinutrient Liquid Single Nutrient	5 1 1	0 0 0	.00 ----- -----	102.72 100.05 102.36
Ray-Carroll County Grain Growers, Norborne, Mo.	Bulk Multinutrient	4	0	-----	102.69
Ray-Carroll County Grain Growers, Sumner, Mo.	Bulk Multinutrient	2	0	-----	102.84
Rea Grain & Feed Co., Rea, Mo.	Bulk Multinutrient Bulk Single Nutrient Liquid Single Nutrient	7 1 1	0 0 0	.00 ----- -----	100.09 101.37 99.62
Reynolds & Gliser, Paris, Mo.	Bulk Multinutrient	2	0	-----	101.94
Rhineland Grain Co., Rhineland, Mo.	Liquid Single Nutrient	1	0	-----	101.97
Rice Feed Service, Golden City, Mo.	Liquid Single Nutrient	2	0	-----	103.46
Richland Plant Food Service, Richland, Mo.	Bulk Multinutrient Rock Phosphate	4 2	2 0	----- -----	105.14 103.86
Marvin Richter Co., Pleasant Hill, Ill.	Bulk Multinutrient	1	0	-----	98.87

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Riddle & Smith, Buell, Mo.	Bulk Multinutrient	3	0	-----	100.82
R.M. Robinette, Odessa, Mo.	Bulk Multinutrient	6	0	.00	103.44
Rolf Supply Co., Rockport, Mo.	Bagged Multinutrient	3	1	-----	100.63
	Liquid Multinutrient	11	1	9.09	101.24
W. A. Rootes & Co., Tebbets, Mo.	Liquid Multinutrient	3	1	-----	98.36
	Liquid Single Nutrient	2	0	-----	102.02
Ross Daniels, Inc., Des Moines, Iowa	Bagged Multinutrient	1	0	-----	110.58
Russell & Sons Fertilizer Co., Richmond, Mo.	Bulk Multinutrient	2	0	-----	101.41
St. Charles Co. Farm Bureau Service Co., St. Charles, Mo.	Bulk Multinutrient	5	2	40.00	103.71
Saale Bros. Farm & Grain Co., West Alton, Mo.	Liquid Multinutrient	6	1	16.67	103.10
	Liquid Single Nutrient	1	0	-----	101.16
Sapp & Arnold, Ashland, Mo.	Liquid Single Nutrient	1	0	-----	99.63
Virgil Schafer, Salem, Mo.	Bulk Multinutrient	2	0	-----	101.77
	Rock Phosphate	2	0	-----	104.85
Schaeperkoetter Store, Inc., Mt. Sterling, Mo.	Bulk Multinutrient	8	1	12.50	99.33
	Bulk Single Nutrient	1	0	-----	100.50
Schrock Fertilizer Div., Tuloma Gas Products, Morton, Ill.	Liquid Single Nutrient	8	0	.00	100.52
Schrock Fertilizer Div., Tuloma Gas Products Co., Mexico, Mo.	Liquid Multinutrient	81	8	9.88	103.27
Schrock Fertilizer Div., Tuloma Gas Products Co., Stewartsville, Mo.	Liquid Multinutrient	26	3	11.54	108.59
	Liquid Single Nutrient	1	0	-----	100.64
O.M. Scott & Sons Co., Marysville, Ohio	Bagged Multinutrient	8	0	.00	103.18
Lyonel Schweerkotting, Jr., McKittrick, Mo.	Liquid Single Nutrient	1	0	-----	105.03
Sears, Roebuck & Co., Chicago, Ill.	Bagged Multinutrient	10	3	30.00	100.57
Sedalia Fertilizer Corp., Sedalia, Mo.	Bulk Multinutrient	6	0	.00	101.34
	Anhydrous Ammonia	1	0	-----	-----#
Senath Bulk Fertilizer, Senath, Mo.	Bulk Multinutrient	4	0	-----	102.24
Senath Fertilizer Co., Senath, Mo.	Liquid Multinutrient	3	0	-----	103.65
	Liquid Single Nutrient	1	0	-----	101.53
Sewerage Commission of Milwaukee, Milwaukee, Wisc.	Bagged Multinutrient	1	0	-----	111.00
Shawneetown Feed & Seed, Shawneetown, Mo.	Bulk Multinutrient	1	0	-----	102.27
Sheets Lime & Fertilizer, Golden City, Mo.	Bulk Multinutrient	1	0	-----	100.73
Shelby-Macon Fertilizer Co., Clarence, Mo.	Bulk Multinutrient	8	1	12.50	101.84
	Bulk Single Nutrient	1	0	-----	100.37
	Liquid Single Nutrient	2	0	-----	98.48
Sherwood & Son, Kahoka, Mo.	Bulk Multinutrient	6	0	.00	101.13

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Sheldon Produce, Sheldon, Mo.	Bulk Multinutrient	5	0	.00	100.35
W. W. Sherwood Gin Co., Tallapoosa, Mo.	Liquid Multinutrient	2	1	-----	98.59
	Liquid Single Nutrient	1	0	-----	99.03
Silveys Feed Store, Potosi, Mo.	Bulk Multinutrient	4	0	-----	101.10
Simpson Fertilizer Co., Malta Bend, Mo.	Bulk Multinutrient	3	0	-----	101.10
	Bulk Single Nutrient	1	0	-----	101.15
Simon Soil Service, Portage Des-Sioux, Mo.	Bulk Single Nutrient	1	0	-----	102.39
J. R. Simplot Co., Pocatello, Idaho	Bulk Multinutrient	1	0	-----	98.97
Paul Skaggs & Sons, Fredericktown, Mo.	Bulk Multinutrient	6	2	33.33	100.39
	Rock Phosphate	4	0	-----	107.95
Skidmore Feed Co., Skidmore, Mo.	Bulk Multinutrient	1	0	-----	99.72
Smith Brothers Produce, Wyaconda, Mo.	Bulk Multinutrient	6	0	.00	100.65
Smith Brothers Soil Service, Kirkville, Mo.	Bulk Multinutrient	2	0	-----	100.46
Smith Douglass Co., Inc., Norfolk, Va.	Bagged Multinutrient	4	0	-----	109.87
Smith Potting Soil Co., Tulsa, Okla.	Bagged Multinutrient	1	0	-----	102.85
Sohigro Service Co., Rich Hill, Mo.	Bulk Multinutrient	7	0	.00	99.51
	Liquid Single Nutrient	2	0	-----	99.59
	Rock Phosphate	1	0	-----	104.09
Solar Nitrogen Chemicals, Inc., Lima, Ohio	Bagged Single Nutrient	1	0	-----	101.16
Spencer Chemical Co., Laplata, Mo.	Bulk Multinutrient	2	0	-----	102.47
Spencer Chemical Co., Higginsville, Mo.	Bulk Multinutrient	5	1	20.00	97.72
Southwest Lime Co., Neosho, Mo.,	Rock Phosphate	2	0	-----	100.62
Southwest Potash Corp., Carlsbad, N.M.	Bagged Single Nutrient	1	0	-----	101.45
Spencer Chemical Co., Malta Bend, Mo.	Bulk Multinutrient	5	0	.00	102.50
	Bulk Single Nutrient	1	0	-----	102.25
	Liquid Multinutrient	2	0	-----	102.23
	Liquid Single Nutrient	1	0	-----	102.47
Spencer Chemical Co., Burlington Junction, Mo.	Bulk Multinutrient	4	0	-----	100.34
Spencer Chemical Co., Hunnewell, Mo.	Bulk Multinutrient	5	0	.00	101.11
Spencer Chemical Co., Kansas City, Mo.	Bagged Multinutrient	346	16	4.62	101.21
	Bagged Single Nutrient	6	1	16.67	99.98
	Liquid Single Nutrient	5	0	.00	101.44
Spencer Chemical Co., La Belle, Mo.	Bulk Multinutrient	7	2	28.57	99.57

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Spencer Chemical Co., Thompson, Mo.	Bulk Multinutrient	13	1	7.69	100.92
	Bulk Single Nutrient	2	0	-----	100.92
	Anhydrous Ammonia	1	0	-----	-----#
Spencer Chemical Co., New Madrid, Mo.	Bulk Multinutrient	2	0	-----	100.07
Spencer Chemical Co., Memphis, Mo.	Bulk Multinutrient	3	0	-----	102.24
	Liquid Multinutrient	1	0	-----	100.78
	Liquid Single Nutrient	3	0	-----	100.52
Standley Grocery & Feed, Rothville, Mo.	Bulk Multinutrient	1	0	-----	100.99
Stadler Fertilizer Co., Cleveland, Ohio	Bagged Multinutrient	1	0	-----	103.90
Stanton & Sons, Watson, Mo.	Liquid Single Nutrient	1	0	-----	99.31
Stet Milling Co., Stet, Mo.	Bulk Multinutrient	2	0	-----	100.34
Stim-U-Plant Laboratories, Columbus, Ohio	Bagged Multinutrient	2	0	-----	133.20
Calvin Stock, Tebbetts, Mo.	Liquid Multinutrient	1	0	-----	101.57
	Liquid Single Nutrient	1	0	-----	102.97
Stoddard County Farm Bureau Service Co., Dexter, Mo.	Bulk Multinutrient	10	2	20.00	100.01
	Anhydrous Ammonia	1	0	-----	-----#
Stockman Feed & Fertilizer, Jefferson City, Mo.	Bulk Multinutrient	3	0	-----	101.29
	Liquid Single Nutrient	1	0	-----	100.11
	Rock Phosphate	1	0	-----	100.73
Stokes Gin, Malden, Mo.	Bulk Multinutrient	3	0	-----	102.17
Stuenkel Fertilizer Service, Centralia, Mo.	Bulk Multinutrient	6	0	.00	101.99
Sup Ro Manufacturing & Sales Co., Kansas City, Mo.	Bagged Multinutrient	1	0	-----	102.32
Sur Gro Plant Food Co., Liberty, Mo.	Bulk Multinutrient	6	0	.00	100.77
	Rock Phosphate	1	0	-----	106.30
Sur Gro Plant Food Co., Lawson, Mo.	Bulk Multinutrient	4	1	-----	99.76
Sur Gro Plant Food Co., Osborn, Mo.	Bulk Multinutrient	4	0	-----	99.29
	Anhydrous Ammonia	1	0	-----	-----#
Sur Gro Plant Food Co., Plattsburg, Mo.	Bagged Multinutrient	4	1	-----	104.07
	Bulk Multinutrient	12	1	8.33	101.59
	Liquid Multinutrient	2	0	-----	106.84
	Liquid Single Nutrient	1	0	-----	102.75
Sur Gro Plant Food Co., Weston, Mo.	Bulk Multinutrient	4	1	-----	100.41
	Liquid Single Nutrient	1	0	-----	101.00
Wesley Sutton, Kennett, Mo.	Bulk Multinutrient	3	0	-----	100.33
Bill Surman & Sons, Sikeston, Mo.	Bagged Multinutrient	1	1	-----	102.97
Sutton Feed Store, Belgrade, Mo.	Bulk Multinutrient	2	0	-----	99.89
	Rock Phosphate	1	0	-----	102.00
Swift & Co., National Stock Yards, Ill.	Bagged Multinutrient	170	13	7.65	101.46
	Bagged Single Nutrient	1	0	-----	102.87
Swift & Co., S. St. Joseph, Mo.	Bagged Multinutrient	39	6	15.38	101.19

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Swisher Grain Co., Centerview, Mo.	Bulk Multinutrient Anhydrous Ammonia	3 1	0 0	----- -----	104.43 -----#
T & O Rock Phosphate Co., Sedalia, Mo.	Bulk Multinutrient Anhydrous Ammonia	5 1	0 0	.00 -----	103.44 -----#
T & R Soil Service, Chillicothe, Mo.	Bagged Multinutrient Bulk Multinutrient Anhydrous Ammonia	4 9 1	1 1 0	----- 11.11 -----	105.98 101.75 -----#
Albert Taylor, Plevna, Mo.	Bulk Multinutrient	5	0	.00	101.02
R. W. Taylor Grain Co., Ladonia, Mo.	Bulk Multinutrient	4	0	-----	101.85
Taylor Feed Store, King City, Mo.	Bulk Multinutrient Liquid Single Nutrient	6 1	2 0	33.33 -----	102.34 99.34
Ten Mile Store, Macon, Mo.	Bulk Multinutrient	4	0	-----	100.40
Tennessee Valley Authority, Muscle Shoals, Ala.	Liquid Multinutrient	1	0	-----	100.61
Thompson Sale Co., Montgomery, Ala.	Rock Phosphate	1	0	-----	100.55
L. O. Tilton & Sons, Auxvasse, Mo.	Bagged Multinutrient Bulk Multinutrient	7 1	0 0	.00 -----	103.62 97.74
Tipton Farm Service, Tipton, Mo.	Anhydrous Ammonia	1	0	-----	-----#
Tri-County Grain Co., Gideon, Mo.	Bulk Multinutrient	2	0	-----	100.81
Tri-County Fertilizer Co., Jamesport, Mo.	Bulk Multinutrient	4	1	-----	99.69
Tri State Fertilizer Co., Canton, Mo.	Bagged Multinutrient Bulk Multinutrient	3 5	1 0	----- .00	100.43 102.41
Tucker Supply Co., St. James, Mo.	Bulk Multinutrient Liquid Single Nutrient	1 1	0 0	----- -----	109.32 100.96
Tuloma Gas Products Co., Tulsa, Okla.	Liquid Single Nutrient Anhydrous Ammonia	4 5	0 0	----- -----	100.89 -----#
Turner Feed Store, Knobnoster, Mo.	Bulk Multinutrient	7	0	.00	102.24
Turney Elevator, Turney, Mo.	Bulk Multinutrient	5	1	20.00	98.64
Twellman Feed & Truck Service, Bowling Green, Mo.	Bulk Multinutrient	2	0	-----	103.79
United Cooperatives, Inc., Liberty, Mo.	Bulk Multinutrient Rock Phosphate	4 1	1 0	----- -----	103.73 99.33
United Cooperatives, Inc., Plattsburg, Mo.	Bulk Multinutrient	4	1	-----	100.50
U. S. Borax & Chemical Co., Los Angeles, Calif.	Bagged Single Nutrient	1	0	-----	100.87
U. S. Phosphoric Products Div., Tenn. Corp., Tampa, Fla.	Bagged Single Nutrient	1	0	-----	101.11
Valley Ridge Gin, Campbell, Mo.	Bulk Multinutrient	4	0	-----	100.02
Valle Feed & Farm Supply, DeSota, Mo.	Bagged Multinutrient	15	2	13.33	104.11

TABLE 4 - CONTINUED

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
V. C. Chemical Co., Baring, Mo.	Bulk Multinutrient	3	1	-----	99.21
V. C. Chemical Co., East St. Louis, Ill.	Bagged Multinutrient	372	80	21.51	100.16
	Bagged Single Nutrient	4	1	-----	98.57
	Bulk Multinutrient	1	0	-----	99.87
	Rock Phosphate	4	0	-----	104.65
V. C. Chemical Co., Chaffee, Mo.	Bulk Multinutrient	2	1	-----	101.63
V. C. Chemical Co., Mexico, Mo.	Bulk Multinutrient	4	0	-----	100.45
V. C. Chemical Co., Bowling Green, Mo.	Bulk Multinutrient	3	0	-----	100.45
V. C. Chemical Co., Nevada, Mo.	Bulk Multinutrient	5	0	.00	100.02
	Bulk Single Nutrient	1	0	-----	100.39
V. C. Chemical Co., Sedalia, Mo.	Bulk Multinutrient	4	0	-----	100.24
	Liquid Single Nutrient	1	0	-----	101.68
	Rock Phosphate	1	0	-----	100.45
	Anhydrous Ammonia	1	0	-----	-----#
V. C. Chemical Co., Wellsville, Mo.	Bulk Multinutrient	8	1	12.50	101.91
Vel-Donna, Inc., Kalona, Iowa	Bagged Multinutrient	7	2	28.57	101.70
Washburn Produce, King City, Mo.	Bulk Multinutrient	2	0	-----	100.25
Walkers Feed & Produce, Madison, Mo.	Bulk Multinutrient	3	0	-----	101.69
	Liquid Single Nutrient	2	0	-----	104.02
Wallace Lime & Fertilizer Co., East Lynne, Mo.	Bulk Multinutrient	1	0	-----	100.85
	Bulk Single Nutrient	1	1	-----	95.24
Walthmath Farm Supply, Albany, Mo.	Bulk Multinutrient	6	1	16.67	99.49
Weidman Limestone Co., Westboro, Mo.	Rock Phosphate	1	0	-----	104.67
West Farm Supply, Lancaster, Mo.	Bulk Multinutrient	4	1	-----	104.48
Weis Fertilizer Service, Mound City, Mo.	Liquid Single Nutrient	1	0	-----	99.11
Western Feed & Milling Co., Springfield, Mo.	Bulk Multinutrient	8	0	.00	99.95
	Liquid Single Nutrient	1	0	-----	102.11
Wheeling Grain & Feed Co., Wheeling, Mo.	Bulk Multinutrient	4	0	-----	99.96
	Rock Phosphate	1	0	-----	104.67
Wholesale Farm Chemicals, Inc., Harrisonville, Mo.	Bulk Multinutrient	4	3	-----	103.59
George Willard Feed Mill & Fertilizer Service, Springfield, Mo.	Bulk Multinutrient	9	1	11.11	102.97
	Bulk Single Nutrient	3	0	-----	100.92
Williams Bros., Louisburg, Mo.	Bulk Multinutrient	4	0	-----	99.06
Williams Rock Co., Inc., Clinton, Mo.	Bulk Multinutrient	6	1	16.67	100.22
	Rock Phosphate	1	0	-----	101.38
Wills Feed Store, Centralia, Mo.	Bulk Multinutrient	1	0	-----	101.67
Windsor Fertilizer Co., Windsor, Mo.	Bagged Multinutrient	15	1	6.67	101.68
	Bulk Multinutrient	2	0	-----	100.71

TABLE 4 - CONTINUED

31

Guarantor	Kind of Fertilizer	Total Number of Samples	Samples Subject to Penalty		% Relative Value**
			No.	%*	
Wisner Mill, Nixa, Mo.	Bulk Multinutrient	5	0	.00	101.58
Frank Woodruff, Sturgeon, Mo.	Rock Phosphate	1	0	-----	100.00
Wright & Dickey, Bismarck, Mo.	Bulk Multinutrient	6	2	33.33	99.11
	Rock Phosphate	1	0	-----	103.80
Youngs Produce, Alton, Mo.	Bulk Multinutrient	3	0	-----	100.38

*Percentage Values are calculated only where five or more samples were secured.

#All lots of Anhydrous Ammonia checked were found at least equal to guarantee.

SUMMARY OF SAMPLES ANALYZED ACCORDING TO KIND OF FERTILIZER

Kind of Fertilizer	Total No. of Samples	Subject to Penalty		% Relative Value**
		No.	%	
Bagged Multinutrient	3200	286	8.94	101.30
Bagged Single Nutrient	43	3	6.98	100.30
All Bagged Fertilizers	3243	289	8.91	101.28
Bulk Multinutrient	1780	166	9.33	101.56
Bulk Single Nutrient	92	3	3.26	102.00
All Dry Bulk Fertilizers	1872	169	9.03	101.58
Liquid Multinutrient	429	49	11.42	101.56
Liquid Single Nutrient	189	2	1.06	100.64
All Liquid Fertilizers	618	51	8.25	101.16
Rock Phosphate	113	3	2.65	102.20
Anhydrous Ammonia	60	0	.00	100.04
All Fertilizers	5906	512	8.67	101.34

**The following values are used in determining relative value and in assessing penalties:

Nitrogen -----	\$3.00 per unit (15¢ per pound)
Available P ₂ O ₅ -----	2.00 per unit (10¢ per pound)
Potash -----	1.00 per unit (5¢ per pound)
Total P ₂ O ₅ in Rock Phosphate -----	.72 per unit (3.6¢ per pound)

FERTILIZER TONNAGE FEES AND PENALTIES

The Missouri Fertilizer Law provides that a fee of 1½¢ for each 100 pounds of fertilizer sold for use in the state shall be paid by the registered distributor to the Director of the Missouri Agricultural Experiment Station. These fees are specified to be used "for defraying expenses in administering section 266.290 to 266.350 and for practical and scientific experiments by the Missouri Agricultural Experiment Station in the value and proper use of fertilizers, and for publishing the results of the same, and for other works, projects, research, investigations and publications as may be of practical value to the farmers of this state."

In addition to the tonnage fees, penalties assessed under the provisions of section 266.343 are specified to be paid to the Director when a purchaser cannot be ascertained.

In accordance with part (8) of section 266.340, the following is a statement of all fees and penalties received under the Missouri Fertilizer Law, and of expenditures from these funds during period covered by this bulletin.

FERTILIZER FEES FUND Financial Report For the Year Ended June 30, 1966

Balance, July 1, 1965		\$ 89,294.00
Receipts:		
Tonnage Fees	\$343,373.58	
Penalties	14,155.45	
Investment Income	<u>3,714.68</u>	<u>361,243.71</u>
Total		\$450,537.71
Disbursements:		
Personal Service	\$137,219.66	
Travel	21,458.68	
Transportation of Things	495.80	
Communication Service	4,580.41	
Rents & Utility Service	18,629.48	
Publication & Printing	9,578.65	
Repairs & Replacements	19,402.80	
Supplies & Materials	60,103.26	
Equipment & Improvements	56,709.48	
Computer & Data Processing		
Service, Insurance and		
Other Expense	<u>52,732.52</u>	<u>380,910.74</u>
Balance June 30, 1966		<u>\$ 69,626.97</u>

- A. C. Feed Mills, Inc., Appleton City, Mo.
- Agricultural Business Co., Inc., P.O. Box 36, Lawrence, Kan.
- Agriculture Chemicals, Inc., P. O. Box 181, Old Monroe, Mo.
- Alaska Fertilizer Co., 84 Seneca St., Seattle, Washington
- Allredge Feed & Seed, Stanberry, Mo.
- Alley Seed Co., Miami, Mo.
- Alma Farmers Co-operative Ass'n., P. O. Box 147, Alma, Mo.
- Alton Bottled Gas Co., P. O. Box 214, Alton, Ill.
- American Agricultural Chem. Co., P. O. Box 68, National Stock Yards, Ill.
- American Agricultural Chem. Co., P. O. Box 428, Olathe, Kan.
- American Cyanamid Co., Bradley, Florida
- American Cyanamid Co., P. O. Box 400, Princeton, New Jersey
- American Cyanamid Co., New Orleans, Louisiana
- American Fertilizer & Chemical Co., 6300 Brighton Blvd., Commerce City, Colo.
- American Fertilizer Co., P. O. Box 6940-A, Chicago, Ill.
- American Humates, Inc., 2328 Fidelity Union Tower, Dallas, Texas
- American Liquid Fertilizer Co., Inc., P. O. Box 267, Marietta, Ohio
- J. D. Andrews Co., P. O. Box 215, Hayti, Mo.
- Arkla Chemical Corp., 812 Main St., Little Rock, Ark.
- Armour Agricultural Chemical Co., P. O. Box 269, Centralia, Mo.
- Armour Agricultural Chemical Co., P. O. Box 128, Crystal City, Mo.
- Armour Agricultural Chemical Co., P. O. Box 312, East St. Louis, Ill.
- Armour Agricultural Chemical Co., P. O. Box 7431, No. Kansas City, Mo.
- Atchison County Cooperative Ass'n., P. O. Box 96, Rock Port, Mo.
- John Atkins Lime Co., Lawson, Mo.
- Atlas Fish Fertilizer Co., 1 Drumm St., San Francisco, Calif.
- Audrain Soil Service, Inc., P. O. Box 65, Laddonia, Mo.
- Audrain Soil Service, Inc., Route 1, Mexico, Mo.
- Ball Fertilizer, Kahoka, Mo.
- Barton County Plant Foods, Inc., P. O. Box 70, Lamar, Mo.
- Beaufort Fertilizer Co., Beaufort, Mo.
- Benton County Plant Food Co., Cole Camp, Mo.
- Best Fertilizers Co., P. O. Box 5337, Houston, Texas
- Gerald Bird, R. R. 2, Advance, Mo.
- Blackstone Guano Co., Inc., P. O. Box 191, East St. Louis, Ill.
- Bob's Fertilizer & Farm Supply, Highway 24 West, Madison, Mo.
- Bolivar Farmers Exchange, Bolivar, Mo.
- Boone County Farm Bureau Service Co., 3300 Brown Station Road, Columbia, Mo.
- Boss Fertilizer Co., P. O. Box 547, Moberly, Mo.
- M. C. Boyle Phosphate Co., 407 So. Dearborn St., Chicago, Ill.
- Brickhaus Fertilizer Service, 122 No. Walnut St., Perryville, Mo.
- Brock Milling, Inc., P. O. Box 245, Maysville, Mo.
- Brockman Seed Co., Highway 63, Cairo, Mo.
- Bryan Produce & Feed Co., Princeton, Mo.
- Cameron Co-operative Elevator Ass'n., 102 W. Walnut, Cameron, Mo.
- H. D. Campbell Co., 402-410 Dewey Ave., Rochelle, Ill.
- Carter Fertilizer Co., Skidmore, Mo.
- Cass County Plant Foods, Inc., P. O. Box 124, Harrisonville, Mo.
- Central Cooperatives, Inc., Odessa, Mo.
- Central Cooperatives, Inc., P. O. Box 150, Pleasant Hill, Mo.
- Central Farmers Fertilizer Co., 205 W. Wacker Drive, Chicago, Ill.
- Chemagro Corp., P. O. Box 4913, Kansas City, Mo.
- Chem-Grow, Inc., Auxvasse, Mo.
- Chem-Grow, Inc., Bowling Green, Mo.
- Chem-Grow, Inc., Montgomery City, Mo.
- Chevron Chemical Co., Burlington Junction, Mo.
- Chevron Chemical Co., P. O. Box 282, Ft. Madison, Iowa
- Chevron Chemical Co., 200 Bush St., San Francisco, Calif.
- Chevron Chemical Co., Skidmore, Mo.
- Chicago Heights Warehouse, P. O. Box 101, Chicago Heights, Ill.
- Chula Farmers Cooperative, Chula, Mo.
- Clarkton Fertilizer Co., P. O. Box 155, Clarkton, Mo.
- Coastal Chemical Corp., Yazoo City, Miss.
- Columbia Nitrogen Corp., P. O. Box 1483, Augusta, Ga.
- Columbia Phosphate Co., 1007 Washington Ave., St. Louis, Mo.
- Cominco Products, Inc., West 818 Riverside Ave., Spokane, Washington
- Commercial Solvents Corp., 260 Madison Ave., New York, New York
- Commercial Solvents Corp., Sterlington, Louisiana
- Community Elevator, Craig, Mo.
- Compost Products Co., 123 Jefferson St., Washington, Mo.
- Concordia Lumber Co., 12 E. 7th St., Concordia, Mo.
- Consumers Cooperative Ass'n., Clinton, Mo.
- Consumers Cooperative Ass'n., Delta, Mo.
- Consumers Cooperative Ass'n., P.O. Box 284 Hastings, Nebr.
- Consumers Cooperative Ass'n., Humboldt, Iowa
- Consumers Cooperative Ass'n., 3315 No. Oak Trafficway, Kansas City, Mo.
- Consumers Cooperative Ass'n., New Florence, Mo.
- Consumers Cooperative Ass'n., P. O. Box 125, St. Joseph, Mo.
- Consumers Oil Company, 221 N. Depot, Maryville, Mo.
- Consumers Oil Company, Ridgeway, Mo.
- Consumers Oil Company, Savannah, Mo.
- Consumers Oil Company, Stanberry, Mo.
- Consumers Oil & Supply Co., Braymer, Mo.
- Co-op Farm Chemicals Ass'n., P. O. Box 80, Lawrence, Kan.

- Danner Milling & Supply, Inc., Blackwater, Mo.
 Danner Milling & Supply, Inc., Wellington, Mo.
 Darling & Co., Cairo, Ill
 Darling & Co., 4901 S. Ashland Ave., Chicago, Ill.
 Darling & Co., P. O. Box 271, East St. Louis, Ill.
 Davis Fertilizer Co., Graham, Mo.
 Davis Phosphate Co., Route 5, Box 166, Butler, Mo.
 Davison Chemical Div., P. O. Box 729, Joplin, Mo.
 Davison Chemical Div., Trenton, Mo.
 Deering Seed & Fertilizer Co., Inc., P. O. Box 237, Deering, Mo.
 Delta Liquid Plant Food, Inc., 210 Huffman, Portageville, Mo.
 Charles Denny Co., 1505 Big Bend Blvd., St. Louis, Mo.
 Des Plaines Chemical Co., P. O. Box 111, Morris, Ill.
 Destroxol Corp., Ltd., 1450 W. 228th St., Torrance, Calif.
 Dishman Lime & Phosphate, P. O. Box 55, Helena, Mo.
 Douglas County Milling Co., P. O. Box 307, Ava, Mo.
 E. I. Du Pont De Nemours & Co., 4251 So. Crawford Ave., Chicago, Ill.
 E. I. Du Pont De Nemours & Co., 6054 Du Pont Bldg., Wilmington, Del.
 G. C. Dunn & Son, Middletown, Mo.
 Duesterhaus Farm Supply, Front & Oak, Quincy, Ill.
 Dye Phosphate & Grain Co., Hale, Mo.
 Effingham Equity, P. O. Box 480, Effingham, Ill.
 Eilatan, Inc., P. O. Box 6851, St. Louis, Mo.
 Elanco Products Co., 740 So. Alabama St., Indianapolis, Ind.
 Escambia Chemical Corp., 3330 Peachtree Rd. N. E., Atlanta, Ga.
 Essex M. F. A. Elevator, P. O. Box 116, Essex, Mo.
 Faesy & Besthoff, Inc., 143 River Road, Edgewater, N. J.
 Farm Bureau Services, Inc., W. Water St., Boonville, Mo.
 Farm Bureau Services, Inc., 313 Court St., Fulton, Mo.
 Farm Bureau Services, Inc., Main & Washington, Sedalia, Mo.
 Farmers Chemical Co., P. O. Box 225, Joplin, Mo.
 Farmers Cooperative Grain & Seed Co., Lamoni, Iowa
 Farmers Cooperative Services, Inc., P. O. Box 312, Palmyra, Mo.
 Farmers Cooperative Services, Inc., Renssler, Mo.
 Farmers Elevator & Produce, Inc., Memphis, Mo.
 Farmers Grain & Fertilizer, P. O. Box 67, Gallatin, Mo.
 Farmers Liquid Plant Foods, Inc., 411 E. Main, Malden, Mo.
 Farmers Rock & Lime, Inc., Nettleton, Mo.
 R. L. Faubion Co., Route 1, Belton, Mo.
 Faucett Fertilizer, Faucett, Mo.
 Federal Chemical Co., 646 Starks Bldg., Louisville, Ky.
 Federal Chemical Co., 7500 So. 13th St., South Omaha, Nebr.
 Ferro Corp., 4150 E. 56th St., Cleveland, Ohio
 Fertilizer Supply Co., Yazoo City, Mo.
 Forbridge Feed & Produce Co., 5th & Henderson, Poplar Bluff, Mo.
 Ford Motor Co., 3001 Miller Road, Dearborn, Mich.
 Four Valley's Plant Food Co., Sheridan, Mo.
 Frontier Chemical Co., P. O. Box 545, Wichita, Kansas
 Geigy Agricultural Chemicals, P. O. Box 430, Yonkers, N. Y.
 James Gibson, 125 South W. Main St., Dexter, Mo.
 Gideon-Anderson Lumber Co., Gideon, Mo.
 Glasgow Cooperative Ass'n., Glasgow, Mo.
 Good Earth Chemical, Inc., Route 2, Bonne Terre, Mo.
 Jim Gough, Perry, Mo.
 Goulard & Olena, Inc., Skillman, New Jersey
 W. R. Grace & Co., Nitrogen Products Div., P. O. Box 2208, Decatur, Ill.
 W. R. Grace & Co., Nitrogen Products Div., Airport Branch, Malden, Mo.
 W. R. Grace & Co., Nitrogen Products Div., 147 Jefferson Ave., Memphis, Tenn.
 W. R. Grace & Co., Nitrogen Products Div., P. O. Box 444, Murphysboro, Ill.
 W. R. Grace & Co., Nitrogen Products Div., P. O. Box 218, Slater, Mo.
 D. B. Gray Farmers Elevator Co., Hull, Ill.
 Green Acres Farm Supply, Inc., Highway 22, E., Centralia, Mo.
 Green Acres Liquid Fertilizer Co., O'Dell Bldg., Hannibal, Mo.
 Green Light Plant Food Co., P. O. Box 6845, San Antonio, Texas
 Green Thumb Products, 4401 LaGrange St., Toledo, Ohio
 Gro Chemical Co., 3530 N. W. 31 St., Miami, Fla.
 Gro-Mo-Co., Inc., P. O. Box 46, Blythedale, Mo.
 Gro-Mo-Co., Inc., 201 Madison Ave., Centerville, Iowa
 Halferty Brothers, Plattsburg, Mo.
 Handley's Tri-County Gas & Fertilizer Co., Inc., P. O. Box 608, Hayti, Mo.
 Hanna Soil & Farm Service, 502 Highway 71 So., Savannah, Mo.
 Hargis Plant Food Service, P. O. Box 573, Lebanon, Mo.
 J. W. Harris Fertilizer, 20 Virginia Drive, Liberty, Mo.
 J. Harris Manure Co., 121 Baugh Ave., East St. Louis, Ill.
 Harrison County Fertilizer Co., 1104 So. 10th St., Bethany, Mo.
 Harrisons & Crosfield (Canada) Ltd., 137 Wellington St. W, Toronto, Ontario
 Hawkeye Chemical Co., P. O. Box 899, Clinton, Iowa
 Hayti Liquid Fertilizer Co., 501 No. Second, Hayti, Mo.
 R. V. Hedrick Co., P. O. Box 158, Buckner, Mo.
 Ed. Helmreich Fertilizer Service, 2nd & Vine St., Boonville, Mo.
 Hercules Powder Co., Louisiana, Mo.
 Hercules Powder Co., 910 Market St., Wilmington, Del.
 Heritage House Products, P. O. Box 237, Bristol, Ill.
 Herrick Feed & Produce, P. O. Box 193, Westboro, Mo.
 Hershey Estates, Inc., Hershey, Pa.
 Hi-Yield Fertilizer Co., P. O. Box 460, Bonham, Texas
 A. H. Hoffman, Inc., Main St., Landisville, Pa.

- Hoffman & Reed Farm Supply Store, 915 Shanklin Ave.,
Trenton, Mo.
- Holden Fertilizer Service, Holden, Mo.
- Holland Liquid Fertilizer Co., Holland, Mo.
- Holt County Coop. Ass'n., Mound City, Mo.
- Holt County Fertilizer Inc., Oregon, Mo.
- Hoosier Soil Service Co., P. O. Box 149, Bluffton, Ind.
- Hydroponic Chemical Co., Inc., P. O. Box 97-C, Copley,
Ohio
- International Minerals & Chemical Corp., P. O. Box 4250,
Ft. Worth, Texas
- International Minerals & Chemical Corp., 5401 Old Orchard
Rd., Skokie, Ill.
- International Minerals & Chemical Corp., P. O. Box 1928,
Texarkana, Ark.
- J. K. W. Wholesale Grain, Feed & Fertilizer, Inc., P. O.
Box 362, Nevada, Mo.
- Johnson Fertilizer Service, P. O. Box 7, Mt. Vernon, Mo.
- Johnston Farm Supply, Palmyra, Mo.
- Kahn Brothers Co., 4425 S. Halsted St., Chicago, Ill.
- Kansas City Stock Yards Co., 1600 Genesee, Kansas City
Mo.
- Kennett Liquid Fertilizer Co., P. O. Box 384, Kennett, Mo.
- Kilkenny Fertilizer Co., First St., West Plains, Mo.
- King City Elevator, King City, Mo.
- C. G. King & Co., Inc., P. O. Box 9, Poplar Bluff, Mo.
- Kirgan's Elevator, P. O. Box 218, St. James, Mo.
- Koch's Fertilizer Service, Brunswick, Mo.
- N. S. Koos & Son Co., 4500 13th Court, Kenosha, Wisc.
- Lafayette M. F. A., P. O. Box 308, Lexington, Mo.
- Lawn-Tex, Inc., P. O. Box 101, Chicago Heights, Ill.
- Lazy Gardener Division, Farragut, Iowa
- Leeton Elevator, Leeton, Mo.
- Lenox Fertilizer Corp., Lenox, Iowa
- Lexington Fertilizer Co., 2502 Main, Lexington, Mo.
- Lilbourn Liquid Fertilizer, Lilbourn, Mo.
- Lincoln County Farm Bureau Service Co., 811 E. Cherry
St., Troy, Mo.
- Liquid Fertility & Chemical Co., Liberal, Mo.
- Liquid Fertility & Chemical Co., Monett, Mo.
- Liquid Fertility & Chemical Co., P. O. Box 3555 Glenstone
Station, Springfield, Mo.
- Lite Weight Products, Inc., 707 Funston Rd., Kansas City,
Kan.
- Loeffler Fertilizer Service, Route 2, Lee's Summit, Mo.
- Loida Supply Co., Bourbon Rd, Ste. Genevieve, Mo.
- Loncala Phosphate Co., P. O. Box 766, High Springs, Fla.
- M. F. A. Central Coop, Bernie, Mo.
- M. F. A. Central Coop, Main & Water Sts., Boonville, Mo.
- M. F. A. Central Coop., 113 Lewis St., Canton, Mo.
- M. F. A. Central Coop., Centerview, Mo.
- M. F. A. Central Coop., Fulton, Mo.
- M. F. A. Central Coop., 1011 W. Mechanic, Harrisonville,
Mo.
- M. F. A. Central Coop., P. O. Box 129, Jackson, Mo.
- M. F. A. Central Coop., 400 So. Main, Louisiana, Mo.
- M. F. A. Central Coop., 76 West Morgan, Marshall, Mo.
- M. F. A. Central Coop., Orrick, Mo.
- M. F. A. Central Coop., 10 N. West St., Perryville, Mo.
- M. F. A. Central Coop., Salisbury, Mo.
- M. F. A. Central Coop., Shelbina, Mo.
- M. F. A. Central Coop., Syracuse, Mo.
- M. F. A. Plant Food Div., P. O. Box 92, Albany, Mo.
- M. F. A. Plant Food Div., P. O. Box 109, Aurora, Mo.
- M. F. A. Plant Food Div., P. O. Box 26, Brookfield, Mo.
- M. F. A. Plant Food Div., P. O. Box 261, Browning, Mo.
- M. F. A. Plant Food Div., P. O. Box 232, Brunswick, Mo.
- M. F. A. Plant Food Div., P. O. Box 210, Butler, Mo.
- M. F. A. Plant Food Div., Box 1, Cabool, Mo.
- M. F. A. Plant Food Div., Route 2, California, Mo.
- M. F. A. Plant Food Div., Route 2, Carthage, Mo.
- M. F. A. Plant Food Div., P. O. Box 3, Centralia, Mo.
- M. F. A. Plant Food Div., P. O. Box 463, Chillicothe, Mo.
- M. F. A. Plant Food Div., Cole Camp, Mo.
- M. F. A. Plant Food Div., 2605 E. Mexico Gravel,
Columbia, Mo.
- M. F. A. Plant Food Div., 201 So. Seventh St., Columbia,
Mo.
- M. F. A. Plant Food Div., P. O. Box 172, Eldon, Mo.
- M. F. A. Plant Food Div., P. O. Box 148, El Dorado Springs,
Mo.
- M. F. A. Plant Food Div., Elsberry, Mo.
- M. F. A. Plant Food Div., P. O. Box 157, Fairfax, Mo.
- M. F. A. Plant Food Div., Freeburg, Mo.
- M. F. A. Plant Food Div., P. O. Box 338, Gallatin, Mo.
- M. F. A. Plant Food Div., P. O. Box 302, Higginsville, Mo.
- M. F. A. Plant Food Div., P. O. Box 102, Ianta, Mo.
- M. F. A. Plant Food Div., Route 1, Jefferson City, Mo.
- M. F. A. Plant Food Div., Route 3, Kahoka, Mo.
- M. F. A. Plant Food Div., P. O. Box 912, Kirksville, Mo.
- M. F. A. Plant Food Div., P. O. Box 14, Labelle, Mo.
- M. F. A. Plant Food Div., P. O. Box 211, Lancaster, Mo.
- M. F. A. Plant Food Div., P. O. Box 188, Lebanon, Mo.
- M. F. A. Plant Food Div., P. O. Box 334, Lockwood, Mo.
- M. F. A. Plant Food Div., P. O. Box 336, McKittrick, Mo.
- M. F. A. Plant Food Div., Route 3, Macon, Mo.
- M. F. A. Plant Food Div., P. O. Box 315, Mansfield, Mo.
- M. F. A. Plant Food Div., P. O. Box 33, Martinsburg, Mo.
- M. F. A. Plant Food Div., P. O. Box 170, Maryland Heights,
Mo.
- M. F. A. Plant Food Div., P. O. Box 354, Maysville, Mo.
- M. F. A. Plant Food Div., P. O. Box 104, Moberly, Mo.
- M. F. A. Plant Food Div., P. O. Box 85, Owensville, Mo.
- M. F. A. Plant Food Div., P. O. Box 359, Rolla, Mo.

- M. F. A. Plant Food Div., P. O. Box 455, Salem, Mo.
M. F. A. Plant Food Div., P. O. Box 186, Slater, Mo.
M. F. A. Plant Food Div., So. Side Sta. Box 1546, Springfield, Mo.
M. F. A. Plant Food Div., P. O. Box 109, Sweet Springs, Mo.
M. F. A. Plant Food Div., P. O. Box 149, Trenton, Mo.
M. F. A. Plant Food Div., Route 1, Union, Mo.
M. F. A. Plant Food Div., P. O. Box 248, Unionville, Mo.
M. F. A. Plant Food Div., South Washington St., Vandalia, Mo.
M. F. A. Plant Food Div., Route 3, Warrenton, Mo.
M. F. A. Plant Food Div., P. O. Box 15, Weaubleau, Mo.
M. F. A. Plant Food Div., P. O. Box 276, Wentzville, Mo.
M. F. A. Plant Food Div., Route 1, Windsor, Mo.
M. F. A. State Exchange, 221 N. Depot St., Maryville, Mo.
McQuenter Chemical Co., Inc., Industrial Park, Mt. Vernon, Mo.
Maczuk, Inc., Hughesville, Mo.
Maczuk, Inc., New Haven, Mo.
Marblehead Lime Co., 300 N. Washington St., Chicago, Ill.
Earl May Seed & Nursery Co., Shenandoah, Iowa
Mid-Missouri Farmers Coop., 404 So. Main, Fayette, Mo.
Mid-South Chemical Co., 1222 Riverside Blvd., Memphis, Tenn.
Mid-South Supply Ass'n., 44 So. Front St., Memphis, Tenn.
Midwest Plant Food & Supply Co., 518 N. Hillcrest, Springfield, Mo.
Miller Agricultural Chemical Co., Granger, Mo.
Milnes Feed & Produce, P. O. Box 67, Paris, Mo.
Mississippi Chemical Corp., Yazoo City, Miss.
Mississippi Co. Fertilizer Co., P. O. Box 145, East Prairie, Mo.
Mississippi Valley Chemical Co., P. O. Box 268, Palmyra, Mo.
Monsanto Company, P. O. Box 370, Charleston, Mo.
Monsanto Company, East Prairie, Mo.
Monsanto Company, Eldorado, Ark.
Monsanto Company, Route 1, Essex, Mo.
Monsanto Company, Route 1, Kennett, Mo.
Monsanto Company, Luling, Louisiana
Monsanto Company, P. O. Box 25A, Portageville, Mo.
Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, Mo.
Na Churs Plant Food Co., 421 Monroe St., Marion, Ohio
National Chemsearch Corp., P. O. Box 217, Irving, Texas
National Gas Co. of Missouri, P. O. Box 592, Sikeston, Mo.
Naylor's Fertilizer Service, Inc., Salisbury, Mo.
Neelyville Grain Co., Inc., P. O. Box 68, Neelyville, Mo.
Nel-Mar Elevator, 404 N. Jefferson, Marshall, Mo.
Nevada Fertilizers, Inc., 905 E. Hickory, Nevada, Mo.
Newcomer Corp., 215 So. Seventh St., Columbia, Mo.
New Plant Life, 30 E. 26th St., Chicago, Ill.
Nipak, Inc., P. O. Box 2820, Dallas, Texas
Nitrogen Div., Allied Chemical Corp., P. O. Drawer 61, Hopewell, Va.
Nitrogen Div., Allied Chemical Corp., P. O. Box 166, Omaha, Nebr.
Nitrogen Div., Allied Chemical Corp., South Point, Ohio
Norris Grain Co., P. O. Box 27, Lamar, Mo.
Northeast Mo. Coop. Services, Inc., P. O. Box 388, Edina, Mo.
Northeast Mo. Coop. Services, Inc., Medill, Mo.
Northwest-Nitro Chemicals Sales Ltd., P. O. Box 310, Medicine Hat, Alberta, Canada
O'Connell Farm Supply, Oregon, Mo.
Oklahoma Tire & Supply Co., P. O. Box 885, Tulsa, Okla.
Olin Mathieson Chemical Corp., P. O. Box 991, Little Rock, Ark.
Organic Compost Corp., P. O. Box 117, Germantown, Wis.
Osborn Elevator, Osborn, Mo.
Passaic Grain & Wholesale Co., Inc., P. O. Box 23, Passaic, Mo.
Patterson Packaging Div., 1400 Union Ave., Kansas City, Mo.
Pax Company, 580 W. 13th South, Salt Lake City, Utah
Pearce Produce & Hatchery, Fairfax, Mo.
Perry County Farm Bureau Service Co., 214 N. Main, Perryville, Mo.
Peyton Creek Phosphate Mining Co., Inc., P. O. Box 455, Leslie, Ark.
Phillips Petroleum Co., 324 Adams Bldg., Bartlesville, Okla.
Plant Shine Co., Div. Schultz Co., 404 So. 4th St., St. Louis, Mo.
Polo Farm Supply, Highway 13 So., Polo, Mo.
Portageville Seed & Supply, P. O. Box 380, Portageville, Mo.
Prairie Gold Implement Co., Trenton, Mo.
Producers Exchange, 221 E. Commercial, Marshfield, Mo.
Proen Products Co., 9th & Grayson Sts., Berkeley, Calif.
Prost Alfalfa Mill, P. O. Box 244, Perryville, Mo.
Ambrose Quinn, Monroe City, Mo.
Ra-Pid-Gro Corp., 88 Ossian St., Dansville, New York
Ray-Carroll County Grain Growers, Inc., Sumner, Mo.
Ray-Carroll County Grain Growers, Inc., Norborne, Mo.
Rea Grain & Feed Co., Rea, Mo.
Reynolds & Gliser, Paris, Mo.
Richland Plant Foods, Richland, Mo.
Marvin Richter Co., Pleasant Hill, Ill.
Riddle & Smith, Buell, Mo.
Riverside Fertilizer Co., Marks, Miss.
Robin Jones Phosphate Co., 204 23rd Ave. N., Nashville, Tenn.
G. S. Robins & Co., 126 Chouteau Ave., St. Louis, Mo.
Rolf Supply Co., Rock Port, Mo.
Rolf Supply Co., Tarkio, Mo.
Ross Daniels, Inc., 115 S.W. 8th St., Des Moines, Iowa
F.S. Royster Guano Co., P. O. Drawer 1940, Norfolk, Va.
S & D Products, Inc., P. O. Box 66, Prairie Du Chien, Wis.
Saale Brothers Farm & Grain Co., West Alton, Mo.

St. Charles Co. Farm Bureau Service Co., P. O. Box 129,
St. Charles, Mo.

St. Louis National Stock Yards Co., Exchange Bldg., National
Stockyards, Ill.

San Francisco Chemical Co., P. O. Box 160, Montpelier,
Idaho

O. M. Scott & Sons Co., Marysville, Ohio

Sedalia Fertilizer Corp., 2100 So. Stewart, Sedalia, Mo.

Senath Fertilizer Co., Inc., Senath, Mo.

Sewerage Commission of Milwaukee, P. O. Box 2079,
Milwaukee, Wisc.

Shelby-Macon Fertilizer Co., P. O. Box 387, Clarence, Mo.

Shell Feed & Supply Co., Lutesville, Mo.

Silvey's Feed Store, Potosi, Mo.

Simon Soil Service, Portage Des Sioux, Mo.

J. R. Simplot Company, P. O. Box 912, Pocatello, Idaho

Sinclair Petrochemicals, Inc., 155 N. Wacker Drive, Chicago,
Ill.

Paul Skaggs & Sons, 400 No. Main St., Fredericktown, Mo.

Skelly Oil Company, P. O. Box 1650, Tulsa, Okla.

Smith-Douglas, Div. Borden Chemical Co., P. O. Box
419, Norfolk, Va.

Sohigro Service Co., P. O. Box 8, Rich Hill, Mo.

Soil Booster Corp., P. O. Box 1945, Oklahoma City, Okla.

Solar Nitrogen Chemicals, Inc., Joplin, Mo.

Solar Nitrogen Chemicals, Inc., P. O. Box 628, Lima, Ohio

Southern Cotton Oil Div., Memphis, Tenn.

Southern Nitrogen Co., Inc., P. O. Box 246, Savannah, Ga.

Southern Nitrogen Supply Co., P. O. Box 14, Yazoo City,
Miss.

Spencer Chemical Div., Gulf Oil Corp., Blanchard, Iowa.

Spencer Chemical Div., Gulf Oil Corp., Blytheville, Ark.

Spencer Chemical Div., Gulf Oil Corp., Burlington, Iowa

Spencer Chemical Div., Gulf Oil Corp., Burlington Junction,
Mo.

Spencer Chemical Div., Gulf Oil Corp., Hunnewell, Mo.

Spencer Chemical Div., Gulf Oil Corp., P. O. Box 417,
Kansas City, Mo.

Spencer Chemical Div., Gulf Oil Corp., 610 Dwight Bldg.,
Kansas City, Mo.

Spencer Chemical Div., Gulf Oil Corp., LaBelle, Mo.

Spencer Chemical Div., Gulf Oil Corp., LaPlata, Mo.

Spencer Chemical Div., Gulf Oil Corp., Malta Bend, Mo.

Spencer Chemical Div., Gulf Oil Corp., Memphis, Mo.

Spencer Chemical Div., Gulf Oil Corp., Shenandoah, Iowa

Spencer Chemical Div., Gulf Oil Corp., P. O. Box 594,
Sikeston, Mo.

Spencer Chemical Div., Gulf Oil Corp., Thompson, Mo.

Spencer Chemical Div., Gulf Oil Corp., P. O. Box 428,
Walnut Ridge, Ark.

Stauffer Chemical Co., 636 California St., San Francisco,
Calif.

Stern's Garden Products, Inc., 404 William St., Geneva,
N. Y.

Stim-U-Plant Laboratories, Inc., 2077 Parkwood Ave.,
Columbus, Ohio

Stockman Feed & Fertilizer Co., 1009 W. Miller St.,
Jefferson City, Mo.

Stoddard Co. Farm Bureau Service Co., P. O. Box 161,
Advance, Mo.

Straight Way Service, Jackson, Mo.

Strobel Brothers, Bell City, Mo.

Sullivan County Farmers Coop., Milan, Mo.

Super Gro Products Co., Ltd., P. O. Box 86, Winona, Minn.

Sur-Gro Plant Food Co., P. O. Box 316, Plattsburg, Mo.

Sur-Gro Plant Food Co., Weston, Mo.

Surman Agricultural Chemical Service, Inc., Route 4,
Sikeston, Mo.

Swift & Co., Agrichem Div., P. O. Box 66, National Stock
Yards, Ill.

Swift & Co., Agrichem Div., P. O. Box 185, South St.
Joseph, Mo.

Swisher Grain Co., Inc., Centerview, Mo.

T & R Soil Service, Inc., Chillicothe, Mo.

Tanvilac Co., Inc., P. O. Box 4025 Highland Park Sta.,
Des Moines, Iowa

Tennessee Corp., 44 Broad St., N. W. Atlanta, Ga.

Thompson Sales Co., Inc., P. O. Box 246, Montgomery, Ala.

L. O. Tilton & Sons, Fertilizer Service, Route 1, Auxvasse,
Mo.

Tootsizer Chemical Corp., 1106 Pine St., Rolla, Mo.

Tri-County Grain Co., Inc., Gideon, Mo.

Tri-State Fertilizer Co., P. O. Box 224, Canton, Mo.

Tucker Supply Co., P. O. Box 217, St. James, Mo.

Tuloma Gas Products Co., Congerville, Ill.

Tuloma Gas Products Co., Mexico, Mo.

Tuloma Gas Products Co., Stewartsville, Mo.

Tuloma Gas Products Co., Pan American Bldg., Tulsa, Okla.

United Cooperatives, Inc., 101 So. Water St., Liberty, Mo.

United Cooperatives, Inc., Plattsburg, Mo.

U. S. Phosphoric Products Div. Tennessee Corp., P. O. Box
3269, Tampa, Florida

United States Steel Corp., 525 William Penn Place, Pittsburgh,
Pa.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., Baring, Mo.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., Chaffee, Mo.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., P. O. Box
191, East St. Louis, Ill.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., P. O. Box
5007, Memphis, Tenn.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., P. O. Box
26, Mexico, Mo.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., P. O. Box
171, Nevada, Mo.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., Renick, Mo.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., P. O. Box
1136, Richmond, Va.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., Sedalia, Mo.

V-C Chemical Co. Div. Socony-Mobil Oil, Inc., Wellsville, Mo.

Valle Feed & Farm Service, 1600 No. Main St., DeSoto, Mo.

Vel-Donna Inc., P. O. Box 330, Kalona, Iowa

Vital Earth Products, Inc., 1330 New Hampshire Ave., N.W.,
Washington 6, D. C.

Whitney Seed Co., Inc., 52 Leslie St., Buffalo, N. Y.
 Wholesale Farm Chemicals, Harrisonville, Mo.
 Geo. Willard Feed Mill & Fertilizer Service, P. O. Box
 902, Springfield, Mo.

Williams Rock Co., Inc., P. O. Box 53, Clinton, Mo.
 Windsor Fertilizer, Inc., P. O. Box 167, Windsor, Mo.
 Woodbury Chemical Co., P. O. Box 788, St. Joseph, Mo.
 Worm Profit Farms, Ronson Road, Route 1, Greenwood, Mo.

COMPANIES REGISTERED AS DISTRIBUTORS OF COMMERCIAL FERTILIZERS
 IN MISSOURI SUBSEQUENT TO NOVEMBER 12, 1965

Agrico Chem. Co., Div. Cont. Oil Co., 1222 Riverside Blvd., Memphis, Tenn.
 Apple River Chem. Co., P. O. Box 549, Aurora, Illinois
 Buerge Farm Supply, Butler, Missouri
 Delta Custom Farm Services, Inc., Route 4, Sikeston, Missouri
 Delta Grain Assoc., Inc. P. O. Box 26, Gideon, Missouri
 Fel-Tex, Inc., P. O. Box 68, Fremont, Nebraska
 Harvest Brand, Inc., P. O. Box 62046, Pittsburg, Kansas
 Howard County Farm Supply, Inc., Fayette, Missouri
 Hy-Brid Sales Company, 1017 4th Street, Council Bluffs, Iowa
 MFA Plant Foods Division, Milan, Missouri
 Monsanto Company, Industrial Park, Mt. Vernon, Missouri
 Natural Plant Food Co., Inc. P. O. Box 2501 - Stockyards Sta., Oklahoma City, Okla.
 Phillips Petroleum Co., Audubon, Iowa
 Phillips Petroleum Co., Aurora, Nebraska
 Ray-Carroll County Grain Growers, Inc. Rt. 5, Carrollton, Missouri
 Richland Plant Foods, P. O. Box 654, Richland, Missouri
 Shattuck Denn Company, P. O. Box 1492, Prescott, Arizona 86301
 Shell Chem. Co., 100 Bush Street, San Francisco, California
 Southern Nitrogen Company, Inc. P. O. Box 158, North Bend, Ohio
 Sur-Gro Plant Food Co., Osborn, Missouri
 Turney Elevator, Turney, Missouri

COMPANIES REGISTERED AS DISTRIBUTORS OF COMMERCIAL FERTILIZERS FOR MISSOURI SUBSEQUENT TO
 AUGUST 10, 1965

Boyle-Midway, Inc., 685 Third Ave., New York 17, New York
 Butler Grain Company, Inc., 803 West Ohio, Butler, Mo.
 Certified Laboratories, P. O. Box 237, Irving, Texas
 Growers Chemical Corp., Milan, Ohio
 M. F. A. Plant Foods Div., P. O. Box 447, Neosho, Mo.
 M. F. A. Plant Foods Div., Box 121A1, West Plains, Mo.
 Melies Fertilizer Serv, Marshall, Mo.
 Wren Peve Produce & Feeds, Hopkins, Mo.
 Plantabbs Corp., Timonium, Maryland
 Sanfax Corp., P. O. Box 604, Atlanta, Ga.
 Schaeperkoetter Store, Inc., Mt. Sterling, Mo.
 Sup-Ro Mfg. & Sales Co., 806 Genessee, Kansas City, Mo.
 Tennessee Corp., P. O. Box 229, New Albany, Ind.
 Warren's Turf Nursery, 8400 W. 111th St., Palos Park, Ill.
 Young's Produce, Alton, Mo.

DISTRIBUTOR PERMITS CANCELLED REQUEST OF
 REGISTRANT

Alley Seed Company, Miami, Mo.
 Davis Phosphate Co., Route 5, Butler, Mo.
 Lexington Fertilizer Co., 2502 Main, Lexington, Mo.
 Prairie Gold Implement Co., Trenton, Mo.

DISTRIBUTOR PERMITS SUSPENDED IN ACCORDANCE WITH
 SECTION 266.340 (9) FOR FAILURE TO COMPLY WITH SECTION
 266.330 OF THE MISSOURI FERTILIZER LAW.

Gerald Bird, Route 2, Advance, Mo.
 Peyton Creek Phosphate Mining Co., P. O. Box 455, Leslie,
 Ark.

DISTRIBUTOR PERMITS REINSTATED

Gerald Bird, Route 2, Advance, Mo.

MISSOURI FERTILIZER LAWS

AND REGULATIONS

Revised to August 29, 1959

Chapter 266 RSMo

FERTILIZERS

- 266.290 Definitions
- 266.300 Permit required to sell fertilizer—application
- 266.310 Sale of misbranded fertilizer prohibited—misbranding defined
- 266.320 Information required on containers
- 266.330 Sales to be reported—fees—to be used for what
- 266.340 Powers of director in administering law
- 266.343 Penalties for deficiency in fertilizer
- 266.347 Penalties payable to purchaser or director, collection procedure
- 266.350 Violation a misdemeanor

266.290. Definitions

The following words, terms, and phrases, when used in sections 266.290 to 266.350 have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

(1) "**Persons**" includes individuals, partnerships, associations, firms, corporations, estates, trusts, receivers, or trustees appointed by any state or federal court.

(2) "**Distributor**" means any person who imports, consigns, manufactures, produces or compounds fertilizer, or offers for sale, sells, barter, or otherwise supplies fertilizers for consumption or use in this state; provided that this term shall not apply to any person who purchases fertilizer from a distributor registered under sections 266.290 to 266.350 and which fertilizer has been once sold in compliance with sections 266.290 to 266.350.

(3) "**Fertilizer**" means any substance containing nitrogen, phosphorus, potassium, or any other element or compound recognized as essential or used for promoting plant growth, or altering plant composition, which is sold or used primarily for its plant nutrient content, the consumer's purchase price of which exceeds ten dollars per ton, and which is to be sold or offered for sale for consumption or use in this state.

(4) "**Director**" means the director of the Missouri Agricultural Experiment Station at Columbia, Missouri.

(5) "**Sale,**" "**Sold,**" and "**Sells**" include exchanges and consignments for sale and means any transfer or barter. Laws 1953, p 9, § 1 (266.290).

266.300. Permit required to sell fertilizer—application

It shall be unlawful for any distributor to sell, offer for sale or expose for sale for consumption or use in this state any fertilizer without first securing a permit from the director. Such permit shall expire on the thirtieth day of June of each year. Application for such permit shall be on forms furnished by the director. Laws 1953 p. 9, § 1 (266.300).

266.310. Sale of misbranded fertilizer prohibited—misbranding defined

It shall be unlawful for any person to sell, offer for sale or expose for sale any fertilizer for use or consumption in this state which is misbranded. Any fertilizer shall be deemed to be misbranded if it fails to carry the printed statement required under section 266.320, or if the chemical composition of such fertilizer does not meet the guarantees expressed on said statement within allowable tolerances fixed by the director, or if the container for such fertilizer or any statement accompanying the same carries any false or misleading statement, or if false or misleading statements concerning its agricultural value are made on any advertising matter accompanying or associated with such fertilizer. Laws 1953, p. 9, § 1 (266.310).

266.320. Information required on containers

1. Each container of fertilizer sold, offered for sale or exposed for sale for consumption or use within this state shall bear thereon or have attached thereto in a conspicuous place a plainly written statement in the English language giving the following information:

(1) The name, brand or trade mark under which the fertilizer is sold;

(2) The name and address of the person guaranteeing the fertilizer;

(3) The guaranteed chemical composition of the fertilizer, expressed in the following terms:

(a) Per cent of total nitrogen,

(b) Per cent of available phosphoric acid,

(c) Per cent of soluble potash.

Unacidulated mineral phosphatic materials and basic slag shall be guaranteed as to both total and available phosphoric acid, and the degree of fineness as expressed in percentage

passing through standard mesh sieves. In the case of bone, tankage, and other natural organic phosphate materials, only total phosphoric acid must be guaranteed.

2. If any fertilizer is sold, offered for sale, or exposed for sale in bulk, such plainly printed statement herein required shall accompany each lot and parcel of such fertilizer. Laws 1953, p. 9, § 1 (266.310).

266.330. Sales to be reported—fees—to be used for what

Every distributor shall, within thirty days after each six-months' period ending June thirtieth and December thirty-first, file with the director on forms supplied by him, a sworn certificate setting forth the amount of fertilizer sold by such distributor for consumption or use in the state of Missouri during each such respective period. At the time of filing said certificate, each distributor shall pay to the director a fee of one and one-half cents for each one hundred pounds of fertilizer sold by him during the period covered by such certificate; provided, however, that sales to fertilizer manufacturers or exchanges between them are hereby exempted. The fees so paid to the director shall be used for defraying the expenses in administering sections 266.290 to 266.350 and for practical and scientific experiments by the Missouri Agricultural Experiment Station in the value and proper use of fertilizers, and for publishing the results of the same, and for other work, projects, research, investigations and publications as may be of practical use to the farmers of this state.

266.340. Powers of director in administering law

The duty of enforcing and administering sections 266.290 to 266.350 shall be vested in the director. The director or his authorized agents and deputies are hereby authorized and empowered:

(1) To collect samples, inspect, and make analysis of fertilizer sold, offered or exposed for sale within this state; provided, however, that samples taken of fertilizer sold in bulk shall be taken from the bulk container immediately after mixing on the premises of the mixing facility or when not possible to be sampled from the bulk container wherever found;

(2) To adopt, after public hearing, such reasonable rules and regulations necessary to secure the efficient enforcement of sections 266.290 to 266.350;

(3) To inspect and audit the books of every distributor who sells, offers for sale, or exposes for sale fertilizer for consumption or use in this state, to determine whether or not the provisions of sections 266.290 to 266.350 are being fully complied with;

(4) To require every distributor to file with the director a copy of each invoice covering every sale of fertilizer for use or consumption within this state, which invoice shall show the name and address of the purchaser thereof, the analysis of such fertilizer expressed in terms of guaranteed chemical composition and the weight thereof. Said invoices shall not be

required more often than two-week intervals, and all such invoices shall be returned to the distributor upon his request;

(5) To enter upon any public or private premises during the regular business hours in order to have access to fertilizer subject to sections 266.290 to 266.350 and the rules and regulations thereunder, and to take samples and inspect such fertilizer;

(6) To issue and enforce a written or printed "Stop sale, use, or removal" order to the owner or custodian of any fertilizer which is found to be in violation of any of the provisions of sections 266.290 to 266.350, which order shall prohibit the further sale of such fertilizer until sections 266.290 to 266.350 have been complied with or said violation has been otherwise legally disposed of by written authority of the director;

(7) To maintain a laboratory with necessary equipment, and to employ such employees as may be necessary to aid in the administration of sections 266.290 to 266.350;

(8) To publish each year the full and detailed report giving the names and addresses of all distributors registered under sections 266.290 to 266.350, the analytical results of all samples collected, and a statement of all fees and penalties received and expenditures made under sections 266.290 to 266.350;

(9) To revoke or suspend the permit, or refuse to issue a permit to any distributor who has willfully violated any of the provisions of sections 266.290 to 266.350 or failed or neglected to pay the fees or penalties provided for in sections 266.290 to 266.350;

(10) To institute and prosecute through the attorney general of this state suits to collect any fees due under the provisions of sections 266.290 to 266.350 which are not promptly paid;

(11) To establish from information secured from manufacturers and other reliable sources the market value of fertilizer and fertilizer materials for the purpose of determining the amount of damages due when the official analysis shows an excessive deficiency from the guaranteed analysis.

266.343. Penalties for deficiency in fertilizer

If any fertilizer offered for sale in this state shall upon official analysis prove deficient from its guarantee as stated on the bag or other container, penalties shall be assessed as follows:

(1) For a single ingredient fertilizer containing nitrogen or phosphate or potash:

(a) When the value of this ingredient is found to be deficient from the guarantee to the extent of 3% and not over 5%, the distributor shall be liable for the actual deficiency. When the deficiency exceeds 5% of the total value, the penalty shall be three times the actual value of the shortage.

(2) For multiple ingredient fertilizers containing two or more of the single ingredients: nitrogen or phosphate or potash, penalties shall be assessed according to (a) or (b) as

herein stated. When a multiple ingredient fertilizer is subject to a penalty under both (a) and (b) only the larger penalty shall be assessed.

(a) When the total combined values of the nitrogen or available phosphoric acid or potash is found to be deficient to the extent of 3% and not over 5%, the distributor shall be liable for the actual deficiency in total value. When the deficiency exceeds 5% of the total value, the penalty shall be three times the actual value of the shortage.

(b) When either the nitrogen, available phosphoric acid, or potash value is found deficient from the guarantee to the extent of 10% up to the maximum of two units, (2% plant food) the distributors shall be liable for the value of such shortages.

266.347. Penalties payable to purchaser or director, collection procedures

1. The penalties assessed by the director under Section 266.343 shall be paid by the distributor to the purchaser of such fertilizer, and in the event such purchaser cannot be ascertained, then said penalty shall be paid to the director and used for the purposes specified in section 266.330, except the maximum paid the purchaser will approximate the actual value of the deficiency.

2. The director shall prepare a written certification of penalties assessed under section 266.343 addressed to the distributor. A copy of such certification of assessment shall be mailed to the distributor liable for the penalty.

3. Any decision, finding, order or ruling of the director made pursuant to the provisions of section 266.290 through 266.350 shall be subject to judicial review in the manner provided by Chapter 536, RSMo.

4. If any distributor shall fail to pay any penalty assessed by the director after the time for judicial review has expired, or after any judgment or decree approving such assessment has become final, the person entitled to such penalty under the provisions of subsection 1 shall be entitled to bring a civil action to recover the same, and in such civil action such persons shall be entitled to recover from the distributor the amount of the penalty, a reasonable attorney's fee and costs of the action.

266.350. Violation a misdemeanor

In addition to the civil penalties provided herein, each violation of any provision of sections 266.290 to 266.350 shall be deemed a misdemeanor.

Regulations Under the Provisions of Section 266.340 of the Missouri Fertilizer Law.

I. On the basis of information secured from persons holding permit to sell fertilizers in Missouri the following values will be used for purposes of assessing penalties as provided by Section 266.343 of the Missouri Fertilizer Law.

Nitrogen	\$3.00 per unit (15¢ per pound)
Total P ₂ O ₅ in Rock Phosphate ..	.72 per unit (3.6¢ per pound)
Available P ₂ O ₅	2.00 per unit (10¢ per pound)
Potash	1.00 per unit (5¢ per pound)

In event the actual retail price is substantially greater than the value as calculated at the above rates, the penalty shall be based on the retail price. In addition the director may require any lot subject to penalty be returned to the distributor and all costs involved in the return of such goods shall be borne by the distributor. However, in the case of bulk fertilizers, the person offering fertilizer for sale in bulk shall be responsible for guaranteeing such fertilizer and shall be liable for all penalties assessed under the provisions of Section 266.343.

II. Any lot of fertilizer that is subject to penalty shall be deemed misbranded. Any lot of fertilizer that is found misbranded for any reason will be subject to "stop sale".

III. Penalties shall be assessed on the basis of the fertilizer on hand at the time the sample is taken.

IV. At any time the following conditions prevail the Director will notify the person guaranteeing the fertilizer that the quality of such fertilizers must be improved and notification of further sales in the state must be made to the Director within 24 hours after shipment.

A. When more than 20% of 5 or more samples of all fertilizers sampled from a plant are subject to penalty.

B. When more than 20% of 5 or more samples of one grade from a plant are subject to penalty.

If further sampling and analysis of fertilizer covered by A or B, shipped after the first official notice does not indicate performance above these standards the guarantor's permit may be suspended or sale may be stopped on all such lots.

V. Any person combining fertilizer materials prior to delivery to the final purchaser, who is not a "Distributor" as defined in Section 266.290, will be required to secure, from the Director, a permit to blend fertilizer materials and certify that he will offer for sale only fertilizers that have previously been sold in full compliance with the Missouri Fertilizer Law.

VI. The last registered distributor selling fertilizer for use in Missouri shall be responsible to pay to the Director the fee as specified in Section 266.330.

HOW MUCH FERTILIZER IS NEEDED for profitable crop production in MISSOURI?

Having the soil tested is the best way to determine the kind and amount of fertilizer needed on each field. County agents can furnish soil testing information.

In the absence of a soil test, the following table may be helpful. It shows typical plant food needs to produce high yields and quality crops in Missouri, as indicated by soil test results over a period of years. However, individual fields may vary greatly in their actual needs.

TYPICAL PLANT FOOD NEEDS IN MISSOURI

CROP	Pounds per Acre			
	N	P ₂ O ₅	K ₂ O	
CORN	100	80	40	Most of the phosphate and potash should be plowed down. Practically all of the nitrogen either should be plowed down or placed deeply in the soil either before planting or shortly thereafter. Since corn is grown widely over the entire State, needs for applied nutrients vary greatly.
COTTON	80	60	60	Soils extremely low in potassium need more potash than shown here. Although soil tests may show a high mineral phosphorus level, the use of phosphate still is necessary with full use of nitrogen.
WHEAT	60	100	60	Fertilizer applied to wheat in Missouri often must feed a grass and/or legume seeding too. This calls for a liberal application of phosphate and potash. Available soil potassium varies widely across the State, however, so that the potash requirement varies accordingly. Where "build-up" phosphate applications are made separately, the P ₂ O ₅ suggested here may be reduced about one-half.
BARLEY	60	60	60	The phosphate application suggested here is low in comparison with wheat because the barley grown in Missouri is likely to be on land which has had a full soil treatment previously. If not, increase the phosphate.
OATS	60	40	40	If corn planted prior to oats received liberal nitrogen, application to oats may be reduced by about 20 lbs. if the corn made a good yield. Following a poor year, nitrogen carryover may be even greater. If grass and legume seedings are made in oats, phosphate and potash should be increased accordingly.
SOYBEANS	15	60	60	Liberal amounts of lime, phosphate and potash are needed. Because of erratic response to direct fertilizer application, it may be better to apply fertilizer heavily to the previous crop with the soybeans benefiting residually.
PASTURE	50	150	50	This suggested treatment is for land previously in hay or pasture. On previously cultivated land, the potash requirement likely will be greater.
ALFALFA	40	160	160	Annual applications are needed in addition to this treatment at the time of establishment.

* THE CORRECT FERTILIZER TO USE to supply these plant foods may be any one of several analyses available from fertilizer dealers in Missouri, or it may be a combination of two or more fertilizers.

One example for corn might be 400 lbs. of 5-20-10 plus 240 lbs. of ammonium nitrate. For pastures, the total need might be supplied by 625 lbs. of 8-24-8. Nitrogen applications should be made annually according to the crop. Phosphate and potash may be applied annually, or most of it may be put on once or twice during the rotation with only a starter used with each crop.

SEE YOUR FERTILIZER DEALER. He can help you decide on the kinds and amounts of fertilizer which will supply the typical plant food needs shown above.