

UNIVERSITY OF MISSOURI.

COLLEGE OF AGRICULTURE

Agricultural Experiment Station.

BULLETIN NO. 85.



Inspection of Commercial Fertilizers

COLUMBIA, MISSOURI.

January, 1910.

UNIVERSITY OF MISSOURI.

COLLEGE OF AGRICULTURE

Agricultural Experiment Station

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¹ In the service of the U. S. Department of Agriculture.

REPORT OF THE DIRECTOR.

The following report is made in accordance with the Missouri Fertilizer Law approved March 14, 1903. The report covers the year ending December 31, 1909.

The practical workings of this law which requires the registration and inspection of commercial fertilizers sold in Missouri, has resulted in protecting the users of fertilizers and guaranteeing to them fertilizer materials of known composition. The present law is efficient and satisfactory to the manufacturer as well as the farmer. This plan of inspection and registration of fertilizers is heartily approved and encouraged by all honest manufacturers and dealers.

The use of fertilizers is increasing rapidly in Missouri. Higher prices for all agricultural products combined with a gradual decline in fertility of all lands are the apparent causes of this increase. As the use of fertilizers becomes more general in the state the importance of fertilizer control by the Experiment Station will be still further recognized. This report includes the following:

1. A list of the fertilizer manufacturers and the brands offered for sale by them in the state of Missouri. Page 41.
2. Tables showing the comparative valuation of fertilizers of the same guaranteed composition. Page 52.
3. A detailed report of the analyses of registered fertilizers offered for sale in Missouri during the season of 1909. These analyses were made in the Chemical Laboratory under the direction of Dr. P. F. Trowbridge. Page 54.
4. Directions for sending samples of fertilizers to the Experiment Station for analysis. Page 71.
5. A financial statement of the receipts and disbursements for the year ending December 31, 1909. Page 67.

F. B. MUMFORD,
Director.

Columbia, Missouri, February 1, 1910.

INSPECTION OF COMMERCIAL FERTILIZERS.

P. F. TROWBRIDGE, Chemist.

This bulletin contains the results of the analyses of fertilizers received at the Experiment Station during the year 1909. It is the purpose of the Experiment Station to secure for analysis samples of every brand of fertilizer offered for sale in Missouri. In many places fertilizers are not kept in stock but are ordered by a dealer for a group of farmers who haul it home within twenty-four hours after its receipt at the station, and use it on the land before the inspector can get around to collect a sample. In order that samples of such lots of fertilizers may be examined by the Experiment Station we give instructions on page 71 for purchasers of fertilizers who may wish to send in samples for analysis.

During the year 1909, twenty fertilizer manufacturers listed fertilizers with the experiment station representing two hundred sixty-five brands. Four of these manufacturers did not report making any sales in the state; and the inspectors were able to find only one hundred ten brands offered for sale.

A list is given below of the manufacturers with their brands as registered with the Experiment Station.

BRANDS OF FERTILIZERS REGISTERED IN MISSOURI—Season of 1909.

AMERICAN FERTILIZER AND STOCK FOOD COMPANY, Des Moines, Iowa.

Iowa Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Insol. per ct.	Avail- able. per ct.	
Blood, Bone and Potash.....	3.	20	10	10	2½
Blood and Bone.....	3.	20	10	10	...
Raw Bone Meal.....	3.5	20	10	10	...
Pure Bone Meal.....	2.5	25	12½	12½	...
Pure Bone and Potash.....	2.5	24	11½	12½	2.5
Animal Steam Bone Meal.....	1.50	28	18	10	...
Grain Grower.....	1.64	13	3	10	2

AMERICAN REDUCTION & FERTILIZER COMPANY, Kansas City, Mo.

Kaw Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Wheat & Small Grain Grower.....	1.65	10	8	2	3
Special	1.65	6	4	2	5
Fruit and Vegetable Grower.....	1.65	8	5	3	6
Potato Grower.....	1.00	6	4	2	7
Special Potash Mixture.....	.41	5	4	1	6

ARKANSAS FERTILIZER COMPANY, Little Rock, Ark.

White Diamond Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Raw Bone Meal & Potash.....	2.47	18	7	11	2
Pure Raw Bone Meal.....	3.30	20	7	13	....
Twentieth Century Fert.	1.65	10	9	1	2
High Grade C. & W. Fert.	1.65	10	9	1	4
High Grade Orchard Fert.	1.65	8	7	1	8
Potash Special	1.65	10	9	1	6
Ammon. Bone Superphosphate.....	1.65	11	9	2	2
Early Potato and Trucker	2.47	..	8	..	4
Acid Phosphate.....	....	..	14	..	....
High Grade Acid Phosphate.....	....	..	16	..	....
Phosphate Kainit Mixture.....	....	..	10	..	4
Kali Superphosphate .....	....	..	12	..	2.50
High Grade Farmers Choice.....	2.00	11	10	1	2.50
Economy Fertilizer.....	.82	11	10	1	2.00
Nitrate of Soda.....	15.30	..	..	..	....

ARMOUR FERTILIZER WORKS, Chicago, Ill.

Shield Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Grain Grower	1.65	8.50	8	0.50	2
Ammon. Bone with Potash	2.47	6.50	6	0.50	2
W. C. & O. Special .....	.82	7.50	7	0.50	1
Fruit and Root Crop Special	1.65	8.50	8	0.50	5
Bone, Blood and Potash	4.11	8.50	8	0.50	7
High Grade Potato	1.65	8.50	8	0.50	10
Record Brand .....	.82	10.50	10	0.50	1
All Soluble	2.88	8.50	8	0.50	4
Hoosier Corn Grower .....	.82	8.50	8	0.50	4
Crop Grower	1.23	8.50	8	0.50	2
Armour's Standard .....	.82	8.50	8	0.50	3
Soluble Phosphate and Potash .....	....	10.50	10	0.50	4
Phosphate and Potash .....	....	10.50	10	0.50	2
Star Phosphate .....	....	14.50	14	0.50	.....
Cereal Phosphate .....	....	10.50	10	0.50	.....
Raw Bone Meal	3.70	22.00	..	....	.....
Bone Meal	2.47	24.00	..	....	.....
Steamed Bone Meal	1.65	20.00	..	....	.....
German Kainit .....	....	....	..	....	12.00
Muriate of Potash .....	....	....	..	....	48.00
Sulphate of Potash .....	....	....	..	....	50.00
Nitrate of Soda	15.63	....	..	....	.....
3-8-6 Fertilizer	2.47	8.50	8	0.50	6.00

ARMOUR PACKING COMPANY, Chicago, Ill.

Helmet Brands.	Phosphoric Acid P ₂ O ₅				Potash K ₂ O per ct.
	Nitro- gen per ct.	Total per ct.	Avail- able per ct.	Insol. per ct.	
Blood and Bone	4.93	13.50	..	....	.....
Raw Bone Meal	3.70	22.00	..	....	.....
Fine Ground Beef Bone	2.47	24.00	..	....	.....
Steamed Bone	1.65	20.00	..	....	.....
Bone Dust	1.44	22.00	..	....	.....
Acidulated Bone Meal	2.05	16.50	16.00	0.50	.....
14 per cent Phosphate .....	....	14.50	14.00	0.50	.....
Phosphate and Potash .....	....	10.50	10.00	0.50	2
No. 171 Fertilizer	0.82	7.50	7.00	0.50	1
No. 271 Fertilizer	1.65	7.50	7.00	0.50	1
No. 282 Fertilizer	1.65	8.50	8.00	0.50	2
No. 285 Fertilizer	1.65	8.50	8.00	0.50	5
Special Potato Fertilizer	1.65	8.50	8.00	0.50	10
Ammon. Dissolved Bone and Potash	1.65	10.50	10.00	0.50	2
No. 386 Fertilizer	2.47	8.50	8.00	0.50	6
Lawn and Garden Fertilizer	2.88	8.50	8.00	0.50	4
Odorless Lawn No. 493	3.29	9.50	9.00	0.50	3
Blood, Bone and Potash	4.11	8.50	8.00	0.50	7
No. 583 Fertilizer	4.11	8.50	8.00	0.50	3
Sulphate of Potash .....	....	....	....	....	50.00
Muriate of Potash .....	....	....	....	....	48.00
Nitrate of Soda	15.63	....	....	....	....

BLOOD AND BONE FERTILIZER COMPANY, St. Louis, Mo.

Steer Head Brands.	Phosphoric Acid P ₂ O ₅				Potash K ₂ O per ct.
	Nitro- gen per ct.	Total per ct.	Avail- able per ct.	Insol. per ct.	
Special Corn Grower, High Grade	2.08	12.00	8	4	3
Special Corn Grower, Medium Grade	1.64	12.00	8	4	2
Special Oat Grower, High Grade	1.64	12.00	8	4	2
Special Oat Grower, Medium Grade	1.00	12.00	7	5	1
Special Truck Grower, High Grade	3.26	11.00	8	3	5
Special Truck Grower, Medium Grade	2.08	12.00	8	4	3
Special Wheat Grower, High Grade	1.00	14.00	10	4	3
Special Wheat Grower, Medium Grade	1.00	12.00	7	5	1
Soluble Bone Phosphate, High Grade .....	....	16.00	14	2	.....

**CONTINENTAL FERTILIZER COMPANY, Represented by
Louisville Fertilizer Co., Louisville, Ky.**

Bear Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Phosphate .....	....	....	12	....	....
High Grade Dissolved Bone .....	....	....	14	....	....
Potash Mixture .....	....	....	10	....	2
Grain Grower .....	.41	....	8	....	4
Slaughter House Bone	1.6	....	8	....	2
Wheat and Corn Grower .....	.82	....	10	....	1
Beef Blood and Bone	1.6	....	10	....	2
Bone Meal .....	.82	20	....	....	....
Raw Bone	2.46	20	....	....	....

DARLING AND COMPANY, Chicago, Ill.

	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Chicago Brand	1.65	9.50	8	1.50	2
Sure Winner .....	.824	9.50	8	1.50	3
General Crop .....	.824	9.50	8	1.50	6
Phosphate and Potash .....	....	....	10	....	2
Pure Ground Bone	2.47	23.00	....	....	....

EMPIRE CARBON WORKS, St. Louis, Mo.

Empire Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Truck and Vegetable Grower.....	2.46	10	8	2	4
Potato and Truck Special .....	.82	10	8	2	7
Bone Black Fertilizer	2.06	9	8	1	1.50
Crop Grower	1.65	9	8	1	2
Wheat and Clover Fert. ....	.82	9	8	1	2
Complete Manure .....	.82	8	7	1	1
Phosphate With Potash .....	....	....	10	....	2
Dissolved Bone .....	....	....	14	....	....
Phosphate .....	....	....	10	....	....
Raw Bone Meal	3.29	22	....	....	....
Ground Bone	1.23	25	....	....	....
Muriate of Potash .....	....	....	....	....	49

EMPIRE CARBON WORKS, St. Louis, Mo.

Boar's Head Brands.	Phosphoric Acid P ₂ O ₅				Potash K ₂ O per ct.
	Nitro- gen per ct.	Total per ct.	Avail- able per ct.	Insol. per ct.	
"World of Good" Vegetable and Truck Grower..	1.65	10	8	2	5
"World of Good" Potato, Onion & Truck Grower.	.82	10	8	2	7
"World of Good" Super-Phosphate	2.06	10	8	2	1.50
"World of Good" Corn and Wheat Grower...	1.65	10	8	2	2
Ammon. Bone and Potash.....	.82	12	10	2	1
Seeding Down Guano .....	.82	9	8	1	2
Faultless Grain Grower.....	.82	8	7	1	1
Missouri Sure Growth .....	.....	.....	10	.....	2
Gilt Edge Phosphate .....	.....	.....	14	.....	.....
Soluble Phosphate .....	.....	.....	10	.....	.....
Raw Bone Meal	3.29	22	.....	.....	.....
Chicago Bone Meal	2.46	20	.....	.....	.....
Special Bone Meal	1.23	25	.....	.....	.....

EMPIRE CARBON WORKS, St. Louis, Mo.

Bradley's Standard Brands.	Phosphoric Acid P ₂ O ₅				Potash K ₂ O per ct.
	Nitro- gen per ct.	Total per ct.	Avail- able per ct.	Insol. per ct.	
Potato and Truck Grower .....	.82	10	8	2	7
B. D. Sea Fowl Guano	2.06	10	8	2	1.50
Potato and Root Phosphate .....	.82	10	8	2	4
Wheat and Clover .....	.82	12	10	2	1
Corn and Wheat .....	.82	9	8	1	2
Niagara Phosphate .....	.82	8	7	1	1
Alkaline Bone and Potash .....	.....	.....	10	.....	2
Soluble Dissolved Bone .....	.....	.....	14	.....	.....
Raw Bone Meal	3.29	22	.....	.....	.....
Bone Meal	1.23	25	.....	.....	.....

EMPIRE CARBON WORKS, St. Louis, Mo.

Horse Shoe Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Special Truck Manure	1.65	10	8	2	5
Potato and Vegetable Grower .....	.82	10	8	2	7
National Bone Dust	2.06	10	8	2	1½
Corn and Wheat Grower	1.65	9	8	1	2
Acidulated Bone and Potash .....	.82	12	10	2	1
Reliable Wheat Grower .....	.82	9	8	1	2
Animal Bone Manure .....	.82	8	7	1	1
Bone and Potash .....	....	....	10	....	2
Quick Acting Phosphate .....	....	....	10	....	....
Fine Raw Bone	3.29	22	....	....	....
Pure Ground Bone	2.46	20	....	....	....
Premium Bone Meal	1.23	25	....	....	....

LEONARD HAEFELE, St. Louis, Mo.

Star Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Ground Steamed Bone	2.57	25.44	6.01	19.43	....

HIRSH, STEIN AND COMPANY, St. Louis, Mo.

Calumet Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Bone Phosphate and Potash .....	.41	11	10	1	2
Universal Crop Grower .....	.823	8	7	1	1
Pot., Tob. and Onion Grower	1.646	9	8	1	5
Complete Fertilizer	1.646	9	8	1	2
Special Wheat Grower .....	.823	9	8	1	4
Special Pure Bone Meal and Potash .....	.823	20	....	....	4
Pure Bone Meal	2.40	22.8	....	....	....
Special Pure Bone Meal .....	.823	29	....	....	....
Pure Raw Bone Meal	3.70	20	....	....	....
Dissolved Pure Bone Phos. ....	.80	19	18	1	....

P. B. MATHIASON MANUFACTURING COMPANY, St. Louis, Mo.

Increscent Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Pure Raw Bone Meal	3.50	23	7	16	.....
Pure Bone Meal	2.68	23	8	15	.....
Extra Fine Ground Bone Meal	2.06	22	9	13	.....
Alkaline Bone .....	.....	.....	10	.....	3
Acid Phosphate .....	.....	.....	16	.....	.....
Acidulated Bone Meal.....	2.47	14	10	4	.....
Acidulated Bone and Potash.....	2.47	11	9	2	2
St. Louis Fertilizer	1.65	10	8	2	1.50
Potato and Tobacco Grower	1.65	9	7	2	4.50
Basing Mixture	2.88	19	6	13	7
Dissolved Bone	3.09	11	9	2	4
Grain Grower	1.65	10	8	2	2
Bearing Tree Mixture	2.00	.....	10	.....	7.50
Raw Bone and Potash	2.47	18	6	12	3
Lawn Fertilizer	3.91	.....	9	.....	2.50
Complete Fertilizer.....	.83	9	8	1	1
Special Acid Bone and Potash	2.47	8	6	2	2
Special Corn and Oats Grower .....	.90	9	7	2	1
Special Wheat Grower	1.65	11	9	2	1

MAYER FERTILIZER COMPANY, St. Louis, Mo.

Anchor Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Special Wheat Grower	1.00	13	10	3	3
Special Corn Grower	2.05	11	8	3	3
Special Truck Grower	3.25	11	8	3	5
Special Berry and Fruit Grower	1.65	14	10	4	6
Complete Fertilizer	1.65	12	8	4	2
Bone and Potash	1.00	12	7	5	1
Acid Phosphate .....	.....	.....	14	.....	.....
Raw Bone Meal	3.70	20	7	13	.....
St. Louis Bone Meal	3.30	18	6	12	.....

MORRIS AND COMPANY, Chicago, Ill.

	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Big One, Ground Raw Bone	3.3	24	.....	.....	.....
Big Two, Pure Bone Meal	2.0	28	.....	.....	.....
Big Three	2.5	10	4	6	2
Big Four	4.1	12	5	7	4
Big Five	2.5	10	4	6	1
Big Six, Special Bone Meal .....	.82	27	.....	.....	.....
Big Seven, Special Bone Meal and Potash...	1.24	16	.....	.....	3
Big Eight, Ammon. Acid Phos. and Potash..	.82	15	7	8	1
Big Nine	1.65	18	8	10	5
Big Ten, Grain Grower	1.65	18	8	10	2

PULVERIZED MANURE COMPANY, Chicago, Ill.

Wizard Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Manure.....	2.1	.....	1.2	....	1.35

SPRINGFIELD FERTILIZER COMPANY, Springfield, Mo.

Ozark Brands.	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Veg, Pot. and Tomato Grower	1.65	10	8	2	6
Grain Grower.....	1.65	10	8	2	2
Pure Raw Bone Meal.....	3.75	23	.....	.....	.....
Bone Meal.....	2.05	23	.....	.....	.....
Steamed Bone Meal	1.23	27	.....	.....	.....
Ammoniated Bone	4.12	17	.....	.....	.....
Phosphate and Potash.....	....	.....	12	....	2
Acid Phosphate.....	....	.....	14	....	.....
Lawn Fertilizer.....	3.75	5	.....	....	2
Fruit Producer.....	1.65	10	8	2	8
Garden Grower.....	2.47	7	6	1	4
Special.....	1.23	8	7	1	1
High Grade Potash Mixture.....	....	.....	.....	....	10
Wheat Grower.....	1.65	14	.....	....	2

SWIFT AND COMPANY, Chicago, Ill.

Swift's Brands.	Phosphoric Acid P ₂ O ₅				
	Nitro- gen per ct.	Total per ct.	Avail- able per ct.	Insol. per ct.	Potash K ₂ O per ct.
Superphosphate.....	1.65	10	8	2	2
Special Phosphate and Potash.....	....	.....	10	1	2
Complete Fertilizer.....	1.00	9	8	1	1
Onion, Pot. & Tob. Fert.	1.65	10	8	2	7
Pure Raw Bone Meal.....	3.75	23	.....	.....	.....
Pure Lawn Fertilizer.....	3.75	23	.....	.....	.....
Pure Ammon. Bone and Potash.....	4.75	16	.....	.....	3
Strawberry Special Fert.	3.29	11	9	2	10
Special Grain Fert.	1.65	12	10	2	2
Champion Vegetable Grower.....	3.29	10	8	2	3
Pure Bone Meal.....	2.50	25	.....	.....	.....
Pure Bone Meal and Potash.....	2.50	23.50	.....	.....	3
Pure Bone Meal and Blood.....	3.75	23	.....	.....	.....
Pure Special Bone Meal.....	.82	27.50	.....	.....	.....
Ground Dried Blood.....	13.17	.....	.....	.....	.....
Ground Steamed Bone.....	1.65	20.00	.....	.....	.....

TENNESSEE CHEMICAL COMPANY, Louisville, Ky.

Ox Brands.	Phosphoric Acid P ₂ O ₅				
	Nitro- gen per ct.	Total per ct.	Avail- able per ct.	Insol. per ct.	Potash K ₂ O per ct.
Phosphate.....	....	.....	12	.....	.....
High Grade Dissolved Bone.....	....	.....	14	.....	.....
Potash Mixture.....	....	.....	10	.....	2
Alkaline Bone.....	....	.....	12	.....	2
Grain Grower.....	.41	.....	8	.....	4
Slaughter House Bone.....	1.6	.....	8	.....	2
Wheat and Corn Grower.....	.82	.....	12	.....	1
Ammoniated Bone.....	1.6	.....	10	.....	2
Bone Meal.....	.82	.....	.....	20	.....
Raw Bone.....	2.46	.....	.....	20	.....

TUSCARORA FERTILIZER COMPANY, Chicago, Ill.

	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Tuscarora Standard.....	1.65	8.50	8	.50	2
Tuscarora Fruit and Potato.....	1.65	8.50	8	.50	10
Tuscarora Garden.....	2.88	8.50	8	.50	4
Tuscarora Trucker.....	4.11	8.50	8	.50	7
Tuscarora Chief.....	.82	8.50	8	.50	4
Tuscarora Big Four.....	1.65	7.50	7	.50	4
Ammoniated Phosphate.....	.82	7.50	7	.50	1
Bone and Potash.....	....	10.50	10	.50	2
Soluble Phosphate with Potash.....	....	10.50	10	.50	4
Acid Phosphate.....	....	14.50	14	.50	....
Tuscarora Bone Phosphate.....	....	10.50	10	.50	....
Tuscarora Steamed Bone Meal.....	1.65	20.00	....	....	....
Tuscarora Raw Bone Meal.....	3.70	22.00	....	....	....
Animal Bone.....	2.47	24.00	....	....	....
German Kainit.....	....	....	....	....	12
Muriate of Potash.....	....	....	....	....	48
Sulphate of Potash.....	....	....	....	....	50
Nitrate of Soda.....	15.63	....	....	....	....
3-8-6 Fertilizer.....	2.47	8.50	8	.50	6
Tuscarora High Grade.....	....	10.50	10	.50	8

VIRGINIA-CAROLINA CHEMICAL COMPANY, Memphis, Tenn.

	Nitro- gen per ct.	Phosphoric Acid P ₂ O ₅			Potash K ₂ O per ct.
		Total per ct.	Avail- able per ct.	Insol. per ct.	
Royal High Grade Guano.....	1.65	....	10	....	2
Beef Blood and Bone Fert.	1.65	....	8	....	2
Scotts State Standard Guano.....	1.65	....	8	....	2
Champion C. & W. Grower.....	.82	....	8	....	2
Royal Vegetable Fert.	2.47	....	8	....	4
V. & C. Garden Truck Spec.	4.95	....	6	....	4
V.-3-C. Fruit and Truck.....	3.30	....	6	....	8
Memphis Truck Special.....	3.30	....	8	....	4
Victor Bone and Potash.....	....	....	15	....	3
Royal Grain Grower.....	....	....	10	....	4
Capitol Bone & Potash Com. ....	....	....	10	....	2
Victor High Grade Acid Phos. ....	....	....	14	....	....

INSPECTION OF COMMERCIAL FERTILIZERS.

BASIS FOR CALCULATION.

In calculating the value of the fertilizers for this bulletin we have used the following values for the various food constituents.

Nitrogen	\$4.00 per unit*	or 20 cents per pound.
Avail. Phos. Acid	1.20 per unit	or 6 cents per pound.
Insoluble Phos. Acid	0.40 per unit	or 2 cents per pound.
Potash	1.20 per unit	or 6 cents per pound.
Total Phos. Acid	0.70 per unit	or 3½cents per pound.

The sum of the available and insoluble phosphoric acid represents the total phosphoric acid hence this latter value is not considered except where only the total amount of phosphoric acid is guaranteed.

These values are only approximations but may be assumed to represent fairly well the maximum retail values at any point in the state. They are helpful in comparing one fertilizer with another.

In the following table will be found a comparison of the valuation of some fertilizers having practically the same guaranteed composition but offered by different manufacturers. The heavy faced type represents the percentage of the various constituents guaranteed, ordinary type the values found.

Following this table is given tables containing a detailed report of all fertilizers examined during the year 1909.

* A unit is one per cent or 20 pounds per ton.

COMPARATIVE VALUATION OF FERTILIZERS OF SAME GUARANTEED COMPOSITION.

	Nitrogen	Available Phosphoric Acid P ₂ O ₅	Potash K ₂ O	Value
Guaranteed Composition	1.65	8.00	2.00	\$18.80
Hirsh, Stein & Co., Complete Fert.	1.45	10.69	2.82	22.94
P. B. Mathiason & Co., Grain Gr.	1.91	9.34	2.07	22.90
Armour Packing Co., Helmet 282	1.75	8.74	2.13	20.94
Morris & Co., Big Ten Grain Gr.	1.87	8.04	3.32	20.41
Empire Fert. Co., Empire Crop Gr.	1.85	7.67	1.87	20.00
Empire Fert. Co., H. S. Corn and W. Gr.	1.57	8.54	2.15	19.78
Tuscarora Fert. Co., Tus. Standard	1.47	8.01	2.26	19.75
Swift & Co., Swift's Superphosphate.....	1.64	6.34	2.26	19.10
Guaranteed Composition	1.65	10.00	2.00	21.00
Armour Packing Co., Ammon. Dis. Bone & Potash.	1.69	10.55	2.09	22.74
Swift & Co., Swift's Spec. Gr. Fert.	1.78	8.47	2.04	21.93
Guaranteed Composition	0.82	7.00	1.00	12.88
Morris & Co., Big Eight	1.26	7.30	1.29	16.23
Empire Fert. Co., Boars Head Fault. Grain Grower	1.03	8.07	1.16	16.07
Empire Fert. Co., Horse Shoe, Animal Bone.....	0.82	7.55	1.20	14.47
Hirsh, Stein & Co., Universal Crop Grower.....	0.77	8.25	1.06	14.42
Tuscarora Fert. Co., Ammon. Phos.	0.81	6.71	1.19	13.32
Guaranteed Composition	0.82	8.00	4.00	17.68
Hirsch, Stein & Co., Spec. Wheat Gr.	1.31	7.82	3.70	19.55
Tuscarora Fert. Co., Tuscarora Chief	0.56	8.24	3.80	17.10
Guaranteed Composition	0.41	8.00	4.00	16.04
Continental Fert. Co., Bear Grain Gr.	0.46	12.06	3.28	21.15
Tennessee Chem. Co., Ox Grain Gr.	0.52	8.86	3.44	17.94
Guaranteed Composition	0.00	10.00	2.00	14.40
Continental Fert. Co., Bear Pot. Mixture .....	....	12.82	1.69	18.35
Tennessee Chem. Co., Ox Pot. Mixture .....	....	11.10	2.38	16.88
Tuscarora Fert. Co., Bone and Potash.....	....	11.27	1.90	16.15
Empire Fert. Co., Horse Shoe, Bone & Pot. ....	....	9.26	1.53	14.05
Guaranteed Composition .....	....	14.00	....	16.60
Tuscarora Fert. Co., Acid Phosphate.....	....	16.03	....	19.41
Tennessee Chem. Co., Ox High. Grade. Dis. Bone..	....	14.57	....	18.67

	Nitro- gen	Avall- able Phos- phoric Acid P ₂ O ₅	Potash K ₂ O	Value
Guaranteed Composition .....	....	10.00	....	11.80
Empire Fert. Co., Horse Shoe Quick Acting Phos.	....	10.34	....	13.92
Tuscarora Fert. Co., Bone Phosphate .....	....	11.09	....	13.61
Guaranteed Composition	1.65	20.00	....	20.60
Armour Packing Co., Steamed Bone	1.89	26.70	....	26.25
Tuscarora Fert. Co., Steamed Bone	1.52	26.97	....	24.96
Swift & Co., Ground Steamed Bone	1.66	20.19	....	20.77
Guaranteed Composition	0.82	27.00	....	22.53
Swift & Co., Pure Special Bone Meal	1.21	30.15	....	25.74
Morris & Co., Big Six Spec. Bone Meal	1.44	26.80	....	22.60
Guaranteed Composition	2.46	20.00	....	23.84
Empire Fert. Co., Horse Shoe, Pure Ground Bone..	2.67	20.31	....	24.88
Tennessee Chem. Co., Ox Raw Bone Meal	2.49	16.84	....	21.75
Guaranteed Composition	3.70	22.00	....	30.20
Tuscarora Fert. Co., Raw Bone Meal	3.89	25.41	....	33.34
Armour Packing Co., Raw Bone Meal	3.75	23.85	....	31.70
Guaranteed Composition	2.47	24.00	....	26.68
Armour Packing Co., Fine Ground Beef Bone	2.90	25.07	....	29.15
Swift & Co., Pure Bone	2.26	26.39	....	27.50
Tuscarora Fert. Co., Animal Bone	2.32	25.06	....	26.81

REPORT OF ANALYSES OF REGISTERED FERTILIZERS SEASON OF 1909.

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per Ton	Value per Ton	
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found	
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.					
	1909	American Fertilizer & Stock Food Co., Iowa Brands.														
9929	Sept. 20	Animal Bone Meal.....	Jas. Cunningham, Montgomery City....	1.50	1.34	28.00	30.30	18.00	17.00	10.00	13.30	.....	.....	\$25.20	\$28.12	
9932	Sept. 23	Raw Bone Meal.....	L. A. Luck, Eolia.....	3.50	3.38	20.00	23.31	10.00	12.44	10.00	10.88	.....	.....	30.00	31.56	
9933	Sept. 23	Blood and Bone	C. Dawson, Eolia	3.00	2.47	20.00	25.07	10.00	14.29	10.00	10.78	.....	.....	28.00	28.54	
9934	Sept. 24	Blood and Bone	L. A. Luck, Eolia.....	3.00	3.32	20.00	22.61	10.00	12.18	10.00	10.43	.....	.....	28.00	30.66	
99174	Oct. 1	Pure Bone & Potash.....	D. C. Hardy, Versailles.....	2.50	2.06	24.00	12.69	11.50	2.52	12.50	10.17	2.50	2.20	32.60	24.09	
		American Reduction and Fertilizer Co., Kaw Brands.														
9936	Sept. 18	Grain Grower.....	Hert, Roth & Co., Kansas City.....	1.65	1.58	10.00	7.81	2.00	1.58	8.00	6.23	3.00	2.85	\$20.60	\$17.85	
9937	Sept. 16	Special Potash Mixture.....	Sampled at the factory, Kansas City..	0.41	0.45	5.00	4.08	1.00	1.98	4.00	2.10	6.00	5.29	14.04	11.46	
9938	Sept. 16	Hog Tankage	Sampled at the factory, Kansas City..	9.60	9.21	.....	.....	.....	.....	.....	.....	.....	.....	38.40	36.84	
9939	Sept. 16	Special	Sampled at the factory, Kansas City..	1.65	2.49	6.00	4.40	2.00	2.22	4.00	2.18	*5.00	.....	18.20		
99177	Sept. 30	Special	L. J. Stevens, Mt. Grove.....	1.65	1.36	6.00	4.26	2.00	2.42	4.00	1.84	*5.00	.....	18.20		
96135	Apr. 21	Special	S. H. Stokes, Seymour.....	1.65	1.93	6.00	9.38	2.00	3.99	4.00	5.39	*5.00	.....	18.20		
9940	Sept. 16	Sheep Guano	Sampled at the factory, Kansas City..	?	1.89	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.56	

*The potash in these fertilizers is from ashes and is only partially soluble in distilled water.

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per Ton	Value per Ton	
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found	
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.					
	1909	Arkansas Fert. Co., Little Rock, Ark. White Diamond Brand.														
9941	Sept. 24	Ammoniated Bone Phosphate.....	G. W. Whiteside, Whiteside.....	1.65	1.78	11.00	11.99	2.00	4.89	9.00	7.60	2.00	2.57	\$20.60	\$21.09	
9942	Sept. 24	Raw Bone Meal and Potash.....	G. W. Whiteside, Whiteside.....	2.47	2.57	18.00	18.56	11.00	11.13	7.00	7.43	2.00	1.74	25.08	25.74	
		Armour Fertilizer Works, Chicago, Ill. Shield Brands.														
961	May 18	Ammoniated Bone and Potash.....	Sampled at factory, Kansas City	2.47	1.79	6.50	11.93	0.50	1.82	6.00	10.11	2.00	2.20	\$19.68	\$22.66	
9947	Sept. 21	Ammoniated Bone and Potash.....	Neiberg Mfg. Co., Wright City.....	2.47	2.56	6.50	8.42	0.50	2.03	6.00	6.39	2.00	2.25	19.68	21.42	
962	Apr. 28	High Grade Potato	F. Schierbaum, Wentzville.....	1.65	1.33	8.50	8.99	0.50	0.92	8.00	8.07	10.00	9.55	28.40	26.83	
963	Apr. 29	Wheat, Corn and Oat Special.....	Mitchell Wilson Mfg. Co., Frederick'wn.	0.82	0.89	7.50	7.59	0.50	1.01	7.00	6.58	1.00	1.88	13.08	13.52	
964	Apr. 26	Wheat, Corn and Oat Special.....	W. E. Kubne, Wellsville.....	0.82	0.85	7.50	7.78	0.50	0.83	7.00	6.95	1.00	1.39	13.08	13.74	
9961	Sept. 22	Wheat, Corn and Oat Special.....	J. C. Ellis, Troy	0.82	0.74	7.50	8.36	0.50	0.45	7.00	7.91	1.00	1.12	13.08	13.97	
967	Apr. 28	Hoosier Corn Grower	F. Schierbaum, Wentzville.....	0.82	1.00	8.50	9.57	0.50	0.78	8.00	8.79	4.00	4.53	17.88	20.30	
9962	Sept. 20	Hoosier Corn Grower	Holt and Taylor, New Bloomfield.....	0.82	0.74	8.50	9.76	0.50	1.59	8.00	8.17	4.00	3.84	17.88	18.01	
968	Apr. 29	Crop Grower	Mitchell Wilson Mfg. Co., Frederick'wn.	1.23	1.04	8.50	9.82	0.50	1.02	8.00	8.80	2.00	2.31	17.12	17.90	
969	May 1	Crop Grower	Henderson Road, Auxvasse.....	1.23	1.09	8.50	9.12	0.50	0.84	8.00	8.28	2.00	2.42	17.12	17.54	
9963	Sept. 21	Crop Grower	Neiberg Mfg. Co., Wright City.....	1.23	1.60	8.50	9.25	0.50	1.28	8.00	7.97	2.00	2.25	17.12	19.17	
9610	Apr. 28	All Soluble	F. Schierbaum, Wentzville.....	2.88	1.97	8.50	9.41	0.50	0.54	8.00	8.87	4.00	4.39	26.12	24.01	
9948	Sept. 20	Blood, Bone and Potash	Holt and Taylor, New Bloomfield.....	4.11	3.02	8.50	9.28	0.50	0.62	8.00	8.66	7.00	6.88	34.64	30.98	
9966	Sept. 21	Grain Grower	Neiberg Mfg. Co., Wright City.....	1.65	1.44	8.50	10.17	0.50	1.79	8.00	8.39	2.00	2.10	18.80	19.07	
9611	May 18	Raw Bone Meal	Sampled at factory, Kansas City	3.70	3.80	22.00	25.00	.....	.....	.....	.....	.....	.....	30.20	32.70
9955	Sept. 22	Raw Bone Meal	Henderson Road, Auxvasse.....	3.70	4.20	22.00	24.08	.....	.....	.....	.....	.....	.....	30.20	33.66
9952	Sept. 23	Bone Meal	A. H. Williams, Silex.....	2.47	2.30	24.00	23.18	.....	.....	.....	.....	.....	.....	26.68	25.43

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per Ton	Value per Ton		
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd.	Found
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.						
	1909	Armour Packing Co., Chicago, Ill. Helmet Brands.															
9612	May 18	Lawn and Garden	Sampled at factory, Kansas City.....	2.88	3.01	8.50	10.72	0.50	1.36	8.00	9.36	4.00	4.40	\$26.12	\$29.09		
9613	Apr. 29	Ammon. and Dissolved Bone and Potash	Coontz and Kendrick, Vandalia.....	1.65	1.67	10.50	14.64	0.50	2.94	10.00	11.70	2.00	2.16	21.20	24.49		
9943	Sept. 18	Ammoniated Dissolved Bone and Potash	Archais Seed Co., Sedalia.....	1.65	1.71	10.50	10.52	0.50	1.12	10.00	9.40	2.00	2.01	21.20	20.98		
9959	Sept. 20	No. 386	Holt and Taylor, New Bloomfield.....	2.47	2.51	8.50	10.88	0.50	1.16	8.00	9.71	6.00	7.25	26.88	30.85		
9617	May 18	No. 386	Sampled at factory, Kansas City.....	2.47	2.65	8.50	9.15	0.50	1.54	8.00	8.61	6.00	5.70	26.88	28.39		
9618	May 1	No. 282	L. J. Peterman, Clarence.....	1.65	1.73	8.50	11.29	0.50	1.93	8.00	9.36	2.00	2.23	18.80	21.60		
9619	May 18	No. 282	Sampled at factory, Kansas City.....	1.65	1.74	8.50	9.15	0.50	2.38	8.00	8.77	2.00	2.07	18.80	20.91		
9620	Apr. 26	No. 282	Coontz and Kendrick, Vandalia.....	1.65	1.72	8.50	12.69	0.50	2.55	8.00	10.14	2.00	2.04	18.80	22.51		
9946	Sept. 20	No. 282	McDaniel and Sweeney, Shelbina.....	1.65	1.79	8.50	9.06	0.50	2.36	8.00	6.70	2.00	2.16	18.80	18.72		
9950	Sept. 20	Steamed Bone	Holt and Taylor, New Bloomfield.....	1.65	2.20	20.00	22.26	.....	.....	.....	.....	.....	.....	20.60	24.88
9614	May 18	Steamed Bone	Sampled at factory, Kansas City.....	1.65	1.58	20.00	31.13	.....	.....	.....	.....	.....	.....	20.60	28.11
9615	Apr. 29	Fine Ground Beef Bone.....	Coontz and Kendrick, Vandana.....	2.47	2.67	24.00	24.52	.....	.....	.....	.....	.....	.....	26.68	27.84
9616	May 18	Fine Ground Beef Bone.....	Sampled at factory, Kansas City.....	2.47	3.13	24.00	25.61	.....	.....	.....	.....	.....	.....	26.68	30.45
9944	Sept. 21	Fine Ground Beef Bone	McDaniel and Sweeney, Shelbina.....	2.47	3.39	24.00	23.79	.....	.....	.....	.....	.....	.....	26.68	30.21
9636	May 18	Raw Bone Meal	Sampled at factory, Kansas City.....	3.70	3.48	22.00	22.74	.....	.....	.....	.....	.....	.....	30.20	29.84
96127	May 18	Raw Bone Meal	Sampled at factory, Kansas City.....	3.70	3.82	22.00	25.07	.....	.....	.....	.....	.....	.....	30.20	32.83
9945	Sept. 20	Raw Bone Meal	R. M. Lowery, Wellsville	3.70	3.96	22.00	23.73	.....	.....	.....	.....	.....	.....	30.20	32.44

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per Ton	Value per Ton
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
9968	1909 Sept. 24	Blood & Bone Fertilizer Co., St. Louis, Steer Head Brand. Special Wheat Grower	A. B. McGruder, Whiteside.....	1.00	0.91	14.00	14.51	4.00	3.38	10.00	11.13	3.00	2.50	\$21.20	\$21.35
9642	Apr. 27	Continental Fert. Co., Louisville, Ky. Bear Brands. Grain Grower	James Cunningham, Montgomery City..	0.41	0.48	.....	14.77	.....	3.81	8.00	10.96	4.00	3.05	\$16.04	\$20.25
9643	May 19	Grain Grower	J. B. Robinson & Son, Nevada.....	0.41	0.47	.....	18.98	.....	1.61	8.00	17.35	4.00	2.91	16.04	26.83
9969	Sept. 23	Grain Grower	Bellflower Elevator Co., Bellflower....	0.41	0.44	.....	9.12	.....	1.24	8.00	7.88	4.00	3.88	16.04	16.38
9644	May 1	Potash Mixture	Callaway Hdw. Co., Fulton.....	.....	0.28	.....	14.77	.....	2.15	10.00	12.62	2.00	1.69	14.40	19.15
9645	Apr. 27	Potash Mixture	James Cunningham, Montgomery City..	.....	0.20	.....	15.56	.....	2.54	10.00	13.02	2.00	1.68	14.40	19.46
9975	Sept. 22	Empire Carbon Works, St. Louis. Empire Brands. Wheat and Clover	J. F. Johnson, Ethelyn.....	0.82	0.88	9.00	9.89	1.00	1.44	8.00	8.45	2.00	2.10	\$15.68	\$16.74
9976	Sept. 22	Pure Raw Bone Meal	Manzke Produce Co., Bowling Green..	3.29	4.06	22.00	20.63	.....	.....	.....	.....	.....	.....	28.56	30.66
9990	Sept. 23	Crop Grower	J. F. Johnson and F. Krieg, Ethelyn..	1.65	1.85	9.00	10.57	1.00	2.90	8.00	7.67	2.00	1.87	19.00	20.00
9970	Sept. 24	Empire Carbon Works, St. Louis. Boars Head Brands. Faultless Grain Grower	Tucker, Johnson & Son, Whiteside.....	0.82	1.03	8.00	10.27	1.00	2.20	7.00	8.07	1.00	1.16	\$13.28	\$16.07
9971	Sept. 22	Fine Raw Bone	John T. Henry, Troy.....	3.29	3.55	22.00	20.83	.....	.....	.....	.....	.....	.....	28.56	28.78
9972	Sept. 22	Empire Carbon Works, St. Louis. Bradley's Standard Brands. B. D. Sea Fowl Guano.....	Manzke Produce Co., Bowling Green..	2.06	1.95	10.00	11.58	2.00	1.98	8.00	9.60	1.50	1.90	\$20.44	\$22.38
9973	Sept. 24	Wheat and Clover	Manzke Produce Co., Bowling Green..	0.82	0.89	12.00	10.46	2.00	1.02	10.00	9.44	1.00	2.05	17.28	17.76
9974	Sept. 22	Corn and Wheat Phosphate	Manzke Produce Co., Bowling Green..	0.82	0.79	9.00	9.92	1.00	1.44	8.00	8.48	2.00	2.16	15.68	16.51

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per Ton	Value per Ton
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
	1909	Empire Carbon Works, St. Louis. Horse Shoe Brands.													
9984	Sept. 27	Acidulated Bone and Potash	S. M. Sanderson, Cyrene.....	0.82	0.96	12.00	13.65	2.00	2.81	10.00	10.84	1.00	1.12	\$17.28	\$19.30
9647	Apr. 28	Acidulated Bone and Potash	Dewar and Schroeder, Sillex.....	0.82	0.94	12.00	12.63	2.00	1.44	10.00	11.19	1.00	1.11	17.28	19.10
9648	Apr. 29	Acidulated Bone and Potash	S. M. Sanderson, Cyrene.....	0.82	0.93	12.00	13.14	2.00	3.74	10.00	9.40	1.00	1.33	17.28	18.10
9646	Apr. 28	Corn and Wheat Grower	Dewar and Schroeder, Sillex	1.65	1.53	9.00	9.34	1.00	1.72	8.00	7.62	2.00	2.22	19.00	18.61
99181	Oct. 8	Corn and Wheat Grower	E. E. Bickford, Hazelgreen.....	1.65	1.61	9.00	11.11	1.00	1.66	8.00	9.45	2.00	2.08	19.00	20.95
99179	Oct. 8	Reliable Wheat Grower	E. E. Bickford, Hazelgreen.....	0.82	0.95	9.00	11.59	1.00	1.15	8.00	10.44	2.00	2.21	15.68	19.44
9656	Apr. 28	Animal Bone Manure	Dewar and Schroeder, Sillex.....	0.82	0.84	8.00	8.93	1.00	.99	7.00	7.94	1.00	1.15	13.28	14.67
9657	May 1	Animal Bone Manure	W. H. Cornelius, Auxvasse.....	0.82	0.83	8.00	9.25	1.00	2.20	7.00	7.05	1.00	1.17	13.28	14.06
9987	Sept. 23	Animal Bone Manure	Dwyer and Porter, Sillex	0.82	0.80	8.00	9.52	1.00	1.87	7.00	7.65	1.00	1.29	13.28	14.68
9658	May 1	National Bone Dust	W. H. Cornelius, Auxvasse.....	2.06	2.04	10.00	11.77	2.00	2.60	8.00	9.17	1.50	1.54	20.44	22.05
9660	Apr. 28	National Bone Dust	L. A. Luck, Eolia.....	2.06	1.83	10.00	10.43	2.00	1.46	8.00	8.97	1.50	1.61	20.44	20.59
9983	Sept. 20	National Bone Dust	Blattner Bros., Wellsville.....	2.06	1.91	10.00	11.39	2.00	1.56	8.00	9.83	1.50	1.92	20.44	22.36
9659	Apr. 28	National Bone Dust	Dewar and Schroeder, Sillex.....	2.06	2.61	.....	.....	.....	.....	.....	.....	.....	.....	8.24	8.04
9977	Sept. 24	Raw Bone	Tucker, Jamison & Son, Whiteside.....	3.29	4.09	22.00	21.69	.....	.....	.....	.....	.....	.....	28.56	31.54
9988	Sept. 23	Raw Bone	J. F. Johnson and F. Krieg, Ethelyn....	3.29	4.06	22.00	20.98	.....	.....	.....	.....	.....	.....	28.56	30.93
99180	Oct. 8	Raw Bone	E. E. Bickford, Hazelgreen.....	3.29	3.91	22.00	21.05	.....	.....	.....	.....	.....	.....	28.56	30.38
9978	Sept. 20	Pure Ground Bone	Blattner Bros., Wellsville.....	2.46	2.67	20.00	20.31	.....	.....	.....	.....	.....	.....	23.84	24.88
9979	Sept. 27	Premium Bone Meal.....	Dwyer and Porter, Sillex.....	1.23	0.93	25.00	25.99	.....	.....	.....	.....	.....	.....	22.42	21.91
9654	Apr. 28	Quick Acting Phosphate	Dewar and Schroeder, Sillex.....	.....	.....	.....	14.16	.....	2.79	10.00	11.37	.....	.....	12.00	14.74
9653	Apr. 28	Quick Acting Phosphate	L. A. Luck, Eolia.....	.....	.....	.....	12.06	.....	2.75	10.00	9.31	.....	.....	12.00	13.10
9650	Apr. 29	Bone and Potash	L. A. Luck, Eolia.....	.....	.....	.....	11.99	.....	2.78	10.00	9.21	2.00	1.35	14.40	13.78
9651	Apr. 29	Bone and Potash	S. M. Sanderson, Cyrene.....	.....	.....	.....	12.06	.....	2.75	10.00	9.31	2.00	1.70	14.40	14.31

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per Ton	Value per Ton
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
	1909	Hirsch, Stein & Co., Chicago, Ill. Galumet Brand.													
9661	Apr. 27	Complete Fertilizer	Farmer & Seale, Montgomery City.....	1.65	1.51	9.00	13.14	1.00	3.49	8.00	9.65	2.00	2.36	\$19.00	\$21.84
9663	May 8	Complete Fertilizer	A. H. Green, Monroe City	1.65	1.38	9.00	13.01	1.00	1.28	8.00	11.73	2.00	3.27	19.00	24.03
9665	Apr. 27	Universal Crop Grower	Farmer & Seale, Montgomery City....	0.82	0.75	8.00	9.34	1.00	0.30	7.00	9.04	1.00	0.91	13.28	15.06
9666	May 7	Universal Crop Grower	Wm. Pollock Milling Co., Mexico.....	0.82	0.78	8.00	8.07	1.00	0.62	7.00	7.45	1.00	1.20	13.28	13.75
9667	May 7	Potato, Tobacco and Onion Grower	Wm. Pollock Milling Co., Mexico.....	1.65	1.58	9.00	9.25	1.00	1.23	8.00	8.02	5.00	4.42	22.60	21.73
9668	Apr. 30	Bone Phosphate and Potash	Tucker Bros., Frankford.....	0.41	0.97	11.00	13.27	1.00	0.80	10.00	12.47	2.00	2.88	16.44	20.22
9991	Sept. 22	Special Wheat Grower	Geo. Deters, Bowling Green.....	0.82	1.31	9.00	9.03	1.00	1.21	8.00	7.82	4.00	3.70	18.08	19.55
9669	May 8	Special Pure Bone Meal and Potash....	A. H. Green, Monroe City.....	0.82	1.22	20.00	19.93	.....	.....	.....	.....	4.00	4.06	22.08	23.70
99187	Oct. 23	Special Pure Bone Meal and Potash....	Kuhlmann & Meyer, California.....	0.82	0.99	20.00	18.27	.....	.....	.....	.....	4.00	6.38	22.08	24.41
9993	Sept. 21	Special Pure Bone Meal and Potash....	Rufus Christian, Palmyra.....	0.82	0.82	20.00	20.98	.....	.....	.....	.....	4.00	4.22	22.08	23.03
9670	May 8	Dissolved Pure Bone Phosphate	A. H. Green, Monroe City	0.80	0.74	19.00	21.49	1.00	4.34	18.00	17.15	.....	.....	25.20	25.28
9671	May 7	Pure Raw Bone Meal	Wm. Pollock Milling Co., Mexico	3.70	4.26	20.00	20.19	.....	.....	.....	.....	.....	.....	28.80	31.17

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per Ton	Value per Ton	
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found	
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.					
	1909	P. B. Mathiason. Incescent Brand.														
9672	Apr. 27	Grain Grower	Wilson Bros., Jonesburg.....	1.65	1.97	10.00	13.84	2.00	3.96	8.00	9.88	2.00	2.24	\$19.40	\$24.01	
9996	Sept. 23	Grain Grower	D. B. Sailor, Buell.....	1.65	1.84	10.00	12.82	2.00	4.03	8.00	8.79	2.00	1.90	19.40	21.79	
9673	Apr. 27	Special Corn and Oats Grower	Wilson Bros., Jonesburg.....	0.90	0.89	9.00	15.40	2.00	6.79	7.00	8.61	1.00	0.89	14.00	17.68	
9674	Apr. 27	Acid Bone and Potash	Wilson Bros., Jonesburg.....	2.47	2.85	11.00	13.01	2.00	6.19	9.00	6.92	2.00	1.99	23.88	24.57	
9994	Sept. 21	Special Wheat Grower	I. L. Owen, Hassard.....	1.65	1.46	11.00	13.24	2.00	2.20	9.00	11.04	1.00	1.04	19.40	21.21	
9998	Sept. 21	Raw Bone Meal	I. L. Owen, Hassard.....	3.50	2.94	23.00	21.05	16.00	15.02	7.00	6.63	.....	.....	28.80	25.73
9999	Sept. 18	Pure Bone Meal	R. Reiley Sons Hdw. Co., California....	2.68	2.31	23.00	25.26	15.00	16.26	8.00	8.99	.....	.....	26.32	26.53
99100	Sept. 21	Raw Bone and Potash	I. L. Owen, Hassard.....	2.47	3.02	18.00	16.14	12.00	9.58	6.00	6.56	3.00	4.39	25.48	29.05	
99184	Oct. 21	Bone Meal	W. E. Jameson, Fulton.....	2.68	3.41	23.00	23.54	.....	.....	.....	.....	.....	.....	26.82	30.12
99185	Oct. 21	Bone Meal	W. E. Jameson, Fulton.....	2.68	2.70	23.00	23.73	.....	.....	.....	.....	.....	.....	26.82	27.41
99186	Oct. 21	Bone Meal	W. E. Jameson, Fulton.....	2.68	2.81	23.00	22.83	.....	.....	.....	.....	.....	.....	26.82	27.22
		Mayer Fertilizer Co., St. Louis. Anchor Brand.														
9675	Apr. 27	Special Corn Grower	J. S. Miller Jonesburg.....	2.05	0.99	11.00	12.25	3.00	6.55	8.00	5.70	3.00	3.09	\$22.60	\$17.13	
99123	Sept. 24	Special Wheat Grower	F. F. Koester.....	1.00	0.90	13.00	14.22	3.00	5.21	10.00	9.01	3.00	3.02	20.80	20.12	

Laboratory Number	Date of Collection	Manufacturer and Brand	From Whom Collected	Nitrogen		Phosphoric Acid P ₂ O ₅						Potash K ₂ O		Value per ton	Value per ton	
				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found	
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.					
	1909	Morris & Co., Chicago, Ill.														
9676	May 7	Big One Pure Raw Bone Meal	Wm. Pollock Milling Co., Mexico	3.30	4.00	24.00	23.98	.....	.....	.....	.....	.....	.....	.....	\$30.00	\$32.79
99102	Sept. 23	Big One Pure Raw Bone Meal	Bellflower Elevator Co., Bellflower.....	3.30	2.99	24.00	28.73	.....	.....	.....	.....	.....	.....	.....	30.00	32.07
99106	Sept. 22	Big Two Pure Bone Meal	T. A. Powell & Son, Auxvasse.....	2.00	2.20	28.00	26.82	.....	.....	.....	.....	.....	.....	.....	27.60	27.57
982	Aug. —	Big Two Pure Bone Meal	Received from factory	2.00	2.12	28.00	33.23	.....	.....	.....	.....	.....	.....	.....	27.60	31.74
983	Aug. —	Big Three Pure Bone Phosphate	Received from factory	2.50	3.11	10.00	10.84	6.00	2.12	4.00	8.72	2.00	.....	.....	19.60	.....
99109	Sept. 16	Big Three Pure Bone Phosphate	Sampled at factory, Kansas City	2.50	2.18	10.00	10.21	6.00	3.39	4.00	6.82	2.00	1.91	.....	19.60	20.56
9677	May 7	Big Four Bone Phosphate	Wm. Pollock Milling Co., Mexico.....	4.10	3.85	12.00	11.29	7.00	7.05	5.00	4.24	4.00	3.87	.....	30.00	27.95
99111	Sept. 24	Big Five Pure Bone	J. W. Dowell, Benton City.....	2.50	2.94	10.00	10.49	6.00	5.68	4.00	4.81	1.00	1.11	.....	18.40	21.14
984	Aug. —	Big Five Pure Bone	Received from factory.....	2.50	.....	10.00	12.34	6.00	2.55	4.00	9.79	1.00	.....	.....	18.40	.....
9678	May 7	Big Six Special Bone Meal	Wm. Pollock Milling Co., Mexico.....	0.82	1.74	27.00	29.02	.....	.....	.....	.....	.....	.....	.....	22.18	27.27
99114	Sept. 23	Big Six Special Bone Meal	Bellflower Elevator Co., Bellflower.....	0.82	1.14	27.00	25.35	.....	.....	.....	.....	.....	.....	.....	22.18	22.31
99115	Sept. 16	Big Six Special Bone Meal	Sampled at factory.....	.....	.....	27.00	26.02	.....	.....	.....	.....	.....	.....	.....	18.90	18.21
99117	Sept. 23	Big Seven Special Bone M. and Potash	Sampled at factory.....	.....	.....	16.00	15.75	.....	.....	.....	.....	.....	.....	.....	11.20	11.03
9680	Apr. 30	Big Seven Special Bone M. and Potash	Biggs and Biggs, Bowling Green.....	1.24	1.10	16.00	16.58	.....	.....	.....	.....	3.00	3.82	.....	19.76	20.59
99116	Sept. 24	Big Seven Special Bone M. and Potash	J. W. Dowell, Benton City.....	1.24	1.02	16.00	15.08	.....	.....	.....	.....	3.00	3.30	.....	19.76	18.60
985	Aug. —	Big Seven Special Bone M. and Potash	Received from factory.....	1.24	1.20	16.00	16.84	.....	.....	.....	.....	3.00	.....	.....	19.76	.....
9679	Apr. 30	Big Eight Am. Acid Phos. and Potash	Biggs and Biggs, Bowling Green.....	0.82	1.26	8.00	9.50	1.00	2.20	7.00	7.30	1.00	1.29	.....	13.28	16.23
986	Aug. —	Big Nine.....	Received from factory.....	1.65	1.98	10.00	11.64	2.00	1.93	8.00	9.71	5.00	.....	.....	23.60	.....
987	Aug. —	Big Ten Grain Grower	Received from factory.....	1.65	2.20	10.00	11.03	2.00	3.01	8.00	8.02	2.00	.....	.....	19.40	.....
99121	Sept. 21	Big Ten Grain Grower	J. W. Cook, Fulton.....	1.65	1.54	10.00	11.54	2.00	3.48	8.00	8.06	2.00	3.32	19.40	21.20

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				Gtd. per ct.	Found per ct.	Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found
						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
99188	1909 Oct. 28	Mt. Pleas. F. Co., Mt. Pleasant, Tenn. Ground Rock Phosphate.....	C. H. Allen, New Florence .....	.....	.....	28.61	29.05	.....	.....	.....	.....	.....	.....	\$11.44	\$11.62
99124	Sept. 20	Pulverized Manure Co. Wizard Brand. Manure	D. J. Whitehead, Wellsville.....	2.10	2.16	.....	2.19	.....	1.53	1.20	0.65	1.35	1.82	\$11.46	\$12.21
		Swift & Co., Chicago, Ill.													
9687	May 7	Complete Fertilizer	R. M. Thomas, Centralia.....	1.00	1.13	9.00	11.86	1.00	4.19	8.00	7.67	1.00	1.30	\$15.20	\$16.96
9689	May 18	Complete Fertilizer	Sampled at factory, Kansas City.....	1.00	1.31	9.00	12.95	1.00	1.69	8.00	11.26	1.00	1.11	15.20	20.76
99132	Sept. 20	Complete Fertilizer	W. S. Wirts, Guthrie.....	1.00	0.78	9.00	10.51	1.00	4.62	8.00	5.88	1.00	1.09	15.20	13.34
9690	Apr. 27	Special Grain Fertilizer	W. F. Schmitt, Wright City.....	1.65	1.78	12.00	13.65	2.00	4.78	10.00	8.87	2.00	2.16	21.80	22.26
9693	May 18	Special Grain Fertilizer	Sampled at factory, Kansas City.....	1.65	1.61	12.00	15.85	2.00	7.24	10.00	8.61	2.00	2.04	21.80	22.12
99136	Sept. 18	Special Grain Fertilizer	Brown Seed Co., Sedalla.....	1.65	1.96	12.00	12.25	2.00	4.31	10.00	7.94	2.00	1.93	21.80	21.41
9694	May 18	Champion Vegetable Grower	Sampled at factory, Kansas City.....	3.29	3.13	10.00	14.73	2.00	6.57	8.00	8.16	3.00	3.10	27.16	28.66
9695	May 17	Onion, Potato and Tobacco Grower	S. M. Coleman, Keytesville.....	1.65	2.57	10.00	11.10	2.00	1.75	8.00	9.35	7.00	8.71	25.40	32.65
9696	May 18	Onion, Potato and Tobacco Grower....	Sampled at factory, Kansas City	1.65	2.07	10.00	14.32	2.00	5.25	8.00	9.07	7.00	6.49	25.40	29.05
9697	May 18	Strawberry Special	Sampled at factory, Kansas City	3.29	3.37	11.00	15.85	2.00	7.34	9.00	8.51	10.00	10.45	36.76	39.17
96102	Apr. 27	Superphosphate	Wright, Dalton, Bell Store Co., Pop. B. .	1.65	1.13	10.00	11.39	2.00	4.69	8.00	6.70	2.00	2.17	19.40	17.04
96111	May 18	Superphosphate	Sampled at factory, Kansas City.....	1.65	1.68	10.00	12.47	2.00	6.39	8.00	6.08	2.00	2.39	19.40	19.45
99125	Sept. 21	Superphosphate	H. B. Owsley, Palmyra.....	1.65	2.11	10.00	11.74	2.00	5.49	8.00	6.25	2.00	2.22	19.40	20.80
9698	May 18	Ammoniated Bone and Potash	Sampled at factory, Kansas City.....	4.75	4.79	16.00	15.15	3.00	3.22	33.80	33.63

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						Total		Insoluble		Available		Gtd. per ct.	Found per ct.	Gtd.	Found
				Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd.	Found				
	1909	Swift & Co., Chicago, Ill. (Continued.)													
9699	May 18	Ammoniated Bone.....	Sampled at factory, Kansas City.....	4.75	5.14	16.00	16.71	.....	.....	.....	.....	.....	.....	\$30.20	\$32.26
96100	May 18	Pure Bone Meal and Potash	Sampled at factory, Kansas City.....	2.50	2.28	23.50	26.76	.....	.....	.....	.....	3.00	4.03	30.05	32.69
99148	Sept. 21	Pure Bone Meal and Potash	W. F. Schmitt, Wright City	2.50	2.47	23.50	23.34	.....	.....	.....	.....	3.00	3.00	30.05	29.82
96101	May 18	Pure Bone Meal and Blood	Sampled at factory, Kansas City.....	3.75	3.55	23.00	24.11	.....	.....	.....	.....	.....	.....	31.10	31.08
99149	Sept. 20	Pure Bone Meal and Blood	O. M. Wilkinson & J. M. Cook, Car'ton	3.75	3.87	23.00	21.69	.....	.....	.....	.....	.....	.....	31.10	30.66
99150	Sept. 23	Pure Bone Meal and Blood	Dwyer & Co., Sillex.....	3.75	3.49	23.00	23.18	.....	.....	.....	.....	.....	.....	31.10	30.18
96116	May 18	Pure Bone Meal	Sampled at factory, Kansas City.....	2.50	2.41	25.00	28.38	.....	.....	.....	.....	.....	.....	27.50	29.51
96140	Sept. 21	Pure Bone Meal	W. F. Schmitt, Wright City.....	2.50	2.10	25.00	24.40	.....	.....	.....	.....	.....	.....	27.50	25.48
96117	May 18	Special Bone Meal	Sampled at factory, Kansas City.....	0.82	1.38	27.50	30.68	.....	20.06	.....	10.62	.....	.....	22.53	27.00
96118	May 1	Special Bone Meal	J. B. Grissom & Co., Clarence.....	0.82	1.35	27.50	32.50	.....	21.86	.....	10.64	.....	.....	22.53	28.15
99151	Sept. 20	Special Bone Meal	W. S. Wirts, Guthrie	0.82	0.46	27.50	34.60	.....	.....	.....	.....	.....	.....	22.53	26.06
99153	Sept. 18	Special Bone Meal	Hert, Roth & Co., California	0.82	1.06	27.50	30.77	.....	.....	.....	.....	.....	.....	22.53	25.79
99154	Sept. 20	Special Bone Meal	J. H. Smith, Ely	0.82	1.83	27.50	21.85	.....	.....	.....	.....	.....	.....	22.53	22.62
99152	Sept. 18	Special Bone Meal	Hert, Roth & Co., California.....	0.82	1.18	27.50	31.48	.....	.....	.....	.....	.....	.....	22.53	26.76
99133	Sept. 22	Pure Raw Bone Meal	Henderson Rood, Auxvasse	3.75	4.30	23.00	24.11	.....	.....	.....	.....	.....	.....	31.10	34.08
99127	Sept. 20	Special Phosphate and Potash	W. S. Wirts, Guthrie.....	.....	.....	11.00	11.74	1.00	2.42	10.00	9.31	2.00	3.08	14.80	15.84
99155	Sept. 21	Steamed Ground Bone	J. A. McAtee, Hunnewell.....	1.65	1.66	20.00	20.19	20.60	20.77

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						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found Per ct.				
	1909	Tennessee Chemical Co. Ox Brand.													
96119	Apr. 29	Grain Grower	Coontz and Kendrick, Vandalia.....	0.41	0.43	.....	11.19	.....	0.74	8.00	10.45	4.00	3.46	\$16.04	\$18.71
96122	May 19	Grain Grower	A. Johannes & Son, Nevada.....	0.41	0.50	.....	16.23	.....	6.87	8.00	9.36	4.00	4.05	16.04	20.84
99156	Sept. 23	Grain Grower	C. F. Palmer, Buell.....	0.41	0.52	.....	10.21	.....	2.50	8.00	7.71	4.00	3.69	16.04	16.75
99157	Sept. 21	Grain Grower	R. I. Craighead, Fulton.....	0.41	0.43	.....	10.33	.....	2.42	8.00	7.91	4.00	3.54	16.04	16.42
99158	Sept. 22	Grain Grower	E. J. Higginbottom, Bowling Green...	0.41	0.49	.....	10.24	.....	2.07	8.00	8.17	4.00	3.80	16.04	17.16
99182	Oct. —	Grain Grower	Fredericktown Lbr. Co., Fredericktown	0.41	0.73	.....	11.03	.....	1.50	8.00	9.53	4.00	2.29	16.04	17.71
99159	Sept. 22	Raw Bone	E. J. Higginbottom, Bowling Green...	2.46	2.49	20.00	16.84	.....	.....	.....	.....	.....	.....	23.84	21.75
99183	Oct. —	Potash Mixture	Fredericktown Lbr. Co., Fredericktown	.....	.....	.....	12.85	.....	1.75	10.00	11.10	2.00	2.38	14.40	16.88
96123	Apr. 26	Alkaline Bone	Blattner Bros., Wellsville .....	.....	.....	.....	15.21	.....	1.42	12.00	13.79	2.00	2.18	16.80	19.74
96124	May 1	Alkaline Bone	T. A. Powell & Son, Auxvasse.....	.....	.....	.....	16.49	.....	3.54	12.00	12.95	2.00	1.81	16.80	19.13
96125	Apr. 27	High Grade Dissolved Bone	Walker & Hintz, Warrenton .....	.....	.....	.....	18.24	.....	3.05	14.00	15.19	.....	.....	16.80	19.45
96126	Apr. 29	High Grade Dissolved Bone	Coontz & Kendrick, Vandalia.....	16.81	2.87	14.00	13.94	16.80	17.88

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						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.						
	1909	Tuscarora Fertilizer Co., Chicago, Ill. Tuscarora Brand.															
9621	Apr. 26	Standard	James Sandbothe, Martinsburg	1.65	2.30	8.50	11.42	0.50	0.82	8.00	10.60	2.00	2.12	\$18.80	\$24.79		
9622	Apr. 28	Standard	A. H. Williams, Silex	1.65	1.72	8.50	9.89	0.50	2.04	8.00	7.85	2.00	2.49	18.80	20.11		
99160	Sept. 23	Standard	A. H. Williams, Silex	1.65	1.33	8.50	9.22	0.50	2.42	8.00	6.79	2.00	2.22	18.80	17.10		
99161	Sept. 23	Standard	W. H. Tinsley, Edgewood	1.65	1.51	8.50	10.26	0.50	2.19	8.00	8.08	2.00	2.19	18.80	19.25		
99162	Sept. 23	Standard	W. W. Henry, Eolia	1.65	1.52	8.50	8.61	0.50	1.88	8.00	6.78	2.00	2.27	18.80	17.62		
9624	Apr. 26	Big Four	James Sandbothe, Martinsburg	1.65	1.34	7.50	10.14	0.50	2.38	7.00	7.76	4.00	4.13	20.00	20.58		
9625	Apr. 28	Big Four	A. H. Williams, Silex	1.65	1.31	7.50	10.52	0.50	1.17	7.00	9.35	4.00	4.59	20.00	22.44		
99110	Sept. 23	Big Four	A. H. Williams, Silex	1.65	1.58	7.50	8.42	0.50	1.82	7.00	6.60	4.00	4.68	20.00	20.59		
9626	Apr. 26	Ammoniated Phosphate	James Sandbothe, Martinsburg	0.82	0.89	7.50	8.10	0.50	1.66	7.00	6.44	1.00	1.25	13.08	13.45		
9627	Apr. 28	Ammoniated Phosphate	H. B. Cole, Lutesville	0.82	0.72	7.50	8.42	0.50	1.44	7.00	6.98	1.00	1.12	13.08	13.18		
99163	Sept. 24	Chief	G. W. Looker, Bellflower	0.82	0.56	8.50	9.31	0.50	1.07	8.00	8.24	4.00	3.80	17.88	17.10		
99167	Sept. 23	Steamed Bone Meal	W. H. Tinsley, Edgewood	1.65	1.69	20.00	25.77							20.60	24.80		
9635	Apr. 28	Raw Bone Meal	L. T. Berryman, Fredericktown	3.70	3.78	22.00	24.75							30.20	32.45		
99168	Sept. 23	Raw Bone Meal	W. H. Tinsley, Edgewood	3.70	3.83	22.00	25.83							30.20	33.40		
99169	Sept. 18	Raw Bone Meal	Hert. Both & Co., California	3.70	4.19	22.00	25.23							30.20	34.42		
99170	Sept. 23	Raw Bone Meal	L. T. Henry & Son, Eolia	3.70	3.85	22.00	25.29							30.20	33.10		
99171	Sept. 24	Raw Bone Meal	G. W. Looker, Bellflower	3.70	3.79	22.00	25.93							30.20	33.31		
9637	May 18	Animal Bone	Sampled at factory, Kansas City	2.47	1.94	24.00	26.88							26.68	26.58		
99172	Sept. 24	Animal Bone	G. W. Looker, Bellflower	2.47	2.49	24.00	24.36							26.68	27.01		

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						Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.						
	1909	Tuscarora Fertilizer Co., Chicago, Ill. Tuscarora Brand—Continued.															
99173	Sept. 18	Animal Bone	Hert. Roth & Co., California.....	2.47	2.52	24.00	23.95	.....	.....	.....	.....	.....	.....	.....	.....	\$26.68	\$26.85
9632	Apr. 28	Soluble Phosphate and Potash	A. H. Williams, Silex.....	.....	.....	10.50	12.53	0.50	0.55	10.00	11.98	4.00	3.52	17.00	18.82		
9633	Apr. 29	Bone and Potash	W. H. Tinsley, Edgewood.....	.....	.....	10.50	13.43	0.50	0.81	10.00	12.62	2.00	1.88	14.60	17.72		
9634	Apr. 23	Bone and Potash	L. T. Berryman, Fredericktown .....	.....	.....	10.50	12.34	0.50	0.93	10.00	11.41	2.00	2.29	14.60	16.81		
99164	Sept. 23	Bone and Potash	W. H. Tinsley, Edgewood.....	.....	.....	10.50	10.59	0.50	0.80	10.00	9.79	2.00	1.54	14.60	13.92		
9631	Apr. 29	Acid Phosphate	W. H. Tinsley, Edgewood.....	.....	.....	14.50	17.80	0.50	0.87	14.00	16.93	.....	.....	17.00	20.67		
99165	Sept. 23	Acid Phosphate	A. H. Williams, Silex.....	.....	.....	14.50	13.12	0.50	0.00	14.00	15.12	.....	.....	17.00	18.14		
9639	Apr. 28	Bone Phosphate	L. T. Berryman, Fredericktown.....	.....	.....	10.50	12.37	0.50	0.78	10.00	11.59	.....	.....	12.20	14.22		
9640	Apr. 29	Bone Phosphate	W. H. Tinsley, Edgewood.....	.....	.....	10.50	12.02	0.50	1.15	10.00	10.87	.....	.....	12.20	13.50		
99166	Sept. 23	Bone Phosphate	W. H. Tinsley, Edgewood.....	.....	.....	10.50	11.13	0.50	0.32	10.00	10.81	.....	.....	12.20	13.10		
9638	May 18	Steamed Bone Meal	Sampled at factory, Kansas City.....	1.65	1.35	20.00	28.16	.....	.....	.....	.....	.....	.....	20.60	25.11		
		Miscellaneous.															
96140	May —	Tankage No. 1, from Springfield, Ill...	B. W. Hale, Laddonia.....	.....	6.41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$25.64
96141	May —	Tankage No. 2, from Springfield, Ill. ..	B. W. Hale, Laddonia.....	.....	6.22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24.88
101153	Dec. —	Sodium Nitrate	C. A. Shaw, Carthage .....	.....	6.04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24.16
101154	Dec. —	Lime Refuse for Water Softening Plant	Henry Adkins, Bismarck.....	Total alkalinity as lime, CaO, 11.44 per cent.													

STATEMENT

Fertilizer Control Account, 1909.

RECEIPTS.

1909.		
Jan. 1,	Balance on hand	\$ 104.08
Jan. 31,	Sale of tags	36.50
Feb. 28,	Sale of tags	345.00
Mar. 31,	Sale of tags	1,816.44
Apr. 30,	Sale of tags	855.00
May 31,	Sale of tags	183.80
June 30,	Sale of tags	150.00
July 31,	Sale of tags	1,437.73
Aug. 31,	Sale of tags	2,098.50
Sept. 30,	Sale of tags	4,414.62
Oct. 30,	Sale of tags	855.00
Dec. 31,	Sale of tags	118.45
		<hr/>
		\$12,415.12

DISBURSEMENTS.

1909.		
Jan. 31	Natl. Paper Co., Stationery	\$ 172.97
	E. H. Sargent & Co., Chem. Sup.	31.58
	Barnes-Crosby Co., Engraving	17.20
	Kreutz & Dinwiddie, Hdw. Sup.	8.00
	Multigraph Sales Co., Office Sup.	7.20
	Merck & Co., Chemical Sup.	5.34
	Heil Chem. Co., Chemical Sup.	3.30
Feb. 28	J. W. Connaway, Salary	118.75
	J. M. Stedman, Salary	120.77
	C. K. Francis, Salary	75.00
	F. H. Demaree, Salary	66.67
	Paul Schweitzer, Salary	50.00
	John Schnabel, Salary	37.50
	P. T. Cole, Salary	15.00
	F. W. Allen, Jr., Salary	15.00
	J. G. Babb, Secretary, Labor, etc.	1,610.00
	Hamacher Hay Co., Feed Stuff	159.75
	McAlester Lumber Co., Lumber	92.73
	Bush & Mitchell, Feed Stuff	83.10
	Emmett Baldwin, Feed Stuff	65.62
	Baush-Lomb Co., Lab. Instr.	50.50
	Chester Pollock, Labor	42.50
	John Klingele, Feed Stuff	41.70
	J. L. Lynes, Feed Stuff	40.25
	Lee Melloway, Labor	40.00
	Oscar Rawlings, Labor	40.00
	Natl. Paper Co., Stationery	38.75
	J. Douglass, Wages	37.50
	Frank Washington, Labor	32.50

	Chas. Matthews, Hardware Sup.	26.95
	Armour Packing Co., Fertilizer	24.44
	Newman & Co., Hardware Sup.	22.28
	J. M. Pennington, Labor	17.50
	H. C. Pope, Publications	13.80
	Coombe Bros., Blacksmithing	12.20
	P. Hudnell, Feed Stuff	12.20
	Geo. Wahr, Books	10.75
	Sargent & Co., Chem. Sup.	10.50
	E. J. Rodekohr, Trav. Exp.	10.33
	Hatton & Knight, Drug Sup.	9.62
	Veterinary Inst. Co., Apparatus	8.00
	Anchor Hay Co., Feed Stuff	6.46
	Bird & Son, Supplies	5.88
	Wild Bro. N. Co., Supplies	5.55
	Chandler & Chandler, Trav. Exp.	4.00
	Dairy Dept., Sund. Sup.	2.00
April 30	H. J. Waters, Salary	167.92
	F. W. Woodman, Salary	130.00
	P. F. Trowbridge, Salary	100.00
	C. K. Francis, Salary.....	75.00
	Paul Schweitzer, Salary	50.00
	M. F. Miller, Salary	50.00
	Sabra E. Kennedy, Salary	30.00
	J. W. Ammerman, Salary	25.00
	Bausch-Lomb Co., Chem. Sup.	230.13
	Sargent & Co., Mch. Sup.	78.00
	W. H. Chandler, Sundry Sup.	52.56
	J. B. Johnson, Labor	40.00
	Robt. Zumalt, Labor	35.00
	J. H. Phillips, Labor	32.50
	Frank Washington, Labor	32.50
	Burroughs Ad. Mach. Co., Supplies	26.86
	West's Mch. Shop, Supplies	12.75
	J. C. Whitten, Trav. Exp.	10.94
	Modern Oil Co., Gasoline	6.60
May 31.	H. J. Waters, Salary	166.67
	J. C. Whitten, Salary	137.50
	J. W. Connoway, Salary	118.75
	J. M. Stedman, Salary	108.33
	P. F. Trowbridge	100.00
	C. K. Francis, Salary.....	75.00
	F. H. Demaree, Salary	66.67
	F. W. Woodman, Salary	60.00
	Paul Schweitzer, Salary	50.00
	Jno. Schnabel, Salary	37.50
	F. W. Allen, Jr., Salary	30.00
	H. R. Nelson, Salary	30.00
	P. T. Cole, Salary	30.00
	Sabra E. Kennedy, Salary	30.00
	J. W. Ammerman, Salary	25.00
	Bertha Eves, Salary	25.00

	Marian Shaw, Salary	12.50
	J. G. Babb, Sec., Labor, etc.	400.00
	Chester Pollock, Labor	42.50
	Lee Melloway, Labor	40.00
	Oscar Rawlings, Labor	40.00
	J. B. Johnson, Labor	40.00
	Frank, Washington, Labor	32.50
	Robert Zumalt, Labor	32.50
	J. M. Pennington, Labor	17.50
	A. A. Jones, Traveling Exp.	44.98
	C. R. Moulton, Traveling Exp.	32.13
	P. F. Trowbridge, Traveling Exp.	27.49
	O. E. Reed, Traveling Exp.	11.51
	Bush & Mitchell, Feed Stuff	260.50
	Boone Co. Mill, Feed Stuff	181.50
	Natl. Paper Co., Stationery	40.90
	Smith-Premier Co., Stationery	2.50
	W. H. Moore, Books	1.50
	Armour & Co., Chem. Sup.	1.93
	Armour Pkg. Co., Fertilizer	3.90
	Hetzler Bros., Supplies	6.00
	West's Mach. Shop, Repairs, etc.	5.70
	Boone Co. Lumber Co., Lumber & Sup.	29.50
	Stark Bros. Co., Sund. Sup.	29.20
	Taylor Estes Co., Lumber Sup	20.74
	The Drug Shop, Drug Sup.	19.66
	Bowker Co., Drug Sup.	11.25
May 31.	Vanhorn & Smith, Sund. Sup.	9.65
	H. A. Dreer, Sund. Sup.	7.65
	McAlester Lbr. Co., Lumber & Sup.	7.18
	G. P. Pilling & Co., Sund. Sup.	5.00
	F. L. Williams & Co., Sund. Sup.	4.80
	Coombe Bros., Blacksmithing	3.75
	Chas. Matthews, Hardware Sup.	3.65
	Strellinger Co., Labor Sup.	3.65
	Archias Seed Store, Seeds, etc	3.50
	Newman & Co., Hardware Sup.	3.30
	Montgomery Ward Co., Supplies	2.61
	Gilman & Dorsey, Chem. Sup.	2.00
	W. B. Nowell, Supplies	2.00
	R. B. Gordon, Repairs	1.20
	Fairbanks-Morse, Supplies	1.05
Aug. 31.	Stephens Pub. Co., Publications	122.70
Sep. 30.	Eimer & Amend, Chem. Sup	745.64
Oct. 30.	C. R. Moulton, Traveling Exp.	22.71
	A. A. Jones, Traveling Exp.	22.23
	F. W. Woodman, Traveling Exp.	37.13
	P. F. Trowbridge, Traveling Exp.	16.15
Nov. 30	Sargent & Co., Chem. Sup.	52.13
	Archias Seed Store, Seed Grain	12.00
	R. W. Zumalt, Labor	35.00
	Frank Washington, Labor	32.50

	Iowa Seed Co., Seeds	1.91
	McAlester Lbr. Co., Lumber and Sup.	2.50
	Newman Hardware Co., Hardware Sup.	1.00
	Coombe Bros, Blacksmithing	6.00
	W. R. Miller, Supplies	4.10
	Boone Co. Mill, Feed Stuff	135.50
	Bush & Mitchell, Feed Stuff	63.50
	Drug Shop, Drug Sup.	11.64
	Hill & Burks, Feed Stuff	23.20
	R. H. Gray, Salary	25.00
	Leota Rogers, Salary	25.00
	F. W. Woodman, Salary	60.00
	Smith-Premier Co., Stationery	5.00
	J. G. Babb, Secy., Labor	275.00
Dec. 31	Sargent & Co., Chem. Sup.	171.10
	Light and Heat Station. Electric Rep.	11.72
	Libby Williams, Paper Co., Office Stationery	48.51
	Drug Shop, Drug Sup.	2.12
	F. B. Mumford, Salary	137.50
		<hr/>
		\$ 9,155.69
Dec. 31	Balance	\$ 3,259.43
		<hr/>
		\$12,415.12

Directions to Purchasers of Fertilizers for Taking Sample for Analysis:

1. If possible let the agent or dealer from whom the fertilizer is bought, or his representative, be present when taking the sample.
2. Select of the lot bought at least three sacks not previously opened and in good condition. Empty them upon a clean floor and mix their contents thoroughly by shoveling. Spread the whole out evenly and take from different parts, side, middle and bottom, equal quantities, which must be mixed again and from which the sample is to be taken, amounting to not less than one-half pound.
3. Place sample in a clean tin can or bottle. Put on top of it one of the manufacturer's labels taken from sack, close, wrap around the certificate below, properly filled out, and send to this office by express, charges prepaid.

PURCHASER'S CERTIFICATE.

Date.....

P. O.County

I hereby certify that the sample of fertilizer sent today was taken in accordance with the directions printed and was taken from a lot of sacks, purchased by me for my own use and not for sale, from under the name and I further certify that the fertilizer, while in my possession, had not been exposed to the acts of rain or weather.

Name

Witness

Send to Director Missouri Experiment Station, Columbia, Missouri.