

UNIVERSITY OF MISSOURI

---

COLLEGE OF AGRICULTURE.

Agricultural Experiment Station.

---

BULLETIN NO. 91.

**Inspection of Commercial Fertilizers**

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COLUMBIA, MISSOURI.

February, 1911.

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COLLEGE OF AGRICULTURE

Agricultural Experiment Station

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## REPORT OF THE DIRECTOR.

F. B. MUMFORD.

The Missouri Fertilizer Law, approved March 14, 1903, is reprinted in this bulletin for the information of all persons interested. It requires every manufacturer or dealer to register with the Missouri Experiment Station all brands of fertilizers offered for sale in Missouri, together with a guaranteed chemical composition of the same. It provides further that the manufacturer shall affix to every package of fertilizer a printed tag signed by the Director of the Experiment Station, certifying to the fact of registration with the Missouri Experiment Station.

This tag of the Experiment Station is not a guarantee of the chemical composition of the fertilizer but merely certifies that the fertilizer has been registered with the Director of the Experiment Station.

The law requires that the Experiment Station shall collect from the open market samples of all brands of fertilizers sold in the state, make a chemical analysis of each brand and publish annually a detailed report. This report covers the year ending December 31, 1910.

The use of fertilizers in Missouri is increasing. The number of brands registered during the year covered by this report is much larger than the number registered during the previous year. The number of samples actually collected and analyzed by the Experiment Station is more than double the number analyzed during the year ending December 31, 1909. This means that the Experiment Station during the period covered by this report has accomplished the most thorough and careful inspection that has ever been made in Missouri.

The result of the work of the Experiment Station has been to drive out of the state dishonest fertilizer dealers and to encourage the sale of reliable fertilizers. The annual report issued by the Station has become a safe guide to farmers and dealers who purchase fertilizers in Missouri.

## MISSOURI FERTILIZER LAW.

Section 1. Any commercial fertilizer or material to be used as a fertilizer the selling price of which exceeds five dollars per ton, shall have stamped or affixed to each package of such fertilizer in a conspicuous place on the outside thereof, by the manufacturer, importer, corporation, company or person who sells or causes the same to be sold, offered or exposed for sale, a plainly printed statement which shall certify as follows:

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

(2) The name or address of the manufacturer of the fertilizer.

(3) The guaranteed chemical composition of the fertilizer expressed in the following terms: (a) Percentum of nitrogen; percentum of available phosphoric acid, and in the case of an undissolved animal bone, the percentum of insoluble phosphoric acid; (3) percentum of potash soluble in distilled water. In case the composition is expressed in equivalent to ammonia, etc., in addition to the above, it shall be clearly and unequivocally shown that such terms are used merely as equivalents and not used to represent additional plant food.

Sec. 2. Before any commercial fertilizer or material to be used as a fertilizer, the selling price of which exceeds five dollars per ton, is sold, offered or exposed for sale in this state, the manufacturer, importer, corporation, company or person who sells or causes the same to be sold, offered or exposed for sale, shall file annually for registry with the Missouri Agricultural Experiment Station at Columbia, a statement which shall certify as follows: (1) The name, brand, or trade mark under which the fertilizer is sold; (2) the name and address of the manufacturer of the fertilizer; (3) the guaranteed chemical composition of the fertilizer, expressed in the following terms; (a) percentum of nitrogen; (b) percentum of available phosphoric acid, and in the case of an undissolved bone, the percentum of insoluble phosphoric acid; (c) percentum of potash soluble in distilled water.

Sec. 3. It shall be the duty of the director of said experiment station to register or cause to be registered the statements of every brand of fertilizer offered for registry as aforesaid, and to furnish to every manufacturer, importer or person complying with the provisions of this act, a certificate setting forth the fact of registry, and shall furnish to the manufacturer, importer or person complying with the provisions of this act, the labels or tags required in section 4 of this act, showing that the brand of fertilizer has been duly registered at the experiment station for that year.

Sec. 4. That every person, corporation or company who shall sell, offer or expose for sale in this state any commercial fertilizer, the selling price of which exceeds five dollars per ton, shall stamp or affix to each package of such fertilizer in a conspicuous place on the outside thereof a plainly printed statement which shall recite and certify in effect and from the matters and things required to be set forth in the registered statement described in section 2 of this act. If any such fertilizer is sold, offered, or exposed for sale in bulk, such printed statement shall accompany every lot and parcel sold, offered or exposed for sale. Every person, corporation or company selling or exposing for sale such fertilizer shall in addition to said printed statement attach to every package or quantity of such fertilizer sold or exposed for sale, in a conspicuous place on the outside of said package, a label or tag furnished by said experiment station showing that such brand or commercial fertilizer has been registered at said experiment station for that year.

Sec. 5. Every manufacturer, importer or person shall pay to said experiment station for the labels or tags required by them under section 4 of this act, the sum of one and one-half cents each for tags to be attached to packages weighing one hundred pounds or less, and three cents each for the tags or labels to be attached to bags or packages weighing more than one hundred pounds. The moneys so paid shall be used for defraying the expenses of said experiment station in registering and keeping a registry of the statements required under the second section of this act, for collecting samples in the open market, for making or causing to be made the analysis of samples, for supplying the labels or tags, for practical and scientific experiments in the value and proper use of commercial fertilizers, and for publishing the results of same and for such other work, investigations and publications as may be of practical use to the farmers of the state.

Sec. 6. It shall be the duty of the experiment station to collect or cause to be collected from the open market each year one or more samples of each and every brand of fertilizer sold in this state during that year, and make or cause to be made a chemical analysis of the same; to publish each year a full and detailed report giving the names and addresses of all the manufacturers of fertilizers selling or offering for sale commercial fertilizers in this state, a list of the brands thereof; the guaranteed composition of the same and the composition as found by the chemical analysis herein required; also an itemized statement of the receipts and expenditures under this act.

Sec. 7. The director of the experiment station is hereby authorized in person or by deputy to take samples of not more than one pound each for analysis, from any lot or package of any commercial fertilizer which may be in the possession of any manufacturer or dealer in this state upon tender of the value of the same; and to obtain said samples said director and his deputies are hereby authorized to enter upon the premises of said manufacturer or dealer or his agents or where said fertilizer is stored. And said director is hereby authorized to prescribe and enforce such rules and regulations as may be deemed necessary to carry fully into effect the true intent and meaning of this act.

Sec. 8. No person shall sell, offer or expose for sale in this state any untreated, partially decomposed leather, horn, hair, hoof or other inert nitrogenous matter as a fertilizer or as an ingredient of any fertilizer, unless a plainly printed and explicit statement of such fact shall be conspicuously affixed to every package of such fertilizer, and such printed statement shall accompany every parcel, package or lot of the same.

Sec. 9. Every person violating or evading any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof in any court of competent jurisdiction shall be punished with a fine of one hundred dollars for the first offense, and two hundred dollars for each subsequent violation or evasion of this act; which fines shall accrue to the benefit of and be paid into the general revenue fund of the county or municipality where such conviction is made.

Sec. 10. There being no adequate law in this state to prevent fraud in the manufacture and sale of commercial fertilizers, creates an emergency within the meaning of the constitution; therefore, this act shall take effect and be in force from and after its passage.

## REPORT OF THE CHEMISTS.

### INSPECTION AND ANALYSES OF COMMERCIAL FERTILIZERS.

P. F. TROWBRIDGE.

L. D. HAIGH.

L. E. MORGAN.

C. R. MOULTON.

E. E. VANATTA.

A. A. JONES.

W. I. WATKINS.

This bulletin contains the report of the fertilizer inspection for the year 1910. Twenty-four manufacturers registered a total of three hundred four brands for sale in the state. (During the year 1909, twenty manufacturers listed two hundred sixty-five brands.) The inspectors made collections in April and May for the spring shipments of fertilizers and in September and October for the fall shipments. They visited one hundred nineteen towns, collecting more than eight hundred samples, representing one hundred seventy-two brands. From the samples collected, over five hundred fifty were selected for analysis, the results of which are given in this bulletin. (During the year 1909, the inspectors visited forty-nine towns, collecting three hundred samples, representing one hundred ten brands.)

Of the three hundred four brands registered for sale in the state for 1910, only one hundred seventy-two brands were found by the inspectors in the hands of dealers or farmers. (In 1909, one hundred ten different brands were found by the inspectors.) A considerable number of brands were registered for sale in the state of which no shipments were made by the manufacturers into the state during the year. Some brands were shipped into the state which the inspectors failed to find.

It frequently happens that the Station receives a notice of a shipment of fertilizers to a dealer and before the inspector can reach the town, the fertilizer has all been distributed to the farmers and has been used upon the land. This happens most frequently where the dealer does not keep a stock on hand and only orders as the fertilizers are wanted. When the shipment arrives, the farmers are immediately notified and secure their supply direct from the car. In such cases it is very difficult for the inspector to secure samples of the different brands unless he happens to be in the town when the car is being unloaded.

The Experiment Station desires to secure one or more samples of each brand offered for sale in the state and earnestly asks the co-operation of the dealers and farmers to this end.

### WHAT KIND OF FERTILIZER TO BUY.

The Experiment Station is repeatedly asked, what kind of fertilizer shall I buy, what fertilizer shall I use upon my corn, what is the best fertilizer for wheat, which manufacturer makes the best fertilizer?

The specific purpose of the fertilizer law is to protect the farmer in the purchase of fertilizers; to assure him that he is receiving the plant food which the manufacturer must guarantee to be present. The law makes no restriction as to the amount that shall be charged for fertilizers, nor is there any specification as to the minimum amount of plant food which the fertilizer must contain. So far as the fertilizer control is concerned, every brand of every manufacturer receives the approval in this bulletin, provided it furnishes to the farmer the amount of plant food guaranteed in approximately the proportion guaranteed. It is not enough that the fertilizer contain the guaranteed plant food value but the plant food must be presented in approximately the proportion guaranteed; otherwise the farmer cannot learn by comparison of the different fertilizers which kind is best suited to his land and crops. There is some difficulty in mixing fertilizers sufficiently, so that every portion of the lot mixed shall contain exactly the same proportion of plant food. There will necessarily be some variation in the percentage of the composition of the samples taken from different shipments of the same-brand. One sample may run a little high or low in nitrogen with a corresponding decrease or increase in one or the other constituent. No fault can be found if this variation be not too great and if the guaranteed plant food value be present.

There is a great demand in Missouri for cheap fertilizers. Too many farmers are asking for the fertilizer cheap in price regardless of the plant food value. Some farmers claim they are getting better results with a low grade fertilizer containing 0.82 per cent nitrogen, 7.00 per cent available phosphoric acid and 1.00 per cent potash purchased at a cost of \$19.00 per ton than they do from the same number of pounds of raw bone meal costing \$30.00 per ton. It is needless to dispute such statements as this. There are many other factors to be considered in crop growing, besides the commercial fertilizer used.

The values reported in this bulletin were agreed upon at a conference with the fertilizer manufacturers in 1908. Recently every manufacturer offering fertilizer for sale in the state, was asked for an opinion of these values for 1911. All were agreed that the nitrogen cost had increased considerably. Some thought the values should be correspondingly increased. Others thought as the phosphoric acid price was already a little high and would so nearly counteract the cost of

the nitrogen, that there was no special need of changing the present valuations. Other manufacturers took the ground that these values were only comparative for the purpose of comparing one brand or manufacturer with another and were not intended to represent the cost of the fertilizer to the consumer. After considering all of the suggestions it has been deemed advisable not to change the valuations for the present bulletin. A study of the results of the analyses will show that for nearly all high grade fertilizers, the valuations given represent approximately the cost of these fertilizers delivered to the consumer in most parts of the state. These high grade fertilizers represent the best of the fertilizer material, therefore, it can be reasonably said that the valuations used, i. e. four dollars per unit (twenty cents per pound) for nitrogen, seventy cents per unit (three and one-half cents per pound) for total phosphoric acid, one dollar twenty cents per unit (six cents per pound) for both available phosphoric acid and potash, represent about what the farmer should expect to pay for plant food in the form of commercial fertilizers.

If, on the other hand, these same valuations are applied to the low grade fertilizers, it will be seen that these fertilizers will cost the farmer from five to ten dollars per ton more than they should. This does not mean that in these cheaper fertilizers the plant food is worth more per pound than in the high grade fertilizers. On the other hand, it can be shown that in many cases the plant food is of much less value.

In order to furnish a mixed fertilizer containing nitrogen, 0.82 per cent, available phosphoric acid, 7.00 per cent, potash 1.00 per cent; or one containing nitrogen 1.65 per cent, available phosphoric acid 8.00 per cent, potash 2.00 per cent; or a steamed bone containing, nitrogen 1.65 per cent, total phosphoric acid 20.00 per cent, or an acid phosphate containing 10 per cent available phosphoric acid, it is necessary to use low grade material or to add ground cinders, molders sand or some other inert substance as a filler. The addition of this filler makes an increased cost to the manufacturer which the consumer must pay. The price which the farmer pays for the fertilizer is based on the delivery at his railroad station. The manufacturer must, therefore, add the extra cost of freight on this filler which in no way increases the value of the plant food but must necessarily increase its cost. In addition to this, the farmer must haul the added filler from the station to his farm when he could just as well have taken so much dirt from the roadside to apply on his land. For illustration, take the low grade mixed fertilizer mentioned above. This is reported by many dealers as being their best seller at from nineteen



dollars to twenty-one dollars per ton. At the values used, this fertilizer is worth as follows:

0.82 per cent nitrogen at \$4.00 per unit .....	\$ 3.28
7.00 per cent available phosphoric acid at 1.20 per unit....	8.40
1.00 per cent potash at 1.20 per unit .....	1.20

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Total value of this fertilizer .....\$12.88

This grade of fertilizer usually contains from one-half to one per cent insoluble phosphoric acid. If this insoluble phosphoric acid is from bone, it should be given a value of forty cents per unit which would increase the value of the fertilizer twenty to forty cents per ton. More than ninety per cent of the phosphoric acid in the mixed fertilizers is from rock phosphate treated with sulphuric acid and it is quite probable that this insoluble phosphoric acid should be considered as practically of no value.

The amount of plant food in the above fertilizer can easily be obtained from good high grade material as follows: Nitrogen (0.82 per cent) 16.4 pounds per ton, can be obtained from 125 pounds of dried blood, 110 pounds of sodium nitrate, or 200 pounds of tankage. Seven per cent available phosphoric acid, 140 pounds per ton, can be obtained from 1000 pounds of fourteen per cent acid phosphate or from 875 pounds of sixteen per cent acid phosphate. One per cent potash, twenty pounds per ton, can be obtained from forty pounds of good commercial sulphate of potash. This makes a total of from 1025 pounds to 1240 pounds of good fertilizer material. The balance of the ton, 975 to 760 pounds, is useless filler upon which the farmer pays freight because he demands a cheap fertilizer.

This, however, is not the worst part of the story, for in these cheap fertilizers, garbage tankage and muck filler is used to a considerable extent to supply the bulk and at the same time to furnish considerable portion of the nitrogen, the most expensive ingredient of the fertilizer. Special investigations at the New Jersey Experiment Station and elsewhere have shown that much of the nitrogen from such sources is not readily available as plant food and that in many cases such nitrogen is worth less than one-third of that obtained from high grade fertilizer material.

Many farmers say they cannot afford to spend more than one dollar and fifty cents per acre for fertilizer on their corn or wheat, which means they are using about one hundred and fifty pounds per acre of the low grade fertilizer above mentioned. A fertilizer containing two and one-half per cent nitrogen, twenty-four per cent phosphoric acid from bone and four per cent potash can be bought

for about thirty dollars per ton. The guaranteed valuation of this fertilizer is

Nitrogen 2½ per cent at \$4.00 per unit .....	\$10.00
Total phosphoric acid 24 per cent at \$0.70 per unit.....	16.80
Potash four per cent at \$1.20 per unit .....	4.80
	<hr/>
Total .....	\$31.60

One ton of such a fertilizer costing thirty dollars, will contain over two hundred and fifty pounds more of total plant food than two tons of low grade fertilizer, costing forty dollars for the two tons. The one ton of high grade fertilizer contains about six dollars worth of plant food more than the two tons of cheap fertilizer, making a saving, to the farmer, of about sixteen dollars, with only one-half as much to haul from the station. If he uses one-half as much per acre of the high grade fertilizer, he is using more plant food with an actual saving of at least sixty cents per acre.

**BRANDS OF FERTILIZERS REGISTERED IN MISSOURI—  
SEASON OF 1910.**

**AMERICAN FERTILIZER COMPANY, Chicago, Ill.**

Union Brands.	Nitro- gen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avall- able per ct.	
Complete Crop Grower .....	1.65	9.50	1.50	8.00	2.00
Corn and General Crop Grower.....	0.82	9.00	1.00	8.00	4.00
King's Favorite .....	0.82	9.00	1.00	8.00	3.00
General Cropper .....	0.82	9.00	1.00	8.00	1.00
High Grade Acid Phosphate.....	.....	.....	.....	14.00	.....
High Grade Phosphate and Potash....	.....	11.00	1.00	10.00	2.00
Pure Bone Meal and Potash.....	0.82	20.00	.....	.....	3.00
Special Bone Meal.....	1.65	20.00	.....	.....	.....
Pure Bone Meal .....	2.50	25.00	.....	.....	.....
Pure Raw Bone Meal .....	3.70	20.00	.....	.....	.....

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

Iowa Brands.					
Complete Crop Grower .....	1.65	9.50	1.50	8.00	2.00
Corn and General Crop Grower .....	0.82	9.00	1.00	8.00	4.00
General Cropper .....	0.82	9.00	1.00	8.00	1.00
High Grade Phosphate and Potash....	.....	11.00	1.00	10.00	2.00
Special Bone Meal and Potash.....	0.82	20.00	.....	.....	3.00
Special Bone Meal .....	1.65	20.00	.....	.....	.....
Pure Bone Meal .....	2.50	25.00	.....	.....	.....
Pure Bone Meal and Potash.....	2.50	24.00	.....	.....	2.50
Pure Raw Bone Meal.....	3.50	20.00	.....	.....	.....
Animal Bone Meal .....	1.00	30.00	.....	.....	.....

**AMERICAN REDUCTION AND FERTILIZER COMPANY, Kansas City, Mo.**

Kaw Brands.					
Grain Grower .....	1.65	10.00	.....	.....	2.00
Special Fertilizer .....	1.65	4.00	.....	.....	5.00
Manure Concentrate .....	.....	4.00	.....	.....	4.00
Special Potash Mixture .....	0.41	4.00	.....	.....	6.00
Potato Grower .....	1.00	4.00	.....	.....	7.00
Garden and Grass Grower.....	3.75	2.00	.....	.....	2.00
Pure Raw Bone Meal.....	3.75	23.00	.....	.....	.....
Pure Raw Bone Meal and Manure Pot.	1.65	14.00	.....	.....	3.00
Sheep Guano .....	1.65	1.00	.....	.....	1.00

## ARKANSAS FERTILIZER COMPANY, Little Rock, Ark.

White Diamond Brands.	Nitrogen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avail- able per ct.	
Pure Raw Bone Meal.....	3.30	20.00	13.00	7.00	.....
Raw Bone Meal and Potash.....	2.47	18.00	11.00	7.00	2.00
Kali Bone Meal .....	1.65	14.00	7.00	7.00	3.00
Amm. Bone Superphosphate .....	1.65	11.00	2.00	9.00	2.00
Economy Fertilizer .....	0.83	11.00	1.00	10.00	2.00
High Grade C. & W.....	1.65	10.00	1.00	9.00	4.00
High Grade Pot. Spec.....	1.65	10.00	1.00	9.00	6.00
Kali Superphosphate .....	.....	.....	.....	12.00	2.50
Phospho-Kainit Mix.....	.....	.....	.....	10.00	4.00
H. G. Farmers' Choice.....	2.00	11.00	1.00	10.00	2.50
Early Potato and Trucker.....	2.47	.....	.....	8.00	4.00
Grain Maker .....	.....	.....	.....	10.00	2.00
Number 39.....	0.83	.....	.....	10.00	1.00

## ARMOUR FERTILIZER WORKS, Chicago, Ill.

Helmet Brands.					
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	0.50	16.00	.....
14 per cent Phosphate .....	.....	14.50	0.50	14.00	.....
Phosphate and Potash.....	.....	10.50	0.50	10.00	2.00
No. 171 Fertilizer .....	0.82	7.50	0.50	7.00	1.00
No. 271 Fertilizer .....	1.65	7.50	0.50	7.00	1.00
No. 282 Fertilizer .....	1.65	8.50	0.50	8.00	2.00
No. 285 Fertilizer .....	1.65	8.50	0.50	8.00	5.00
Special Potato Fertilizer .....	1.65	8.50	0.50	8.00	10.00
Amm. Dis. Bone and Potash.....	1.65	10.50	0.50	10.00	2.00
No. 386 Fertilizer .....	2.47	8.50	0.50	8.00	6.00
Lawn and Garden Fertilizer.....	2.88	8.50	0.50	8.00	4.00
Odorless Lawn No. 493.....	3.29	9.50	0.50	9.00	3.00
Blood, Bone and Potash.....	4.11	8.50	0.50	8.00	7.00
Sulphate of Potash .....	.....	.....	.....	.....	50.00
Muriate of Potash .....	.....	.....	.....	.....	48.00
Nitrate of Soda .....	15.63	.....	.....	.....	.....

	Nitro- gen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avail- able per ct.	
Flower Food .....	7.00	14.50	0.50	14.00	12.00
No. 583 Fertilizer .....	4.11	8.50	0.50	8.00	3.00
<b>Shield Brands.</b>					
Grain Grower .....	1.65	8.50	0.50	8.00	2.00
Amm. Bone with Potash.....	2.47	6.50	0.50	6.00	2.00
Wheat, C. & O. Special.....	0.82	7.50	0.50	7.00	1.00
Fruit and Root Special .....	1.65	8.50	0.50	8.00	5.00
Bone, Blood and Pot.....	4.11	8.50	0.50	8.00	7.00
High Grade Potato .....	1.65	8.50	0.50	8.00	10.00
Record Brand .....	0.82	10.50	0.50	10.00	1.00
All Soluble .....	2.88	8.50	0.50	8.00	4.00
Hoosier Corn Grower .....	0.82	8.50	0.50	8.00	4.00
Crop Grower .....	1.23	8.50	0.50	8.00	2.00
Armour's Standard .....	0.82	8.50	0.50	8.00	3.00
Sol. Phos. and Pot.....	.....	10.50	0.50	10.00	4.00
Phos. and Potash .....	.....	10.50	0.50	10.00	2.00
Star Phosphate .....	.....	14.50	0.50	14.00	.....
Cereal Phosphate .....	.....	10.50	0.50	10.00	.....
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	0.50	8.00	6.00
Bone and Potash Mixture.....	1.80	20.00	.....	.....	3.00
1-8-4 Fertilizer .....	0.82	8.50	0.50	8.00	4.00

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

<b>Steer Head Brands.</b>					
Special Corn Grower, High Grade.....	2.08	10.00	2.00	8.00	3.00
Special Corn Grower, Medium Grade...	1.64	10.00	2.00	8.00	2.00
Special Oat Grower, High Grade.....	1.64	10.00	2.00	8.00	2.00
Special Oat Grower, Medium Grade....	1.00	10.00	3.00	7.00	1.00
Special Truck Grower, High Grade.....	3.26	10.00	2.00	8.00	5.00
Special Truck Grower, Medium Grade.	2.08	10.00	2.00	8.00	3.00
Special Wheat Grower, High Grade....	1.00	12.00	2.00	10.00	3.00
Special Wheat Grower, Medium Grade.	1.00	10.00	3.00	7.00	1.00

	Nitro- gen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avail- able per ct.	
Soluble Bone Phosphate, High Grade..	.....	.....	.....	14.00	.....
Ammoniated Bone, High Grade .....	1.65	12.00	2.00	10.00	.....
Ammoniated Bone, Medium Grade.....	1.00	12.00	2.00	10.00	.....

**CONTINENTAL FERTILIZER COMPANY, Chicago, Ill.**

<b>Bear Brands.</b>					
Steamed Bone .....	1.65	20.00	.....	.....	.....
Phosphate .....	.....	12.50	0.50	12.00	.....
H. G. Dissolved Bone .....	.....	14.50	0.50	14.00	.....
Potash Mixture .....	.....	10.50	0.50	10.00	2.00
Alkaline Bone .....	.....	12.50	0.50	12.00	2.00
Grain Grower .....	0.41	8.50	0.50	8.00	4.00
Slaughter House Bone .....	1.65	8.50	0.50	8.00	2.00
Ammoniated Bone .....	1.65	10.50	0.50	10.00	2.00
Bone Meal .....	2.47	24.00	.....	.....	.....
Raw Bone .....	3.70	22.00	.....	.....	.....
H. G. Vegetable Grower .....	2.47	8.50	0.50	8.00	6.00

**DARLING AND COMPANY, Chicago, Ill.**

Chicago Brand .....	1.65	9.50	1.50	8.00	2.00
Sure Winner Brand .....	0.82	9.50	1.50	8.00	3.00
General Crop Brand .....	0.82	9.50	1.50	8.00	6.00
Phosphate and Potash .....	.....	.....	.....	10.00	2.00
Pure Ground Bone .....	2.47	23.00	.....	.....	.....

**EMPIRE CARBON WORKS, St. Louis, Mo.**

<b>Boar's Head Brands.</b>					
W. of G. Superphosphate .....	2.06	10.00	2.00	8.00	1.50
W. of G. Pot. and Veg.....	1.65	10.00	2.00	8.00	5.00
W. of G. C. and W. Gr.....	1.65	9.50	1.50	8.00	2.00
Ammon. Bone and Potash .....	0.82	12.00	2.00	10.00	1.00
Seeding Down Guano .....	0.82	9.50	1.50	8.00	2.00
Faultless Grain Grower .....	0.82	8.00	1.00	7.00	1.00
Mo. Sure Growth .....	.....	.....	.....	10.00	2.00
Gilt Edge Phos.....	.....	.....	.....	14.00	.....
Soluble Phosphate .....	.....	.....	.....	10.00	.....
Raw Bone Meal .....	3.29	22.00	.....	.....	.....
Chicago Bone Meal .....	2.46	20.00	.....	.....	.....
Special " " .....	1.65	20.00	.....	.....	.....

## EMPIRE CARBON WORKS—Continued.

Bradley's Standard Brands.	Nitro- gen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avail- able per ct.	
B. D. Seafowl Guano .....	2.06	9.00	1.00	8.00	1.50
Pot. and Root Phos. ....	0.82	9.00	1.00	8.00	4.00
Wheat and Clover Fertilizer.....	0.82	11.00	1.00	10.00	1.00
Corn and Wheat Phosphate.....	1.03	9.00	1.00	8.00	2.00
Niagara Phosphate .....	0.82	8.00	1.00	7.00	1.00
Alkaline Bone and Potash .....	.....	11.00	1.00	10.00	2.00
Sol. Dissolved Bone .....	.....	.....	.....	14.00	.....
Acid. Phosphate .....	.....	.....	.....	10.00	.....
Ground Raw Bone .....	3.29	22.00	.....	.....	.....
Bone Meal .....	1.23	25.00	.....	.....	.....
Special Bone Meal .....	1.65	20.00	.....	.....	.....
<b>Empire Brands.</b>					
Truck and Vegetable Grower.....	2.46	9.00	1.00	8.00	4.00
Potato and Truck Special.....	0.82	9.00	1.00	8.00	7.00
Bone Black Fertilizer .....	2.06	9.00	1.00	8.00	1.50
Crop Grower .....	1.65	9.00	1.00	8.00	2.00
Wheat and Clover Fertilizer.....	0.82	9.00	1.00	8.00	2.00
Complete Manure .....	0.82	8.00	1.00	7.00	1.00
Phosphate with Potash .....	.....	.....	.....	10.00	2.00
Dissolved Bone .....	.....	.....	.....	14.00	.....
Phosphate .....	.....	.....	.....	10.00	.....
Raw Bone Meal .....	3.29	22.00	.....	.....	.....
Ground Bone .....	1.23	25.00	.....	.....	.....
Muriate of Potash .....	.....	.....	.....	.....	49.00
Tomato and Truck Special.....	2.46	9.00	1.00	8.00	4.00
Special Bone Meal .....	1.65	20.00	.....	.....	.....
Tobacco Grower .....	1.65	.....	.....	8.00	5.00
<b>Horse Shoe Brands.</b>					
Special Potato and Vegetable Grower.	2.06	9.50	1.50	8.00	5.00
National Bone Dust .....	2.06	9.50	1.50	8.00	1.50
Corn and Wheat Grower.....	1.64	9.00	1.00	8.00	2.00
Acid. Bone and Potash.....	0.82	11.00	1.00	10.00	1.00
Reliable Wheat Grower.....	0.82	9.00	1.00	8.00	2.00
Animal Bone Manure .....	0.82	8.00	1.00	7.00	1.00
Bone and Potash .....	.....	.....	.....	10.00	2.00
Quick Acting Phosphate.....	.....	.....	.....	10.00	.....

## EMPIRE CARBON WORKS—Continued.

Horse Shoe Brands—Continued.	Nitro- gen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avail- able per ct.	
Premium Bone Meal .....	1.23	25.00	.....	.....	.....
Pure Ground Bone .....	2.50	20.00	.....	.....	.....
Fine Raw Bone .....	3.29	22.00	.....	.....	.....
Special Bone Meal .....	1.65	29.00	.....	.....	.....

## GATE CITY FERTILIZER COMPANY, Texarkana, Ark.

Red Ball Brands.					
Raw Bone Meal .....	3.30	20.00	13.00	7.00	.....
Raw Bone Meal and Potash.....	2.47	18.00	11.00	7.00	2.00
Complete Bone Meal .....	1.65	14.00	7.00	7.00	3.00
Soluble Bone and Potash.....	1.65	11.00	2.00	9.00	2.00
Wheat Grower .....	0.83	.....	.....	10.00	2.00
Acidulated Bone Fertilizer .....	0.83	.....	.....	10.00	1.00
Grain Maker .....	.....	.....	.....	10.00	2.00

## GERMAN KALI-WORKS, Baltimore, Md.

Muriate of Potash .....	.....	.....	.....	.....	50.00
Sulphate of Potash .....	.....	.....	.....	.....	48.00
Kainit .....	.....	.....	.....	.....	12.00

## LEONARD HAEFELE, St. Louis, Mo.

Star Brand.					
Ground Steam Bone .....	2.57	25.44	19.43	6.01	.....

## HIRSH, STEIN AND COMPANY, Chicago, Ill.

Calumet Brands.					
Bone Phosphate and Potash.....	0.40	11.00	1.00	10.00	2.00
Universal Crop Grower .....	0.80	8.00	1.00	7.00	1.00
Potato, Tobacco and Onion.....	1.60	9.00	1.00	8.00	5.00
Complete Fertilizer .....	1.60	9.00	1.00	8.00	2.00
Special Wheat Grower .....	0.80	9.00	1.00	8.00	4.00
Special Pure Bone Meal and Potash...	0.80	20.00	.....	.....	4.00
Pure Bone Meal .....	2.46	22.80	.....	.....	.....
Special Pure Bone Meal .....	0.80	29.00	.....	.....	.....
Pure Raw Bone Meal.....	3.70	20.00	.....	.....	.....
Sulphate of Potash .....	.....	.....	.....	.....	48.00
Kainit .....	.....	.....	.....	.....	12.00



## JARECKI CHEMICAL COMPANY, Cincinnati, Ohio.

	Nitrogen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avail- able per ct.	
Lake Erie Guano with Phos. and Pot...	1.23	.....	.....	8.00	2.50
C. O. D. Phosphate .....	.....	.....	.....	12.00	.....
Square Brand Phos. and Potash.....	.....	.....	.....	10.00	2.00
Fish Phos. and Pot. Tob. and Potato Fd.	0.82	.....	.....	8.00	4.00

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

Increment Brands.					
Pure Raw Bone Meal.....	3.50	23.00	16.00	7.00	.....
Pure Bone Meal .....	2.68	23.00	15.00	8.00	.....
Extra Fine Ground Bone.....	2.06	22.00	13.00	9.00	.....
Alkaline Bone .....	.....	.....	.....	10.00	3.00
Acid. Bone Meal .....	2.47	14.00	4.00	10.00	.....
Acid. Bone and Potash.....	2.47	11.00	2.00	9.00	2.00
St. Louis Fertilizer .....	1.65	10.00	2.00	8.00	1.50
Potato and Tobacco Grower.....	1.65	9.00	2.00	7.00	4.50
Basing Mixture .....	2.88	19.00	13.00	6.00	7.00
Dissolved Bone .....	3.09	11.00	2.00	9.00	4.00
Grain Grower .....	1.65	10.00	2.00	8.00	2.00
Bearing Tree Mixture .....	2.00	.....	.....	10.00	7.50
Raw Bone and Potash .....	2.47	18.00	12.00	6.00	3.00
Lawn Fertilizer .....	3.91	.....	.....	9.00	2.50
Complete Fertilizer .....	0.83	9.00	1.00	8.00	1.00
Spec. Acid. Bone and Potash.....	2.47	8.00	2.00	6.00	2.00
Special C. and O. Grower.....	0.90	9.00	2.00	7.00	1.00
Special Wheat Grower .....	1.65	11.00	2.00	9.00	1.00
Acid. Phosphate .....	.....	.....	.....	16.00	.....

## MAYER FERTILIZER COMPANY, St. Louis, Mo.

Anchor Brands.					
Special Wheat Grower .....	1.00	12.00	2.00	10.00	3.00
Special Corn Grower .....	2.05	10.00	2.00	8.00	3.00
Special Truck Grower .....	3.25	10.00	2.00	8.00	5.00
Special Berry and Fruit Grower.....	1.65	12.00	2.00	10.00	6.00
Complete Fertilizer .....	1.65	10.00	2.00	8.00	2.00
Bone and Potash .....	1.00	10.00	3.00	7.00	1.00
Acid. Phosphate .....	.....	.....	.....	14.00	.....
Raw Bone Meal .....	3.70	20.00	13.00	7.00	.....
St. Louis Bone Meal .....	3.30	18.00	12.00	6.00	.....

## MORRIS AND COMPANY, Chicago, Ill.

Big Brands.	Nitro- gen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avall- able per ct.	
Big One—Ground Raw Bone .....	3.30	24.00	.....	.....	.....
Big Two—Pure Bone Meal .....	2.00	28.00	.....	.....	.....
Big Three .....	2.50	10.00	4.00	6.00	2.00
Big Four .....	4.10	12.00	5.00	7.00	4.00
Big Five .....	2.50	10.00	4.00	6.00	1.00
Big Six—Special Bone Meal.....	0.82	27.00	.....	.....	.....
Big Seven—Spec. Bone Meal and Pot..	1.24	16.00	.....	.....	3.00
Big Eight—Ammon. Acid. Phos. & Pot.	0.82	8.00	1.00	7.00	1.00
Big Nine .....	1.65	10.00	2.00	8.00	5.00
Big Ten—Grain Grower .....	1.65	10.00	2.00	8.00	2.00
Big Eleven—Bone Meal and Potash...	0.82	16.00	.....	.....	10.00

## NITRATE AGENCIES COMPANY, Chicago, Ill.

Muriate of Potash .....	.....	.....	.....	.....	50.00
Sulphate of Potash .....	.....	.....	.....	.....	48.00
Acid. Phosphate High Grade.....	.....	.....	.....	14.00	.....
Thomas Phos. Powder Basic Slag.....	.....	.....	.....	15.00	.....
Nitrate of Soda .....	15.50	.....	.....	.....	.....

## PULVERIZED MANURE COMPANY, Chicago, Ill.

Wizard Brands.					
Manure .....	1.80	.....	.....	1.00	1.00
Pure Ground Bone .....	2.50	20.00	.....	.....	.....

## SWIFT AND COMPANY, Chicago, Ill.

Swift's Brands.					
Superphosphate .....	1.65	10.00	2.00	8.00	2.00
Complete Fertilizer .....	1.00	9.00	1.00	8.00	1.00
Onion, Potato and Tobacco.....	1.65	10.00	2.00	8.00	7.00
Pure Bone Meal and Blood.....	3.75	23.00	.....	.....	.....
Pure Bone Meal and Potash.....	2.50	23.50	.....	.....	3.00
Pure Ammon. Bone and Potash.....	4.75	16.00	.....	.....	3.00
Spec. Phosphate and Potash .....	.....	11.00	1.00	10.00	2.00
Champion Vegetable Grower .....	3.29	10.00	2.00	8.00	3.00
Special Grain Fertilizer .....	1.65	12.00	2.00	10.00	2.00
Pure Raw Bone Meal .....	3.75	23.00	.....	.....	.....

## SWIFT AND COMPANY—Continued.

Swift's Brands—Continued.	Nitro- gen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash K <sub>2</sub> O per ct.
		Total per ct.	Insol. per ct.	Avail- able per ct.	
Pure Bone Meal .....	2.50	25.00	.....	.....	.....
Ground Dried Blood .....	13.18	.....	.....	.....	.....
Ground Steamed Bone .....	1.65	20.00	.....	.....	.....
Pure Special Bone Meal .....	0.82	27.50	.....	.....	.....

## SPRINGFIELD REDUCTION AND CHEMICAL COMPANY, Springfield, Mo.

Ozark Grain Grower .....	1.65	10.00	2.00	8.00	2.00
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## TENNESSEE CHEMICAL COMPANY, Chicago, Ill.

Ox. Brands.					
Phosphate .....	.....	12.50	0.50	12.00	.....
H. G. Dissolved Bone .....	.....	14.50	0.50	14.00	.....
Potash Mixture .....	.....	10.50	0.50	10.00	2.00
Grain Grower .....	0.41	8.50	0.50	8.00	4.00
Slaughter House Bone .....	1.65	8.50	0.50	8.00	2.00
Beef Blood and Bone .....	1.65	10.50	0.50	10.00	2.00
Bone Meal .....	2.47	24.00	.....	.....	.....
Raw Bone .....	3.70	22.00	.....	.....	.....
Steamed Bone .....	1.65	20.00	.....	.....	.....

## TUSCARORA FERTILIZER COMPANY, Chicago, Ill.

Tuscarora Brands.					
Standard .....	1.65	8.50	0.50	8.00	2.00
Fruit & Potato .....	1.65	8.50	0.50	8.00	10.00
Garden .....	2.88	8.50	0.50	8.00	4.00
Trucker .....	4.11	8.50	0.50	8.00	7.00
Chief .....	0.82	8.50	0.50	8.00	4.00
Big Four .....	1.65	7.50	0.50	7.00	4.00
Ammon. Phosphate .....	0.82	7.50	0.50	7.00	1.00
Bone and Potash .....	.....	10.50	0.50	10.00	2.00
Sol. Phos. with Potash .....	.....	10.50	0.50	10.00	4.00
Acid Phosphate .....	.....	14.50	0.50	14.00	.....
Bone Phos. ....	.....	10.50	0.50	10.00	.....
Steamed Bone Meal .....	1.65	20.00	.....	.....	.....
Raw Bone Meal .....	3.70	22.00	.....	.....	.....
Animal Bone .....	2.47	24.00	.....	.....	.....
German Kainit .....	.....	.....	.....	.....	12.00

## TUSCARORA FERTILIZER COMPANY—Continued.

Tuscarora Brands—Continued.	Nitrogen per ct.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub>			Potash O <sub>2</sub> Y per ct.
		Total per ct.	Insol. per ct.	Available per ct.	
Muriate of Potash .....	.....	.....	.....	.....	48.00
Sulphate of Potash.....	.....	.....	.....	.....	50.00
Nitrate of Soda .....	15.63	.....	.....	.....	.....
3-8-6 Fertilizer .....	2.47	8.50	0.50	8.00	6.00
High Grade .....	.....	10.50	0.50	10.00	8.00

## VIRGINIA-CAROLINA CHEMICAL COMPANY, Memphis, Tenn.

Royal H. G. Guano .....	1.65	.....	.....	10.00	2.00
Beef Blood and Bone Fertilizer.....	1.65	.....	.....	8.00	2.00
Scott's State Standard .....	1.65	.....	.....	8.00	2.00
Champion C. and W. Grower.....	0.82	.....	.....	8.00	2.00
Royal Vegetable Fertilizer .....	2.47	.....	.....	8.00	4.00
V-C Garden Truck Special.....	4.95	.....	.....	6.00	4.00
V-3-C Fruit and Truck Special.....	3.30	.....	.....	6.00	8.00
Memphis Truck Special .....	3.30	.....	.....	8.00	4.00
Victor Bone and Potash .....	.....	.....	.....	15.00	3.00
Royal Grain Grower .....	.....	.....	.....	10.00	4.00
Capital Bone and Potash Compound...	.....	.....	.....	10.00	2.00
Victor H. G. Acid. Phosphate.....	.....	.....	.....	14.00	.....

RELATIVE VALUES, AS SHOWN BY ANALYSIS, OF VARIOUS BRANDS OF  
FERTILIZERS OF THE SAME GUARANTEED COMPOSITION.

	Nitrogen: Per cent.	Available: Phos. Acid. Per cent.	Potash: Per cent.	Value per ton.
Guaranteed Composition .....	<b>0.82</b>	<b>7.00</b>	<b>1.00</b>	<b>12.88</b>
P. B. Mathiason & Co., Spec. Corn and Wheat Gr.	1.32	8.32	1.29	16.81
Empire Carbon Works, Bradley's Niagara Phos. . .	0.85	8.55	1.29	15.21
Morris & Co., Big Eight Amm. Acid. Phos. & Pot.	1.16	7.45	1.20	15.02
Mayer Fertilizer Co., Bone and Potash.. .....	0.90	7.87	1.57	14.93
Empire Carbon Wks., Horse Shoe An. Bone Man. . .	0.88	7.95	1.28	14.60
Empire Carb. Wks., Boar's Head Faultless Gr. Gr.	0.92	7.66	1.18	14.29
Tuscarora Fertilizer Co., Amm. Phosphate .....	0.97	7.37	1.19	14.15
Empire Carbon Works, Empire Complete Manure.	0.87	7.60	1.28	14.14
Armour Fert. Wks., Shield Wheat, C. & Oat Spec.	0.82	7.42	1.16	13.57
Armour Fertilizer Works, Helmet No. 171 .....	0.96	<b>6.91</b>	1.03	13.37
Blood & Bone Fert. Co., Spec. W. Gr., M. Grade . .	<b>0.80</b>	<b>6.98</b>	<b>0.98</b>	<b>12.76</b>
Guaranteed Composition .....	<b>1.65</b>	<b>8.00</b>	<b>2.00</b>	<b>18.80</b>
Morris & Co., Big Ten Grain Grower.... ..	2.21	8.18	2.31	21.43
Mayer Fertilizer Co., Complete Fertilizer .....	<b>1.54</b>	9.33	2.53	20.40
Empire Carbon Works, Corn and Wheat Grower.	1.66	9.04	2.10	20.00
Empire Carbon Works, Crop Grower..... ..	1.66	8.97	2.11	19.93
P. B. Mathiason Co., Grain Grower..... ..	1.79	8.53	<b>1.90</b>	19.68
Swift & Co., Superphosphate..... ..	1.66	8.42	<b>1.97</b>	19.10
Amer. Fert. & Stock F. Co., Complete Crop Gr. . .	<b>1.56</b>	8.28	<b>1.86</b>	<b>18.41</b>
Armour Fertilizer Works, Fertilizer 282 .....	1.65	<b>7.35</b>	2.09	<b>17.93</b>
Armour Fertilizer Works, Grain Grower .....	<b>1.46</b>	8.03	<b>1.95</b>	<b>17.82</b>
Tennessee Chemical Co., Slaughter House Bone ..	<b>1.54</b>	<b>6.87</b>	<b>1.93</b>	<b>16.72</b>
Guaranteed Composition .....	<b>1.65</b>	<b>10.00</b>	<b>2.00</b>	<b>21.00</b>
Armour Fert. Wks., Amm. Dis. Bone and Potash..	1.85	<b>9.46</b>	2.01	21.16
Swift & Co., Special Grain Fertilizer..... ..	1.92	<b>9.10</b>	2.10	21.12
Guaranteed Composition .....	<b>10.00</b>	<b>2.00</b>	<b>14.40</b>	
Jarecki Chemical Co., Square Brand, Phosphate and Pot.	12.38	2.73	18.14	
Tuscarora Fertilizer Co., Bone and Potash .....	11.57	2.38	16.74	
Gate City Fertilizer Co., Grain Maker ... ..	11.93	<b>1.57</b>	16.20	
Empire Carbon Works, Empire Phosphate with Potash	10.18	2.81	15.59	
Armour Fertilizer Works, Shield Phosphate and Potash.	10.44	2.25	15.23	
American Fertilizer Co., High Grade Phos. and Potash..	<b>9.60</b>	2.31	<b>14.29</b>	
Swift & Co., Special Phosphate and Potash .....	<b>9.51</b>	2.13	<b>13.97</b>	
Arkansas Fertilizer Co., Grain Maker... ..	<b>8.80</b>	<b>1.84</b>	<b>12.88</b>	

	Available: Phos. Acid. Per cent.	Value per ton.
Guaranteed Composition .....	<b>14.00</b>	<b>16.80</b>
Empire Carbon Works, Boar's Head Gilt Edge Phosphate .....	17.56	21.07
Mayer Fertilizer Co., Acid Phosphate.....	16.51	19.81
Armour Fertilizer Works, Shield Star Phosphate .....	15.01	18.01
Empire Carbon Works, Bradley's Soluble Dissolved Bone.....	14.53	17.50
Tennessee Chemical Co., High Grade Dissolved Bone .....	14.41	17.29
Armour Fertilizer Works, Helmet 14 per cent Phosphate .....	14.13	16.96
Tuscarora Fertilizer Co., Acid. Phosphate .....	<b>13.99</b>	<b>16.79</b>

Guaranteed Composition .....	<b>10.00</b>	<b>12.00</b>
Empire Carbon Works, Empire Phosphate .....	12.23	14.80
Empire Carbon Works, Boar's Head, Soluble Phosphate .....	11.08	13.30

	Nitrogen: Per cent.	Total Phos- phoric Acid Per cent.	Value per ton.
Guaranteed Composition .....	<b>1.65</b>	<b>20.00</b>	<b>20.60</b>
Empire Carbon Works, Empire Special Bone Meal .....	1.66	25.13	24.23
Empire Carbon Works, Boar's Head, Special Bone Meal..	1.98	21.73	23.13
Armour Fertilizer Works, Helmet Steam Bone .....	<b>1.64</b>	23.13	22.75
Swift & Co., Ground Steamed Bone.....	1.87	21.24	22.35
American Fertilizer & Stock Food Co. Spec. Bone Meal.	1.70	<b>19.48</b>	20.44
Tennessee Chemical Co., Steamed Bone.....	2.00	<b>15.05</b>	<b>18.54</b>

	Nitrogen: Per cent.	Total Phos- phoric Acid Per cent.	Value per ton.
Guaranteed Composition .....	<b>0.82</b>	<b>27.00</b>	<b>22.18</b>
Hirsch, Stein & Co., <sup>R</sup> Special Pure Bone Meal .....	0.97	32.13	26.37
Swift & Co., Pure Special Bone Meal.....	1.26	29.90	25.97
American Fertilizer & Stock Food Co., An. Bone Meal...	1.75 <sup>T</sup>	<b>25.20<sup>T</sup></b>	<b>24.70</b>
Morris & Co., Big Six, Special Bone Meal .....	0.90	29.89	24.52
Guaranteed Composition .....	<b>2.47</b>	<b>24.00</b>	<b>26.68</b>
Tuscarora Fertilizer Co., Animal Bone.....	2.93	25.70	29.71
Armour Fertilizer Works, Helmet Fine Ground Beef Bone	2.77	24.88	28.50
Armour Fertilizer Works, Shield Bone Meal .....	2.70	25.14	28.40
Tennessee Chemical Co., Bone Meal.....	<b>2.30</b>	25.48	27.04
Swift & Co., Pure Bone Meal.....	2.47	<b>24.30<sup>J</sup></b>	<b>26.95</b>
American Fertilizer & Stock Food Co., Pure Bone Meal..	2.63	<b>22.68<sup>P</sup></b>	<b>26.40</b>
P. B. Mathiason Mfg. Co., Pure Bone Meal .....	<b>2.26<sup>L</sup></b>	<b>13.40<sup>L</sup></b>	<b>18.42</b>
Guaranteed Composition .....	<b>3.70</b>	<b>22.00</b>	<b>30.20</b>
Swift & Co., Pure Raw Bone Meal.....	4.00	23.49	32.44
Armour Fertilizer Works, Helmet Raw Bone Meal .....	3.91	23.79	32.29
Armour Fertilizer Works, Shield Raw Bone Meal .....	3.90	23.78	32.25
Tennessee Chemical Co., Raw Bone .....	3.72	24.16	31.79
Tuscarora Fertilizer Co., Raw Bone Meal .....	3.84	23.33	31.69
Hirsch, Stein & Co., Pure Raw Bone Meal .....	3.97	21.20 <sup>V</sup>	30.72
Morris & Co., Big One, Ground Raw Bone .....	<b>3.00<sup>B</sup></b>	25.68 <sup>B</sup>	30.34
American Reduction & Fertilizer Co., Pure Raw Bone M..	3.73	<b>21.55<sup>C</sup></b>	<b>30.01</b>
Swift & Co., Pure Bone Meal & Blood..	<b>3.31</b>	23.49 <sup>D</sup>	<b>29.68</b>
Mayer Fertilizer Co., Raw Bone Meal.....	<b>3.53</b>	21.30 <sup>E</sup>	29.03
American Fertilizer & Stk. Fd. Co., Pure Raw B. M.....	<b>2.43<sup>F</sup></b>	20.79 <sup>F</sup>	<b>24.27</b>
P. B. Mathiason Mfg. Co., Pure Raw Bone Meal .....	<b>2.50<sup>G</sup></b>	<b>21.96<sup>G</sup></b>	<b>25.37</b>

<sup>R</sup> Guarantees 29 per cent P<sub>2</sub>O<sub>5</sub>.

<sup>T</sup> Guarantees 1.00 and 30.00.

<sup>J</sup> Guarantees 25 per cent.

<sup>P</sup> Guarantees 25 per cent.

<sup>L</sup> Guarantees 2.68 and 23.00.

<sup>V</sup> Guarantees 20 per cent.

<sup>B</sup> Guarantees 3.30 and 24.00.

<sup>C</sup> Guarantees 23 per cent.

<sup>D</sup> Guarantees 23.00.

<sup>E</sup> Guarantees 20 per cent.

<sup>F</sup> Guarantees 3.50 and 20.00.

<sup>G</sup> Guarantees 3.50 and 23.00.

## AVERAGE GAIN OR LOSS PER TON FOR EACH MANUFACTURER.

	No. of fertilizer samples analyzed.	No. samples showing a value below guarantee.	Per ct. of samples showing val. below guarantee.	Av. loss per ton to pur. on samples bel. guarantee.	Av. gain or loss per ton on samples analyzed.
Jarecki Chemical Co. ....	3	0	.....	.....	2.87
German Kali Works .....	1	0	.....	.....	2.39
Mayer Fertilizer Co. ....	21	3	14.9	1.19	2.18
Pulverized Manure Co. ....	3	0	.....	.....	1.98
Arkansas Fertilizer Co. ....	18	7	38.9	1.22	1.96
Empire Carbon Works, Empire Brands	37	1	2.7	0.58	1.75
Empire Carb. Wks., Bradley's Brands..	10	0	.....	.....	1.74
Hirsch, Stein & Co. ....	28	4	14.3	0.40	1.67
Morris & Co. ....	52	12	23.1	2.35	1.47
Empire Carb. Wks., Boar's Head Brands	27	4	14.8	1.35	1.22
Darling & Co. ....	2	0	.....	.....	1.33
Empire Carb. Wks., Horse Shoe Brands	22	2	9.1	2.87	1.31
Armour Fert. Works, Helmet Brands..	49	9	18.4	1.05	1.29
Tuscarora Fertilizer Co. ....	24	5	20.8	0.57	1.14
Armour Fert. Works, Shield Brands...	37	13	35.1	1.01	0.67
P. B. Mathiason Mfg. Co. ....	27	9	33.3	2.95	0.23
Swift & Co. ....	97	34	35.1	2.02	0.19
American Reduction & Fertilizer Co...	25	10	40.0	2.61	0.05
Gate City Fertilizer Co. ....	5	3	60.0	1.01	0.03
Tennessee Chemical Co. ....	20	10	50.0	1.17	-0.01
Springfield Reduction & Chemical Co...	4	2	50.0	1.08	-0.06
American Fertilizer Co. ....	1	1	100.0	0.15	-0.15
Blood & Bone Fertilizer Co. ....	3	1	33.3	1.68	-0.38
American Fertilizer & Stock Food Co.	12	8	66.6	1.54	-0.68



Name of Manufacturer.	Nitrogen.			Total Phosphoric Acid.			Available Phosphoric Acid.			Potash.			Total Analyses.		
	No. of analyses.	No. of analyses below guarantee.	Per cent of analyses below guarantee.	No. of analyses.	No. of analyses below guarantee.	Per cent of analyses below guarantee.	No. of analyses.	No. of analyses below guarantee.	Per cent of analyses below guarantee.	No. of analyses.	No. of analyses below guarantee.	Per cent of analyses below guarantee.	Total number of analyses.	Total number of analyses below guarantee.	Per cent of all analyses below guarantee.
Jarecki Chemical Co.....	2	0	00.0	.....	.....	.....	3	0	00.0	3	0	00.0	8	0	00.0
German Kali Works .....										1	0	00.0	1	0	00.0
Darling & Co. ....	2	0	00.0	2	0	00.0	2	0	00.0	2	1	50.0	8	1	12.5
Empire Carb. Wks., Bradley's Brands.	9	6	66.6	10	0	00.0	10	0	00.0	9	0	00.0	38	6	15.8
Horse Shoe Brands	22	8	36.4	22	4	18.2	17	0	00.0	17	1	00.6	78	13	16.7
Boar's Hd. Brands.	25	5	20.0	27	7	25.9	19	3	15.8	17	2	1.8	88	17	19.3
Pulverized Manure Co. ....	3	0	00.0	.....	.....	.....	3	1	33.3	3	1	33.3	9	2	22.2
Tuscarora Fertilizer Co.....	20	4	20.0	24	4	16.7	12	4	33.3	9	3	33.3	65	15	23.1
Morris & Co. ....	52	13	25.0	52	9	17.3	26	8	30.8	33	10	30.3	163	40	24.5
Empire Carbon Works, Empire Brand	30	12	40.0	36	7	19.4	27	3	11.1	27	8	29.6	120	30	25.0
Hirsch, Stein & Co. ....	28	5	17.9	28	5	17.9	15	5	33.3	21	9	42.9	92	24	26.1
Armour Fert. Wks., Helmet Brands	49	5	10.2	50	5	10.0	22	14	63.6	21	7	33.3	142	41	28.9
Mayer Fertilizer Co. ....	21	16	76.2	21	2	9.5	21	5	23.8	13	3	23.1	76	26	34.2
Armour Fert. Wks., Shield Brands.	33	11	33.3	37	9	24.3	24	14	58.3	23	8	34.8	117	42	35.9
P. B. Mathiason Mfg. Co. ....	25	13	52.0	28	9	32.1	28	9	32.1	19	8	42.1	100	39	39.0
American Reduction & Fert. Co....	22	10	45.5	25	9	36.0	.....	.....	.....	24	10	41.7	71	29	40.8
Arkansas Fertilizer Co. ....	14	8	57.1	18	3	16.7	18	7	38.9	14	9	64.3	64	27	42.2
Swift & Co. ....	93	23	24.7	95	49	51.6	38	21	55.3	43	26	60.5	269	119	44.2
Tennessee Chemical Co. ....	16	5	31.3	20	8	40.0	15	11	73.3	14	8	57.1	65	32	49.2
Gate City Fertilizer Co. ....	4	1	25.0	5	1	20.0	5	3	60.0	5	5	100.0	19	10	52.6
American Fert. & Stock Food Co.	12	6	50.0	12	7	58.3	6	3	50.0	6	3	50.0	36	19	52.8
Blood and Bone Fertilizer Co.....	3	2	66.6	3	0	00.0	3	3	100.0	3	2	66.6	12	7	58.3
American Fertilizer Co. ....				1	1	100.0	1	1	100.0	1	0	00.0	3	2	66.7
Springfield Reduction & Chem. Co.	4	0	00.0	4	3	75.0	4	4	100.0	4	4	100.0	16	11	68.8

# REPORT OF ANALYSES OF REGISTERED FERTILIZERS, SEASON OF 1910.

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
99	<b>American Fertilizer Co., Union Brands.</b>	<b>Chicago, Ill.</b>												
	High Grade Phos. and Potash.....	Pollock Milling Co., Mexico.....	.....	.....	11.00	10.51	1.00	0.91	10.00	9.60	2.00	2.31	14.80	14.65
	<b>American Fertilizer &amp; Stock Food Co., Iowa Brands.</b>	<b>Des Moines, Iowa.</b>												
51	Complete Crop Grower .....	D. W. Robertson Lum. Co., Marshfield..	1.65	1.63	9.50	8.56	1.50	1.36	8.00	7.20	2.00	2.16	19.20	18.29
910	“ “ “	J. Cunningham, Montgomery.....		1.72		10.72		0.81		9.91		1.87		21.33
911	“ “ “	E. K. Butts, Vandalia.....		1.20		10.30		0.86		9.44		1.87		18.71
107	“ “ “	A. H. Green, Monroe City.....		1.69		9.76		3.19		6.57		1.54		17.77
912	General Cropper .....	E. K. Butts, Vandalia.....	0.82	0.87	9.00	9.81	1.00	0.71	8.00	9.19	1.00	1.00	14.48	15.88
103	Special Bone Meal .....	A. H. Green, Monroe City.....	1.65	1.52	20.00	19.77							20.60	19.92
104	“ “ “	J. Cunningham, Montgomery.....		1.88		19.19								20.95
105	Pure Bone Meal .....	“ “ “	2.50	2.63	25.00	22.68							27.50	26.40
106	Pure Raw Bone Meal .....	W. A. Burns, Versailles.....	3.50	2.31	20.00	22.32							28.00	24.86
913	“ “ “ “	E. K. Butts, Vandalia.....		2.55		19.26								23.68
102	Animal Bone Meal .....	A. H. Green, Monroe City.....	1.00	1.75	30.00	25.29							25.00	24.70
52	Onion, Potato & Veg. Grower.....	D. W. Robertson Lum. Co., Marshfield..	1.65	1.46	9.50	8.49	1.50	1.37	8.00	7.12	7.00	8.83	25.20	25.53

American Reduction and Fertilizer Co., Kaw Brands.		Kansas City, Mo.												
53	Grain Grower .....	R. Kirkpatrick, Calhoun.....	1.65	1.46	10.00	10.84	.....	4.55	.....	6.29	2.00	3.62	16.00	17.77
54	" "	A. R. Wilder, Clinton.....		1.52		10.45	.....	6.22	.....	4.23		3.25		17.26
5243	" "	E. C. Stewart, Hamilton.....		2.14		9.33	.....		.....			2.17		17.69
5244	" "	M. D. Engle, Kidder.....		1.02		8.74	.....		.....			4.46		15.55
5248	" "	Harnden Seed Co., Kansas City.....		2.08		7.47	.....		.....			4.07		18.43
914	" "	From Factory, Kansas City.....		1.75		12.34	.....		.....			2.04		18.09
916	" "	Koontz & Kendrick, Vandalia.....		1.80		12.92	.....		.....			2.76		19.55
917	" "	Dean Seal, Montgomery .....		1.72		9.89	.....		.....			3.08		17.50
5246	Grass Grower* .....	Harnden Seed Co., Kansas City.....		1.23		2.97	.....		.....			3.99		11.79
5247	" "	Jones Dry Goods Co., Kansas City.....		1.74		1.58	.....		.....			1.75		10.17
5245	Special .....	M. D. Engle, Kidder.....	1.65	1.20	4.00	4.40	.....		.....		5.00	6.73	15.40	15.96
5249	"	Harnden Seed Co., Kansas City.....		1.26		4.23	.....		.....			4.15		12.98
5251	"	E. C. Stewart, Hamilton.....		1.86		5.80	.....		.....			6.23		18.98
55	Manure Concentrate .....	R. Kirkpatrick, Calhoun.....			4.00	5.56	.....	2.85	.....	2.71	4.00	3.91	7.60	8.58
5216	" "	From Factory, Kansas City.....				3.19	.....		.....			1.92		4.53
5253	" "	E. C. Stewart, Hamilton.....				4.11	.....		.....			4.57		8.36
56	Special Potash Mixture .....	R. Kirkpatrick, Calhoun .....	0.41	0.30	4.00	4.18	.....	2.28	.....	1.90	6.00	4.30	11.64	9.29
5254	" " "	E. C. Stewart, Hamilton .....		1.17		3.29	.....		.....			3.75		11.48
918	" " "	Dean Seal, Montgomery.....		0.51		7.78	.....		.....			5.92		14.59
5250	Potato Grower .....	Harnden Seed Co., Kansas City.....	1.00	1.20	4.00	4.40	.....		.....		7.00	5.84	15.20	14.69
5252	" "	E. C. Stewart, Hamilton.....		1.06		4.16	.....		.....			7.92		16.65
919	Pure Raw Bone Meal .....	From Factory, Kansas City.....	3.75	3.73	23.00	21.55	.....		.....				31.10	30.01
57	Pure Raw Bone Meal & Potash..	A. R. Wilder, Clinton.....	1.65	1.40	14.00	13.49	.....	3.65	.....	9.84	3.00	3.64	20.09	19.41

\* American Reduction and Fertilizer Co. failed to register this brand.

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						K <sub>2</sub> O Potash		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
920	Pure Raw Bone Meal and Potash	W. D. Schmitt, Appleton City.....	1.65	2.24	14.00	15.02	.....	.....	.....	.....	3.00	1.84	20.00	21.68
922	" " " " " "	Frank Buckner, Auxvasse.....		1.81		14.03	.....	.....	.....	.....		2.58		20.16
	<b>Arkansas Fertilizer Co., White Diamond Brands.</b>	<b>Little Rock, Ark.</b>												
108	Pure Raw Bone Meal .....	Adkins-Mayer, Bismarck .....	3.30	2.88	20.00	22.49	13.00	4.24	7.00	18.25	.....	.....	26.80	35.12
109	" " " " " "	Mitchell & Wilson, Fredericktown....		2.56		24.56		10.62		13.94	.....	.....		31.22
923	" " " " " "	T. R. & H. D. Wyatt, Jonesburg.....		2.96		24.91		11.20		13.71	.....	.....		32.77
924	" " " " " "	J. W. Kelly, Lockwood.....		3.30		25.26		10.50		14.76	.....	.....		35.11
1010	Raw Bone Meal & Potash .....	Adkins-Mayer, Bismarck .....	2.47	2.20	18.00	17.36	11.00	10.53	7.00	6.83	2.00	2.03	25.08	23.64
925	" " " " " "	J. W. Kelly, Lockwood.....		2.66		20.19		6.66		13.53		1.88		31.80
926	Kali Bone Meal .....	" " " " " "	1.65	1.19	14.00	15.53	7.00	4.03	7.00	11.50	3.00	2.36	21.40	23.00
927	Ammoniated Bone & Superphos...	T. R. & H. D. Wyatt, Jonesburg.....	1.65	1.71	11.00	10.97	2.00	3.00	9.00	7.97	2.00	1.79	20.60	19.75
1011	Economy .....	Robert Ward, Bismarck .....	0.83	0.74	11.00	12.09	1.00	2.57	10.00	10.52	2.00	1.70	18.12	18.65
58	"	Mitchell & Wilson Mfg. Co., Frederick'tn		0.82		12.39		1.56		10.83		1.51		18.71
59	High Grade Corn & Wheat .....	Henry Lepp Mill, DeSoto.....	1.65	1.45	10.00	9.50	1.00	1.46	9.00	8.04	4.00	3.44	22.60	20.16
510	Kali Superphosphate .....	George Blunt, Marshfield.....				12.22		1.98	12.00	10.24	2.50	2.79	17.40	16.43
1012	"	Mitchell & Wilson Mfg. Co., Frederick'tn				13.06		0.80		12.26		3.95		19.77
1013	Phosphate & Kainite Mixture ....	" " " " " "				15.07		3.25	10.00	11.82	4.00	3.22	16.80	19.34
511	Grain Maker .....	" " " " " "				12.41		3.52	10.00	8.89	2.00	1.84	14.40	14.31

512	No. 39.....	" " " " " "	0.83	0.87	.....	11.34	.....	3.08	10.00	8.26	1.00	1.26	16.52	16.13
1014	" "	" " " " " "		0.83	.....	12.60	.....	3.00		9.60		1.12		17.38
513	High Grade Orchard .....	" " " " " "	1.65	1.38	8.00	10.81	1.00	2.79	7.00	8.02	8.00	6.81	25.00	24.43
<b>Armour Fertilizer Works, Shield Brands.</b>		<b>Chicago, Ill.</b>												
1019	Grain Grower .....	N. S. Goodman, Fortuna.....	1.65	1.69	8.50	9.41	0.50	2.19	8.00	7.22	2.00	2.06	18.80	18.77
928	" "	Sampled at Factory, E. St. Louis.....		1.53		9.65		0.87		8.78		1.86		19.24
931	" "	A. H. Williams, Silex.....		.....		14.38		0.76		13.62		1.31		18.21
932	" " ..	W. T. Aydelotte, Troy, Mo.....		1.55		9.14		1.16		7.98		1.93		18.56
536	" "	Farm Supply Co., Lebanon.....		1.48		8.83		0.25		8.58		1.73		18.40
537	" "	Schneider Bros., St. James.....		1.04		7.88		0.28		7.60		2.18		16.01
540	Wheat, Corn & Oat Special .....	F. Shierbaum & Son, Wentzville, Mo...	0.82	0.63	7.50	8.66	0.50	0.49	7.00	8.17	1.00	0.94	13.08	13.65
542	" " " " "	A. H. Green, Monroe City.....		0.82		9.84		0.50		9.34		1.21		16.14
933	" " " " "	W. T. Aydelotte, Troy, Mo.....		0.81		7.22		0.57		6.65		1.17		12.85
934	" " " " "	A. H. Williams, Silex, Mo.....		0.76		7.18		0.79		6.39		1.21		12.48
935	" " " " "	From Factory, E. St. Louis.....		1.10		7.80		1.23		6.57		1.26		14.28
544	Fruit, Root & Crop Special.....	Swerley & Son, Knox City.....	1.65	1.01	8.50	7.50	0.50	0.25	8.00	7.25	5.00	5.18	22.40	19.06
936	Record Brand.....	W. T. Aydelotte, Troy, Mo.....	0.82	1.11	10.50	9.76	0.50	1.38	10.00	8.38	1.00	1.83	16.68	17.25
937	All Soluble .....	" " " " " "	2.88	2.50	8.50	8.24	0.50	0.79	8.00	7.45	4.00	4.32	26.12	24.44
545	Hoosier Corn Grower .....	Wm. Pollock Milling Co., Mexico.....	0.82	0.85	8.50	8.30	0.50	0.60	8.00	7.70	4.00	3.77	17.88	17.40
546	" " "	J. J. Menefee, Wellsville.....		0.92		9.01		1.42		7.59		3.58		17.66
938	" " "	From Factory, E. St. Louis.....		0.85		10.46		1.16		9.30		4.13		19.98
939	Crop Grower.....	" " " " " "	1.23	1.25	8.50	9.25	0.50	0.67	8.00	8.58	2.00	2.44	17.12	18.50
940	" "	A. H. Williams, Silex.....		1.34		9.95		0.69		9.26		2.25		19.45
941	" "	W. T. Aydelotte, Troy, Mo.....		1.20		8.77		0.94		7.83		2.00		16.98

Laboratory Number	Manufacturer and Brands	From Whom Collected	Available		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		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. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
550	Phosphate & Potash	F. Shierbaum & Son, Wentzville.....	.....	.....	10.50	10.04	0.50	0.30	10.00	9.74	2.00	2.53	14.60	14.85
551	" " "	Schneider Bros., St. James.....	.....	.....		11.64		0.29		11.35		2.24		16.43
942	" " "	From Factory, E. St. Louis.....	.....	.....		10.87		0.64		10.23		1.99		14.93
943	Star Phosphate .....	" " " " "	.....	.....	14.50	15.63	0.50	0.62	14.00	15.01	.....	.....	17.00	18.26
952	Raw Bone Meal .....	J. J. Menefee, Wellsville.....	3.70	4.08	22.00	25.00	.....	.....	.....	.....	.....	.....	30.20	33.82
953	" " "	W. T. Aydelotte, Troy, Mo.....		3.73		24.17	.....	.....	.....	.....	.....	.....		31.84
956	" " "	Ambold Robfing, New Haven.....		3.86		22.90	.....	.....	.....	.....	.....	.....		31.47
957	" " "	From Factory, E. St. Louis.....		3.94		23.03	.....	.....	.....	.....	.....	.....		31.88
552	Bone Meal .....	Schneider Bros., St. James.....	2.47	2.60	24.00	25.11	.....	.....	.....	.....	.....	.....	26.68	27.98
944	" "	W. E. Dunn, Palmyra.....		2.59		25.45	.....	.....	.....	.....	.....	.....		28.18
945	" "	Clarence White, Buell, Mo. ....		2.93		25.51	.....	.....	.....	.....	.....	.....		29.58
1018	" "	N. S. Goodman, Fortuna.....		2.74		24.11	.....	.....	.....	.....	.....	.....		27.84
946	" "	Pollock Milling Co., Mexico.....		2.66		25.96	.....	.....	.....	.....	.....	.....		28.81
947	" "	J. J. Menefee, Wellsville.....		2.70		24.70	.....	.....	.....	.....	.....	.....		28.09
948	Steamed Bone Meal .....	From Factory, E. St. Louis.....	1.65	2.06	20.00	19.26	.....	10.57	.....	8.69	.....	.....	20.60	21.72
949	" " "	W. E. Dunn, Palmyra.....		1.93		19.36	.....	.....	.....	.....	.....	.....		21.27
950	" " "	Pollock Milling Co., Mexico.....		1.93		21.88	.....	.....	.....	.....	.....	.....		23.04
951	" " "	J. J. Menefee, Wellsville.....		1.95		21.69	.....	.....	.....	.....	.....	.....		22.98

Armour Packing Co. Helmet Brands.		Chicago, Ill.														
5236	Blood & Bone .....	Harnden Seed Co., Kansas City.....	4.93	5.94	13.50	13.47									29.17	33.19
1015	Raw Bone Meal .....	California Dept. Store, California.....	3.70	4.13	22.00	23.13									30.20	32.71
1016	" " "	P. J. Class, Tipton.....		3.74		25.67										32.93
1017	" " "	James Spillman, Rolla.....		3.74		23.34										31.30
514	" " "	Koontz & Kendrick, Vandalia.....		3.93		24.97										33.20
515	" " "	F. M. Shaffner, Bolivar.....		4.38		23.41										33.91
958	" " "	J. C. Huckstep, Eolia.....		3.91		24.78										22.99
959	" " "	From Factory, Kansas City, Kans....		4.07		23.66										32.84
960	" " "	R. N. Burns, Appleton.....		3.94		24.94										33.22
961	" " "	A. Z. Peck, Sheldon .....		3.65		25.16										32.21
962	" " "	J. R. Sparling, Iantha.....		3.92		23.79										32.33
963	" " "	Thomas McDermid, Lockwood .....		3.65		24.17										31.52
964	" " "	Davis & Chappell, Monett.....		3.65		22.90										30.63
965	" " "	Wm. Buckner & Sons, Pierce City....		4.04		22.58										31.97
967	" " "	Holt & Taylor, New Bloomfield.....		4.12		22.96										32.55
966	" " "	A. H. Williams, Silex .....		3.98		21.81										31.19
968	" " "	Callaway Hdw. Co., Fulton.....		3.64		23.01										30.67
969	" " "	Koontz & Kendrick, Vandalia.....		3.94		24.17										32.68
1090	Fine Ground Beef Bone .....	J. S. Wingfield, Foristell R. R. 2.....	2.47	2.75	24.00	25.58									26.68	28.91
517	" " " "	Koontz & Kendrick, Vandalia.....		2.52		25.45										27.90
518	" " " "	Knight & Sons, Weaubleau.....		3.14		24.75										29.89
971	" " " "	From Factory, Kansas City.....		2.77		26.21										29.43
972	" " " "	A. Z. Peck, Sheldon.....		2.60		23.67										26.97
973	" " " "	Wm. Buckner & Sons, Pierce City....		2.76		24.30										28.05

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						K <sub>2</sub> O Potash		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
974	Fine Ground Beef Bone.....	C. White, Buell .....	2.47	2.77	24.00	24.87	.....	.....	.....	.....	.....	.....	26.68	28.49
975	" " " "	Koontz & Kendrick, Vandalia.....		2.88		24.24	.....	.....	.....	.....	.....	.....		28.49
520	Steamed Bone .....	A. H. Green, Monroe City.....	1.65	1.65	20.00	25.39	.....	.....	.....	.....	.....	.....	20.60	24.37
521	" "	Farm Supply Co., Lebanon.....		1.62		20.86	.....	.....	.....	.....	.....	.....		21.08
976	Phosphate Fertilizer .....	A. Z. Peck, Sheldon.....	.....	.....	14.50	15.48	0.50	1.35	14.00	14.13	.....	.....	17.00	17.60
977	No. 171 .....	" " " "	0.82	0.96	7.50	8.95	0.50	2.04	7.00	6.91	1.00	1.03	13.08	14.19
522	No. 271 .....	G. H. Hash, Bowling Green.....	1.65	1.03	7.50	7.72	0.50	0.34	7.00	7.38	1.09	1.47	16.40	14.88
1020	" "	Thorpe Bros., Versailles.....		1.64		8.08		2.02		6.06		1.21		16.09
524	No. 282 .....	F. M. Shoffner, Bolivar.....	1.65	1.77	8.50	10.38	0.50	2.28	8.00	8.10	2.00	2.02	18.80	20.13
525	" "	D. W. Robertson Lum. Co., Marshfield.		1.42		9.11		0.45		8.66		2.47		19.21
978	" "	From Factory, K. C.....		1.60		9.31		1.89		7.42		2.32		18.84
980	" "	Thos. McDermid, Lockwood .....		1.79		8.74		2.33		6.41		1.87		18.02
982	" "	From Factory, E. St. Louis.....		1.59		10.33		2.56		7.77		1.88		18.96
1021	" "	P. J. Class, Tipton.....		1.56		9.68		2.70		6.98		1.96		18.05
1022	" "	Thorpe Bros., Versailles.....		2.14		9.57		2.15		7.42		2.22		20.98
1089	" "	Geo. Meier, Foristell .....		1.64		9.46		3.40		6.06		2.00		17.59
526	No. 285 .....	D. W. Robertson Lum. Co., Marshfield.	1.65	1.16	8.50	9.31	0.50	0.43	8.00	8.88	5.00	5.69	22.40	22.30
529	Ammo. Dis. Bone & Potash.....	Knight & Son, Weaubleau.....	1.65	1.66	10.50	13.07	0.50	3.25	10.00	9.82	2.00	1.95	21.20	22.06
530	" " " " "	F. M. Shoffner, Bolivar.....		1.96		12.44		3.01		9.43		2.28		23.10



983	" " " " "	From Factory, Kansas City.....		1.84		11.42		2.55		8.87		1.93		21.34
984	" " " " "	R. N. Burns, Appleton City.....		1.77		10.05		0.48		9.57		1.91		21.04
986	" " " " "	Davis & Chappel, Monett.....		2.00		14.00		2.51		11.49		2.16		25.38
1023	" " " " "	Thorpe Bros., Versailles.....		2.08		10.22		1.52		8.70		2.03		21.81
988	" " " "	Koontz & Kendrick, Vandalia.....		1.66		11.61		3.26		8.35		1.84		20.17
531	No. 386 .....	F. M. Shoffner, Bolivar.....	2.47	2.07	8.50	10.84	0.50	0.89	3.00	9.95	6.00	7.15	26.88	29.15
5237	Odorless Lawn .....	Harnden Seed Co., Kansas City.....	3.29	1.70	9.50	10.88	0.50	0.26	9.00	10.62	3.00	3.75	27.76	24.14
	<b>Blood and Bone Fertilizer Co., Steer Head Brands.</b>	<b>St. Louis, Mo.</b>												
1024	High Grade Spec. Wheat Grower.	M. F. Hargett, Versailles.....	1.00	1.25	12.00	13.58	2.00	7.07	10.00	6.51	3.00	4.00	20.40	20.44
1092	" " " " "	R. F. May, Wentzville.....		0.91		13.78		5.77		8.01		2.63		18.72
1025	Med. " " " "	J. F. Roe, Versailles.....	1.00	0.80	10.00	13.36	3.00	6.38	7.00	6.98	1.00	0.98	14.80	15.31
	<b>Darling and Company,</b>	<b>Chicago, Ill.</b>												
989	Sure Winner .....	Edwin Pollman, Moscow.....	0.82	0.89	9.50	10.43	1.50	1.88	8.00	8.55	3.00	2.88	17.09	18.02
991	General Crop .....	" " "	0.82	0.92	9.50	10.05	1.50	1.28	8.00	8.77	6.00	6.41	20.68	22.40
	<b>Empire Carbon Works, Boars Head Brands.</b>	<b>St. Louis, Mo.</b>												
9116	World of Good Superphosphate..	T. R. Robinson, Martinsburg.....	2.06	2.22	10.00	10.86	2.00	1.14	8.00	9.72	1.50	1.80	20.44	23.16
589	" " " Potato and Veg. Gr.	Butler Mercantile Co., Bismarck.....	1.65	1.87	10.00	9.52	2.00	0.74	8.00	8.78	5.00	5.27	23.00	24.64
591	" " " " " " "	Erdson and Spencer, Phillippsburg....		1.43		8.97		0.79		8.18		5.07		21.94
9117	" " " " " " "	Farm Supply Co., Lebanon.....		1.64		10.61		1.37		9.24		5.33		24.60
1033	" " " " " " "	A A. Glassey, Cuba.....		1.55		9.47		1.30		8.17		4.75		22.22
9118	" " " Corn and Wheat Gr.	Willson Bros., Jonesburg.....	1.65	1.68	9.50	10.43	1.50	0.87	8.00	9.56	2.00	1.85	19.20	20.76

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found Gtd.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
9119	World of Good Corn and Wheat Gr.	John Henry, Troy .....	1.65	1.58	9.50	9.70	1.50	1.26	8.00	8.44	2.00	2.22	19.20	19.61
9120	" " " " " " "	Adam Eimer, Sarcoxie .....		1.71		10.33		1.21		9.12		2.24		20.94
9121	Ammoniated Bone and Potash....	From Factory, E. St. Louis.....	0.82	0.98	12.00	13.12	2.00	1.53	10.00	11.59	1.00	2.22	17.28	21.10
1034	" " " "	J. F. Tising & Sons, Fortuna .....		0.99		12.28		2.46		9.82		1.26		18.23
1035	" " " "	D. C. Hardy, Versailles .....		0.92		11.66		2.52		9.14		1.17		17.06
1036	" " " "	A. A. Glassey, Cuba .....		0.95		11.66		2.44		9.22		1.31		17.41
9122	Faultless Grain Grower .....	Farmer, Buell .....	0.82	0.77	8.00	9.23	1.00	1.24	7.00	7.99	1.00	1.00	13.28	14.37
9123	" " "	John Henry, Troy .....		1.16		8.71		1.09		7.62		1.59		16.13
9124	" " "	H. Paul, Foristell.....		0.90		8.88		1.10		7.78		1.02		14.60
1038	" " "	D. C. Hardy, Versailles.....		0.89		8.91		1.78		7.13		1.13		14.19
1091	" " "	Henry Paul, Foristell.....		0.89		9.20		1.44		7.76		1.18		14.87
9125	Gilt Edge Phosphate .....	" " "				18.83		1.27	14.00	17.56				16.80
9126	Soluble Phosphate .....	" " "				13.16		2.08	10.00	11.08				12.00
9127	Pure Raw Bone Meal .....	" " "	3.29	3.62	22.00	20.41								28.56
9128	" " " "	T. R. Robinson, Martinsburg.....		3.95		22.00								31.20
592	Special Bone Meal .....	From Factory, E. St. Louis .....	1.65	1.99	20.00	24.56								20.60
593	" " "	R. E. Bohannon, Richland.....		1.75		21.97								22.38
9129	" " "	Charles Roher, Bellflower.....		2.24		18.50								21.91
9130	" " "	Henry Paul, Foristell.....		2.00		20.66								22.46



Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
565	Crop Grower .....	Peter Loethen, Meta .....	1.65	1.60	9.00	10.37	1.00	0.57	8.00	9.80	2.00	2.37	19.00	21.23
9100	" " .....	From Factory, E. St. Louis.....		1.64		9.89		1.29		8.60		1.96		19.74
9101	" " .....	Briggs & Son, Memphis.....		1.85		9.68		0.93		8.75		1.90		20.55
567	Wheat and Clover .....	Simpson and Roark, Barnett.....	0.82	0.99	9.00	11.16	1.00	1.12	8.00	10.04	2.00	2.39	15.68	19.33
568	" " " .....	Peter Loethen, Meta .....		0.92		11.11		1.12		9.99		2.45		19.06
9103	" " " .....	From Factory, E. St. Louis.....		0.85		9.76		1.23		8.53		1.93		16.46
9104	" " " .....	Charles Roher, Bellflower.....		0.82		10.25		1.30		8.95		1.94		16.87
569	Complete Manure .....	From Factory, E. St. Louis.....	0.82	0.90	8.00	9.42	1.00	1.42	7.00	8.00	1.00	1.43	13.28	15.49
571	" " .....	Peter Loethen, Meta.....		0.84		8.14		1.05		7.09		1.25		13.75
9105	" " .....	From Factory, E. St. Louis.....		0.86		8.77		1.07		7.70		1.16		14.50
572	Phosphate with Potash.....	J. H. Dutton, New Florence.....				13.08		1.63	10.00	11.45	2.00	4.74	14.40	20.08
573	" " " .....	J. E. Hendrickson, Bolivar.....				12.57		2.97		9.60		2.68		15.93
9106	" " " .....	From Factory, E. St. Louis.....				11.67		1.97		9.70		1.79		14.58
1029	" " " .....	John Rainey, Fredericktown.....				11.72		1.74		9.98		2.01		15.09
574	Phosphate .....	J. E. Hendrickson, Bolivar.....				14.64		1.81	10.00	12.83			12.00	16.12
1030	" .....	H. Elfink, Lutesville.....				13.55		1.73		11.82				14.87
575	Raw Bone Meal.....	From Factory, E. St. Louis.....	3.29	4.56	22.00	20.28							28.56	32.44
9107	" " " .....	Porter and Dwyer, Sillex.....		3.85		19.85								29.29
9108	" " " .....	From Factory, E. St. Louis.....		3.93		21.29								30.62



Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
1044	Pure Ground Bone.....	T. B. Dameron, Ash Grove .....	2.50	2.08	20.00	17.24	.....	.....	.....	.....	.....	.....	24.00	20.29
9145	Fine Raw Bone Meal.....	Crawford & Murphy, Bellflower.....	3.29	3.58	22.00	22.07	.....	.....	.....	.....	.....	.....	28.56	29.77
588	" " " "	R. E. Bohannon, Richland.....		2.54		23.41	.....	.....	.....	.....	.....	.....		26.55
9147	" " " "	Geo. Britt, Montgomery .....		3.95		20.28	.....	.....	.....	.....	.....	.....		30.00
9146	" " " "	Bowen & Evans, Rockville.....		4.04		20.21	.....	.....	.....	.....	.....	.....		30.31
	<b>Gate City Fertilizer Co., Red Ball Brands.</b>	<b>Texarkana, Ark.</b>												
1047	Complete Bone Meal .....	Adkins-Mayer, Bismarck.....	1.65	1.90	14.00	13.50	7.00	7.80	7.00	5.70	3.00	2.95	21.40	21.10
1045	Soluble Bone and Potash.....	" " "	1.65	1.69	11.00	12.39	2.00	5.64	9.00	6.75	2.00	1.71	20.60	19.17
1048	" " " "	" " "		1.62		12.45		4.97		7.48		1.53		19.29
1046	Acidulated Bone Fertilizer.....	" " "	0.83	0.86	.....	11.61	.....	1.60	10.00	10.01	1.00	0.82	16.52	17.07
1049	Grain Maker .....	" " "	.....	.....	.....	13.23	.....	1.30	10.00	11.93	2.00	1.57	14.40	16.72
	<b>German Kali Works,</b>	<b>Baltimore, Md.</b>												
1050	Muriate of Potash.....	Koontz & Kendrick, Vandalia.....	.....	.....	.....	.....	.....	.....	.....	.....	50.00	51.99	60.00	62.39
	<b>Hirsch Stein &amp; Co., Calumet Brands.</b>	<b>Chicago, Ill.</b>												
597	Bone Phosphate and Potash.....	H. Hamel & Son, De Soto.....	0.40	0.56	11.00	10.44	1.00	1.46	10.00	8.98	2.00	2.14	16.40	16.17
9149	" " " "	Geo. W. Morris, Sillex.....		0.44		12.93		2.05		10.88		2.63		18.80
9150	" " " "	G. W. Morris, Sillex .....		0.47		13.47		2.77		10.70		2.30		18.59

9151	"	"	"	"	W. Shultz & Son, Foristell.....		0.42		12.05		1.24		10.81		2.04		17.60
1051	"	"	"	"	Edward Bowleger, Foristell R. R. 2...		0.43		11.97		2.19		9.78		2.24		17.03
1052	Universal Crop Grower.....				Kidwell & Winget, Versailles .....	0.80	0.90	8.00	9.20	1.00	1.85	7.00	7.35	1.00	1.85	13.20	15.38
598	Potato, Tobacco and Onion.....				Geo. Dressendorfer, Rolla.....	1.60	1.47	9.00	10.20	1.00	1.52	8.00	8.68	5.00	6.51	22.40	24.72
9153	Complete Fertilizer .....				Sarcoxie Supply Co., Sarcoxie.....	1.60	1.32	9.00	9.52	1.00	1.56	8.00	7.96	2.00	1.87	18.80	17.69
9154	"	"			Frank Farmer, Montgomery.....		1.64		8.91		1.25		7.66		2.37		19.09
9155	"	"			Dean Seal, Montgomery .....		1.55		10.80		3.42		7.38		2.04		18.88
599	Special Wheat Grower.....				Geo. Dressendorfer, Rolla .....	0.80	1.01	9.00	10.44	1.00	1.23	8.00	9.21	4.00	4.98	18.00	21.56
9156	"	"	"	"	Ma Coffin, Golden City .....		0.79		9.74		0.84		8.90		3.74		18.67
9157	"	"	"	"	Sarcoxie Supply Co., Sarcoxie.....		0.81		8.93		0.53		8.40		3.61		17.86
9158	"	"	"	"	Farm Supply Co., Lebanon.....		0.82		10.22		0.60		9.62		3.71		19.51
9160	"	"	"	"	J. G. Detters, Bowling Green.....		0.92		10.80		2.66		8.14		3.86		19.14
5100	Special Pure Bone Meal & Potash				Geo. Dressendorfer, Rolla.....	0.80	0.94	20.00	23.18					4.00	3.72	22.00	24.45
9166	"	"	"	"	Sarcoxie Supply Co., Sarcoxie.....		1.03		25.70						3.50		26.31
9168	"	"	"	"	G. W. Morris, Silex.....		0.94		25.10						3.89		26.00
9169	"	"	"	"	James Simms, Fulton.....		0.80		20.06						4.73		22.92
9170	"	"	"	"	Frank Farmer, Montgomery City.....		1.01		19.39						3.92		22.31
1053	"	"	"	"	Kuhlmann & Myer, California.....		0.98		22.83						4.11		24.83
9171	Special Pure Bone Meal.....				Johannes & Son, Lamar.....	0.80	0.97	29.00	31.72							23.50	26.08
9172	"	"	"	"	W. Schultz & Son, Foristell.....		0.97		32.54								26.66
9173	Pure Raw Bone Meal.....				Johannes & Son, Lamar.....	3.70	4.05	20.00	21.30							28.80	31.11
9174	"	"	"	"	Ma Coffin, Golden City.....		3.67		20.03								28.70
9175	"	"	"	"	Sarcoxie Supply Co., Sarcoxie.....		3.85		19.36								28.95
1054	"	"	"	"	Koehler Bros., Foristell.....		4.32		24.46								34.40
1055	"	"	"	"	Kidwell & Winget, Versailles.....		3.94		20.85								30.36

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton		
					Total		Insoluble		Available						
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	
	<b>Jarecki Chemical Co.,</b>	<b>Cincinnati, Ohio.</b>													
5101	Lake E. Guano with Phos. & Pot.	John W. Sherman, Monroe City.....	1.23	1.33	.....	10.57	.....	1.68	8.00	8.89	2.50	2.80	17.52	20.02	
1056	" " " " " " "	" "		1.23	.....	10.84	.....	2.03		8.81		2.39		19.17	
5102	Square Brand Phosphate & Potash	" "	.....	.....	.....	14.19	.....	1.81	10.00	12.38	2.00	2.73	14.40	18.86	
	<b>P. B. Mathiason Mfg. Co., Increscent Brands.</b>	<b>St. Louis, Mo.</b>													
9179	Pure Raw Bone Meal .....	D. B. Sailor, Buell.....	3.50	3.24	23.00	20.49	16.00	9.70	7.00	10.79	.....	.....	28.80	29.79	
9180	" " " "	W. E. Thompson, Laddonia.....		1.76		23.42		8.78		14.64	.....	.....		28.12	
9181	Pure Bone Meal.....	From Factory, St. Louis.....	2.68	2.03	23.00	17.54	15.00	8.66	8.00	8.88	.....	.....	26.32	22.24	
1057	" " "	J. M. Jamison, Savoy.....		2.48		18.18		9.50		8.68	.....	.....		24.14	
9182	Extra Fine Ground Bone Meal....	Cockrell & Wells, Moscow.....	2.06	1.79	22.00	20.16	13.00	9.28	9.00	10.88	.....	.....	24.24	23.93	
9183	" " " " "	From Factory, St. Louis.....		1.78		16.46		8.57		7.89	.....	.....		20.02	
1058	Alkaline Bone .....	J. M. Jamison, Irondale.....	.....	.....	.....	10.64	.....	1.64	10.00	9.00	3.00	2.81	15.60	14.83	
5103	Acid Bone and Potash.....	E. Penninger, Fredericktown .....	2.47	2.55	11.00	12.12	2.00	2.36	9.00	9.76	2.00	1.86	23.88	25.08	
5104	" " " "	Stubbs Marshall Merc. Co., Blodgett...		2.04		15.14		1.85		13.29		1.51		26.66	
9184	" " " "	From Factory, St. Louis.....		2.32		13.79		4.98		8.81		2.11		24.37	
1059	" " " "	J. M. Jamison, Irondale.....		2.32		11.89		4.94		6.95		2.18		22.22	



5105	St. Louis Fertilizer.....	Stubbs Marshall Merc. Co., Blodgett...	1.65	1.75	10.00	12.92	2.00	2.44	8.00	10.48	1.50	1.51	18.80	22.37
9185	Potato and Tobacco Grower.....	From Factory, St. Louis.....	1.65	2.25	9.00	10.88	2.00	3.51	7.00	7.37	4.50	4.20	21.20	24.29
5106	Grain Grower .....	E. Penninger, Fredericktown .....	1.65	1.55	10.00	11.15	2.00	2.18	8.00	8.97	2.00	2.17	19.40	20.44
5107	" "	Briscoe & Mosely, New London.....		1.87		12.17		2.47		9.70		2.15		22.69
9187	" "	From Factory, St. Louis.....		2.36		13.68		5.45		8.23		1.88		23.76
9188	" "	Cockrell & Wells, Moscow.....		1.65		10.56		3.34		7.22		1.64		18.57
9189	" "	Wilson Bros., Jonesburg.....		1.50		13.22		4.67		8.55		1.67		20.13
5109	Raw Bone and Potash.....	M. E. Kirby, Bolivar.....	2.47	2.57	18.00	18.40	12.00	3.95	6.00	9.45	3.00	2.22	25.48	27.86
5110	Complete Fertilizer .....	E. Penninger, Fredericktown .....	0.83	1.00	9.00	9.72	1.00	2.22	8.00	7.50	1.00	1.11	14.52	15.22
5111	" "	M. E. Kirby, Bolivar.....		2.16		8.50		1.02		7.48		1.32		19.61
5112	Sp. Corn and Oats Grower.....	Briscoe & Mosely, New London.....	0.90	1.61	9.00	9.71	2.00	1.55	7.00	8.16	1.00	1.17	14.00	18.25
5113	" " " " "	Barr & McElroy, Perry.....		1.02		8.82		0.35		8.47		1.41		16.07
9191	Special Wheat Grower.....	From Factory, St. Louis.....	1.65	1.60	11.00	11.18	2.00	2.89	9.00	8.29	1.00	1.10	19.40	18.83
9192	" " "	Cockrell & Wells, Moscow .....		1.82		10.92		3.76		7.16		2.11		19.90
9193	Acid Phosphate.....	From Factory, St. Louis.....				17.43		0.76	16.00	16.67			19.20	20.30
1060	" "	Sam Fuqua, Laddonia.....				18.03		0.99		17.04				20.85
	<b>Mayer Fertilizer Co., Anchor Brands.</b>	<b>St. Louis, Mo.</b>												
9194	Sp. Wheat Grower.....	J. W. Anderson, Rockville.....	1.00	0.87	12.00	11.97	2.00	3.13	10.00	8.84	3.00	2.93	20.40	18.86
9195	" " "	W. E. Thornbury, Monett.....		0.99		15.08		5.39		9.69		2.70		20.99
5119	Sp. Corn Grower.....	A. R. Wilder, Clinton.....	2.05	1.99	10.00	13.22	2.00	2.64	8.00	10.58	3.00	3.14	22.20	25.48
9199	" " "	Sandbothe, Martinsburg.....		2.00		11.65		3.88		7.77		3.31		22.84
5114	Sp. Truck Grower.....	H. Adkins, Bismark.....	3.25	2.60	10.00	11.84	2.00	2.09	8.00	9.75	5.00	6.06	29.40	30.21
5115	Complete Fertilizer .....	" "	1.65	1.32	10.00	14.11	2.00	3.16	8.00	10.95	2.00	2.43	19.40	22.60

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		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. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
5116	Complete Fertilizer .....	P. H. Boyd, Morley.....	1.65	1.32	10.00	14.19	2.00	3.48	8.00	10.71	2.00	3.11	19.40	23.25
9200	" "	Sarcoxie Supply Co., Sarcoxie.....		1.86		12.25		3.81		8.44		2.22		21.75
9201	" "	Sandbothe, Martinsburg.....		1.64		11.03		3.79		7.24		2.34		19.57
5117	Bone and Potash.....	H. Adkins, Bismarck .....	1.00	1.03	10.00	12.92	3.00	4.22	7.00	8.70	1.00	2.22	14.80	18.91
5118	" " "	John Ramey, Jr., Fredericktown.....		0.79		13.66		5.26		8.40		1.64		17.31
9202	" " "	From Factory .....		0.87		11.85		5.35		6.50		0.86		14.45
9203	" " "	Sandbothe, Martinsburg.....		0.91		12.39		4.23		8.16		2.04		17.57
9204	Acid Phosphate .....	From Factory .....				17.28		0.77	14.00	16.51			16.80	20.12
9205	Raw Bone Meal.....	J. W. Anderson, Rockville.....	3.70	3.33	20.00	20.38	13.00	10.51	7.00	9.87			28.40	29.36
9206	" " "	W. E. Thornbury, Monett.....		4.10		22.96		10.14		10.14				35.84
9207	" " "	Sarcoxie Supply Co., Sarcoxie.....		3.17		22.20		9.87		12.33				31.43
9208	" " "	From Factory, St. Louis.....		3.27		18.11		10.11		10.11				26.72
9209	" " "	Bruns Machine Co., St. Charles.....		3.78		22.85		9.96		12.89				34.57
9210	St. Louis Bone Meal.....	Sarcoxie Supply Co., Sarcoxie .....	3.30	2.20	18.00	19.88	12.00	9.26	6.00	10.62			25.20	25.24
9211	" " "	J. W. Anderson, Rockville.....		3.14		20.65		10.09		10.56				29.27
9212	Cyanamid .....	From Factory, St. Louis.....		12.94										51.76
	<b>Morris &amp; Co., Big Brands.</b>	<b>Chicago, Ill.</b>												
5120	Big 1 Ground Raw Bone.....	Giebler and Bagby, Leslie.....	3.30	3.10	24.00	27.23							30.00	31.46



Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		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. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
9225	Big Six Sp. Bone Meal.....	Biggs & Biggs, Bowling Green.....	0.82	1.30	27.00	16.71	.....	.....	.....	.....	.....	.....	22.18	16.90
9226	" " " " " "	" "		0.91		30.23	.....	.....	.....	.....	.....	.....		24.80
5134	" " " " " "	From Factory .....		0.89		29.74	.....	.....	.....	.....	.....	.....		24.37
5136	Big 7 Sp. Bone Meal & Potash....	Biggs & Biggs, Bowling Green.....	1.24	1.37	16.00	17.38	.....	.....	.....	3.00	2.91	19.76	21.14	
5137	" " " " " " "	Giebler & Bagby, Leslie .....		1.33		17.22	.....	.....	.....		3.39		21.44	
5138	" " " " " " "	From Factory .....		1.33		15.83	.....	.....	.....		3.46		20.55	
9227	" " " " " " "	W. L. Rohlfing, Senate Grove.....		1.57		18.82	.....	.....	.....		2.84		22.86	
1063	" " " " " " "	W. K. Hunter, Versailles.....		1.92		12.41	.....	.....	.....		4.15		21.35	
5140	Big 8 Amm. Ac. Phos. & Potash..	W. W. Northcutt, Potosi.....	0.82	1.05	8.00	9.41	1.00	0.56	7.00	8.85	1.00	1.44	13.28	16.77
5141	" " " " " " "	Ed. Penniger, Fredericktown.....		1.05		8.20		1.86		6.84		1.28		14.49
5143	" " " " " " "	From Factory .....		1.06		9.38		2.55		6.83		1.15		14.84
9228	" " " " " " "	Reese & Wentman, Pendleton.....		1.22		10.75		2.35		8.40		1.36		17.53
9229	" " " " " " "	From Factory, Kansas City, Kans....		1.20		9.84		1.85		7.99		0.86		16.16
1064	" " " " " " "	W. K. Hunter, Versailles.....		1.35		10.92		5.12		5.80		1.12		15.75
5144	Big Nine .....	Marshfield Com. Co., Marshfield.....	1.65	1.69	10.00	8.95	2.00	0.69	8.00	8.26	5.00	4.81	23.00	22.72
5145	" "	From Factory .....		1.89		10.59		4.27		6.32		5.34		23.26
1065	" "	J. T. Claywell, Farmington.....		1.69		10.03		2.41		7.62		4.17		21.86
5146	Big Ten Grain Grower.....	C. T. Burk, Centralia.....	1.65	1.96	10.00	11.20	2.00	0.90	8.00	10.30	2.00	1.89	19.40	22.83
5223	" " " " "	From Factory .....		2.20		10.30		6.24		4.06		2.17		18.77

5148	" " " "	W. W. Northcutt, Potosi.....		1.93		11.39		0.79		10.60		2.05		23.22
9230	" " " "	From Factory, Kansas City, Kans.....		1.96		10.12		2.11		8.01		2.09		20.80
9231	" " " "	W. L. Rohlfing, Senate Grove.....		3.14		15.04		6.12		8.92		3.82		30.29
9233	" " " "	Reese & Wentman, Pendleton.....		1.95		11.07		2.16		8.91		2.05		21.81
1066	" " " "	W. K. Hunter, Versailles.....		2.36		9.55		3.08		6.47		2.10		20.95
9235	Big 11 Bone Meal & Potash.....	J. Cunningham, Montgomery .....	0.82	1.11	16.00	17.63	.....	.....	.....	.....	10.00	10.40	26.48	29.26
5224	" " " " " "	From Factory .....		0.97		16.44	.....	.....	.....	.....		9.00		26.19
<b>Pulverized Manure Co., Wizard Brands.</b>		<b>Chicago, Ill.</b>												
9236	Hog Manure .....	Factory, E. St. Louis, Ill.....	1.80	1.98	.....	2.17	.....	.....	1.00	.....	1.00	1.15	9.60	10.82
9237	Sheep Manure .....	" " " "		2.58	.....	1.97	.....	.....		.....		2.16		14.29
9238	Cattle Manure .....	" " " "		1.88	.....	0.97	.....	.....		.....		1.80		9.64
<b>Springfield Reduction &amp; Chem. Co., Ozark Brands.</b>		<b>Springfield, Mo.</b>												
1067	*Ozark Grain Grower .....	Newton Grain Co., Springfield.....	1.65	2.49	10.00	9.57	2.00	6.43	8.00	3.14	2.00	1.70	19.40	18.34
1068	" " " "	Factory, Springfield .....		2.90		8.37		3.71		4.66		1.70		20.71
1069	" " " "	" " " "		2.49		12.88		9.51		3.37		1.82		19.99
9362	* " " " "	Newton Grain Co., Springfield.....		2.50		9.47		6.27		3.20		1.63		18.31
1070	Wood Ashes .....	Factory, Springfield .....		.....		2.80	.....	.....	.....	.....		5.82	.....	8.94
1071	Potash Salts .....	" " " "		.....		.....	.....	.....	.....	.....		51.87	.....	62.24
1072	Acid Phosphate .....	" " " "		.....		13.35	.....	0.43	.....	12.92	.....	.....	.....	15.67

\* Old stock in storage. Not claimed as product of present company.

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						K <sub>2</sub> O Potash		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
	<b>Swift &amp; Co., Chicago, Ill.</b>													
5157	Superphosphate .....	Lopez Stove Co., Ironton.....	1.65	1.52	10.00	10.50	2.00	1.31	8.00	9.19	2.00	1.92	19.40	19.93
5160	"	E. W. Harris, Daisy.....		1.61		10.97		1.74		9.23		1.96		20.57
5165	"	Fred Walter, Knox City.....		1.69		8.80		0.26		8.54		1.89		19.38
5169	"	McCarroll & Hitch, Vandalia .....		1.68		10.97		1.36		9.61		1.97		21.15
5170	"	T. A. Murphy, Franks.....		1.62		9.77		0.47		9.30		2.10		20.35
5172	"	J. J. Biller, Bourbon.....		1.65		11.10		1.70		9.40		2.10		21.08
9240	"	Curl & Wilson, Liberal.....		1.98		10.67		2.74		8.93		1.87		20.78
9239	"	Factory, St. Joseph .....		1.61		10.75		4.63		6.12		1.73		17.71
9244	"	Henderson & Rood, Auxvasse.....		1.65		9.44		1.96		7.48		1.95		18.70
9248	"	T. W. Schultz, Moscow.....		1.57		8.79		1.57		7.22		1.71		17.62
9250	"	E. O. Gerdeman, Pendleton .....		1.72		10.22		2.48		7.74		2.45		20.10
9251	"	Thos. Reid, Elsberry .....		1.68		10.86		1.21		9.65		2.05		21.24
1073	"	Hathaway Seed Co., Mexico.....		1.66		8.50		1.40		7.10		1.93		18.04
5176	Complete Fertilizer .....	Hawkins & Cole, Blackwell.....	1.00	1.20	9.00	8.90	1.00	0.53	8.00	8.37	1.00	1.48	15.20	16.83
5180	" "	L. Q. Bradney, Paris.....		1.15		10.24		0.47		9.77		1.44		18.24
5185	" "	Jones & Bray, St. James.....		1.25		10.74		0.68		10.06		1.57		19.22
9257	" "	T. L. Nolin, Oakwood.....		1.11		8.42		0.59		7.83		1.05		15.34
9258	" "	The Enterprise, Hawk Point .....		1.04		9.13		0.56		8.57		0.89		15.73

9259	"	"	Davidson & Moore, Bellflower.....		1.28		7.61		0.50		7.11		1.23		15.33
9261	"	"	Hathaway Seed Co., Mexico .....		1.02		7.73		0.68		7.05		0.89		13.88
5187	Onion, Potato and Tobacco.....		Ladd & Co., Dexter.....	1.65	1.84	10.00	10.71	2.00	2.60	8.00	8.11	7.00	3.35	25.40	22.15
5188	"	"	Stubbs-Marshall Merc. Co., Blodgett...		1.67		8.86		0.74		8.12		8.25		26.62
9262	"	"	Newton Grain Co., Springfield.....		2.13		9.20		1.98		7.22		5.65		24.75
9263	"	"	From Factory .....		1.96		9.76		1.26		8.50		6.76		26.65
5238	Pure Bone Meal and Blood.....		" " Kansas City, Kan.....	3.75	3.23	23.00	26.95							31.10	31.79
9264	"	"	E. O. Ball, Ernest .....		4.40		22.13								33.09
9265	"	"	Pugh & Son, Golden City.....		4.32		22.32								32.90
9267	"	"	O. Granneman, New Haven.....		3.04		26.21								30.51
9269	"	"	J. W. Cook, Carrington.....		3.08		24.36								29.37
9270	"	"	Porter & Dwyer, Silex.....		3.37		23.50								29.93
9271	"	"	T. R. & H. D. Wyatt, Jonesburg.....		3.23		23.47								29.35
5189	Pure Bone Meal and Potash.....		E. W. Harris, Daisy.....	2.50	2.65	23.50	24.24					3.00	2.83	30.05	30.97
5190	"	"	Router & Williams, Barnett.....		2.65		22.96						2.86		30.10
9272	"	"	Newton Grain Co., Springfield.....		1.62		18.43						1.03		20.62
9273	"	"	From Factory .....		3.11		23.85						2.62		32.27
1076	"	"	J. Spillman, Rolla.....		2.05		23.66						2.82		28.14
5191	Sp. Phosphate and Potash.....		J. Cunningham, Montgomery.....			11.00	10.73	1.00	1.16	10.00	9.57	2.00	2.38	14.80	14.80
5192	"	"	Ingram & Duncan, Bowling Green....				10.76		0.86		9.90		2.23		14.90
9274	"	"	From Factory .....				10.87		0.46		9.41		1.85		13.69
9275	"	"	H. L. Pritchett, New London.....				10.48		0.32		9.16		2.06		13.59
5193	Champion Vegetable Grower.....		Tom L. Nolen, Oakwood.....	3.29	3.13	10.00	11.04	2.00	1.25	8.00	9.79	3.00	2.41	27.16	27.66
5194	Sp. Grain Fertilizer.....		Router & Williams, Barnett.....	1.65	1.76	12.00	11.69	2.00	2.59	10.00	9.10	2.00	2.15	21.80	21.58

Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						K <sub>2</sub> O Potash		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
9276	Special Grain Fertilizer.....	From Factory, St. Joseph.....	1.65	1.92	12.00	13.92	2.00	6.00	10.00	7.92	2.00	2.00	21.80	21.98
9277	" " "	Beach Gr. & Elev. Co., Appleton City..		2.01		11.45		2.67		8.78		2.20		22.29
9280	" " "	I. A. Young, Arcola.....		2.43		11.77		2.11		9.66		1.47		23.91
9282	" " "	Curl & Wilson, Liberal.....		1.87		11.03		2.45		8.58		1.62		20.70
9283	" " "	Newton Grain Co., Springfield.....		2.12		11.54		3.05		8.49		4.45		25.23
9288	" " "	D. B. Moore, Moscow.....		1.75		11.58		1.42		10.16		1.82		21.94
1077	" " "	Herth & Roth, California .....		1.54		11.40		1.57		9.83		1.52		20.41
1078	" " "	O. W. Carter, Fortuna.....		1.91		12.44		3.04		9.40		1.66		22.13
5197	Pure Raw Bone Meal.....	University of Mo., Columbia.....	3.75	4.17	23.00	23.68							31.10	33.26
5198	" " " "	A. P. Porter & Co., Lewistown.....		4.14		23.20								32.80
9290	" " " "	Beach Gr. & Elev. Co., Appleton City..		3.95		23.22								32.05
9291	" " " "	Thos. Egger, Lamar.....		4.05		23.22								32.45
9292	" " " "	Pugh & Sons, Golden City.....		3.89		23.22								31.81
9293	" " " "	Curl & Wilson, Liberal.....		4.00		24.45								33.11
9294	" " " "	Newton Grain Co., Springfield.....		4.08		23.45								32.74
9295	" " " "	O. Granneman, New Haven.....		4.13		21.84								31.81
9310	" " " "	J. W. Cook, Carrington.....		3.90		23.79								32.25
9297	" " " "	Davidson & Moore, Bellflower.....		3.87		23.58								31.99
9300	" " " "	E. O. Gerdeman, Pendleton.....		3.94		23.32								31.38





Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		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. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.				
9322	Ground Steamed Bone .....	H. L. Pritchett, New London.....	1.65	1.86	20.00	23.66	.....	.....	.....	.....	.....	.....	20.60	24.00
9323	“ “ “	Dwyer & Porter, Silex.....		1.75		23.43	.....	.....	.....	.....	.....	.....		23.40
9325	“ “ “	Davidson & Moore, Bellflower.....		2.01		20.44	.....	.....	.....	.....	.....	.....		22.35
5241	Pure Sp. Bone Meal.....	From Factory, Kansas City.....	0.82	1.26	27.50	24.60	.....	.....	.....	.....	.....	.....	22.53	22.26
9327	“ “ “ “	From Factory, St. Joseph.....		1.19		23.85	.....	.....	.....	.....	.....	.....		21.45
9328	“ “ “ “	Kahn & Sons, Montrose.....		1.16		25.19	.....	.....	.....	.....	.....	.....		22.27
9329	“ “ “ “	Thos. Egger, Lamar.....		1.11		27.01	.....	.....	.....	.....	.....	.....		23.35
9330	“ “ “ “	I. A. Young, Arcola.....		1.09		25.19	.....	.....	.....	.....	.....	.....		21.99
1084	“ “ “ “	Hert & Roth, California.....		1.09		30.68	.....	.....	.....	.....	.....	.....		25.84
1085	“ “ “ “	O. W. Carter, Fortuna.....		1.44		24.56	.....	.....	.....	.....	.....	.....		22.95
	<b>Tennessee Chemical Co., Ox Brands.</b>	<b>Chicago, Ill.</b>												
9341	Bone Meal .....	Henry Kersting, Gilmore.....	2.47	2.30	24.00	25.48	.....	.....	.....	.....	.....	.....	26.68	27.04
5205	Grain Grower .....	Chas. Palmer, Montgomery City.....	0.41	0.48	8.50	8.10	0.50	0.69	8.00	7.41	4.00	4.17	16.24	16.09
5206	“ “	C. H. Bantley, Lebanon.....		0.42		7.69		0.73		6.96		4.37		15.53
9333	“ “	Thos. Egger, Lamar.....		0.66		8.90		0.45		8.45		3.86		17.59
9334	“ “	W. W. Whitaker, Reeds.....		0.91		9.40		0.65		8.75		3.63		18.75
9335	“ “	Ed. Trede, Billings.....		0.68		7.56		1.22		6.34		3.80		15.38
9336	“ “	C. H. Bantley, Lebanon.....		0.45		7.56		0.48		6.08		4.04		15.34



Laboratory Number	Manufacturer and Brands	From Whom Collected	Nitrogen		Phosphoric Acid P <sub>2</sub> O <sub>5</sub>						Potash K <sub>2</sub> O		Value per Ton	
					Total		Insoluble		Available					
			Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.	Gtd. per ct.	Found per ct.
5214	Acid Phosphate .....	Walker and Hintz, Warrenton.....	.....	.....	14.50	14.22	0.50	0.38	14.00	13.84	.....	.....	17.00	16.76
9351	" " *	A. H. Williams, Sillex.....	.....	1.80		8.36		0.64		7.72	.....	2.04		19.17
5215	Steamed Bone .....	W. H. Tinsley, Bowling Green.....	1.65	1.84	20.00	20.25							20.60	21.53
9352	" "	A. H. Williams, Sillex.....		1.81		22.00								22.64
9354	" "	J. W. Cook, Fulton.....		1.79		20.25								21.33
9355	" "	Eolia Elevator Co., Eolia.....		1.84		19.77								21.20
1087	" "	Hert and Roth, California.....		2.11		22.64								24.29
9356	Raw Bone Meal.....	A. H. Williams, Sillex.....	3.70	4.25	22.00	22.00							30.20	32.40
9357	" " "	J. W. Cook, Fulton.....		3.74		23.28								31.26
9358	" " "	Eolia Elevator Co., Eolia.....		3.96		23.82								32.51
9360	" " "	W. H. Tinsley, Bowling Green.....		3.54		23.46								30.58
9361	" " "	James Sandbothe, Martinsburg .....		3.72		22.92								30.92
1088	" " "	Hert and Roth, California.....		3.82		24.49								32.42
9359	Animal Bone .....	James Sandbothe, Martinsburg .....	2.47	2.93	24.00	25.70							26.68	29.71

\*This sample is a complete fertilizer and is not true to name.

Miscellaneous Samples Not Taken by Regular Inspectors.																			
94	Am. F. & S. F. Co. Raw Bone Meal	Geo. Ford, Lockwood.....	3.50	2.51	20.00	21.32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28.00	24.96
615	Empire Carbon Wks., Em. Crp. Gr.	Henry Willibrand, Folk.....	1.65	1.80	9.00	10.45	1.00	0.95	8.00	9.50	2.00	2.51	19.00	21.99					
89	Hirsh Stein, Calu. B. Phos. & Pot.	Helfrich and Haswell, Eldon.....	0.40	0.37	11.00	11.61	1.00	0.52	10.00	11.09	2.00	2.09	16.40	17.51					
810	Calumet Sp. Wheat Grower.....	Helfrich and Haswell, Eldon.....	0.80	0.90	9.00	9.63	1.00	1.08	8.00	8.55	4.00	4.24	18.00	19.38					
5219	Mayer Fer. Co. Anchor Corn Gr...	J. E. Mansfield, Wellsville.....	2.05	2.57	10.00	9.61	2.00	2.33	8.00	7.28	3.00	3.87	22.20	24.59					
5220	"	J. E. Mansfield, Wellsville .....		1.83		10.48		2.39		8.09		3.63		22.35					
5225	Anchor Tobacco Dust.....	L. A. Culver, Branson.....	1.00	1.31	.....	0.80	.....	.....	.....	.....	1.00	1.39	5.20	7.47					
3103	Nitrate Agencies Co. Sul. of Pot.	Karl Hufendick, Freeburg .....	.....	.....	.....	.....	.....	.....	.....	.....	48.00	51.00	57.60	61.20					
1095	Bone Meal & Potash, H. S. & Co.	N. Johannes and Sons, Lamar.....	0.80	1.22	20.00	22.47	.....	.....	.....	.....	4.00	3.66	22.00	25.00					
1112	Raw Bone Meal, Hirsch S. & Co.	J. W. Sims, Fulton.....	3.70	4.58	20.00	17.21	.....	.....	.....	.....	.....	.....	28.80	30.37					
1093	" " " "	N. Johannes & Sons, Lamar.....		3.57		21.43	.....	.....	.....	.....	.....	.....		29.28					
177	" " " Empire Carb. Wks.	W. M. Jordan, Miller .....	3.29	3.94	22.00	21.59	.....	.....	.....	.....	.....	.....		28.56	30.87				
1094	Steamed Bone, Hirsch Stein & Co.	N. Johannes & Sons, Lamar.....	0.80	1.27	29.00	27.68	.....	.....	.....	.....	.....	.....		23.50	24.46				
97	Raw Bone, Hirsh Stein & Co.....	W. P. Gentry, Jacobston.....	3.70	4.13	20.00	21.45	.....	.....	.....	.....	.....	.....		28.80	31.53				
9363	Steamed Bone .....	T. Welch, Barytes.....	1.65	2.11	20.00	20.28	.....	.....	.....	.....	.....	.....		20.60	22.64				
98	Raw Bone, Swift & Co.....	Henderson and Rood, Auxvasse.....	3.75	3.87	23.00	22.25	.....	.....	.....	.....	.....	.....		31.10	31.05				
5221	Ground Meat Meal of L.-P., St. L.	G. W. Bebee, Vosholl.....	.....	9.40	.....	2.75	.....	.....	.....	.....	.....	.....		.....	39.52				
5222	Ground Meat Meal, Armour.....	A. H. Green, Monroe City.....	7.20	9.41	.....	4.67	.....	.....	.....	.....	.....	.....		28.80	40.91				
5217	Goat Manure Ashes (1).....	B. M. Acree, Fulton.....	.....	0.62	.....	2.55	.....	.....	.....	.....	.....	.....		.....	4.26				
5218	" " " (2)	" "	.....	0.44	.....	1.21	.....	.....	.....	.....	.....	.....		.....	2.60				
1123	Fertilizer Tankage .....	Ben Will Thatcher, Smithville .....	.....	6.02	.....	8.29	.....	.....	.....	.....	.....	.....		.....	29.88				

**STATEMENT OF RECEIPTS AND DISBURSEMENTS ON THE FERTILIZER  
CONTROL ACCOUNT FOR THE YEAR ENDING DECEMBER 31, 1910.**

**Receipts.**

1910			
Jan.	1	Balance on hand .....	\$ 3,259.43
Jan.	31	To sale of tags .....	168.45
Feb.	28	To sale of tags .....	300.00
Mar.	31	To sale of tags .....	1,319.35
Apr.	30	To sale of tags .....	1,509.88
May	31	To sale of tags .....	510.00
June	30	To sale of tags .....	150.00
July	31	To sale of tags .....	150.00
Aug.	31	To sale of tags .....	2,017.50
Sept.	30	To sale of tags .....	5,752.46
Oct.	31	To sale of tags .....	1,240.50
Nov.	30	To sale of tags .....	358.90
Dec.	31	To sale of tags .....	150.00
Total receipts .....			\$16,886.41
Dec.	31	Total disbursements .....	8,483.47
Jan.	1, 1911,	to balance .....	\$ 8,402.94

**Disbursements.**

1910			
Jan.	31	Gilman & Dorsey, chemical supplies.....	\$ 1.00
		Coombe Bros., blacksmithing .....	13.25
		Fredendall's Store, sundry supplies .....	5.10
		Hatton & Knight, drugs and supplies.....	3.40
		J. B. Johnson, labor .....	40.00
		Frank Washington, labor .....	32.50
		R. W. Zumalt, labor .....	35.00
		Burroughs Adding Machine Co., office supplies.....	9.14
		Chandler & Chandler, feed stuff .....	106.80
		Eureka Laundry, washing .....	1.26
		Libby Paper Co., office stationery.....	5.00
		Missouri Store, office supplies .....	3.55
		Strelinger Co., laboratory supplies .....	1.25
		Heil Chemical Co., chemical supplies.....	5.70
		R. H. Gray, clerical work.....	25.00
		Leota Rodgers, stenographic work .....	30.00
		F. W. Woodman, office work .....	60.00
Feb.	28	Hetzler Bros., special labor .....	7.15
		Palmer & Laughlin, hardware .....	1.30
		Newman Hardware Co., hardware .....	1.00
		Jno. S. Chandler, live stock .....	40.80
		Coombe Bros., repairs .....	2.50
		American Sales Co., office supplies .....	3.00
		Butler Paper Co., stationery .....	13.10
		C. H. Heckler, office supplies.....	39.00

## INSPECTION OF COMMERCIAL FERTILIZERS.

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Feb. 28	Libby Williams Co., supplies .....	205.38
	F. S. Putney, supplies .....	1.90
Mar. 31	Frank Washington, labor .....	35.00
	J. B. Johnson, labor .....	40.00
	Newman Hardware Co., hardware .....	1.25
	Palmer & Laughlin, hardware .....	11.75
	Taylor-Estes Co., lumber .....	3.58
	Boone County Mill, feed stuff .....	513.63
	J. F. Barham, office supplies .....	8.40
	H. B. Bush, feed stuff .....	9.04
	W. H. Chandler, livery hire.....	3.80
	Hatton & Knight, drugs and supplies.....	1.80
	Hetzler Bros., sundry supplies .....	18.25
	Home Canning Co., canning machinery.....	26.00
	Newman Hardware Co., hardware .....	3.40
	University Co-op. Store, office supplies .....	1.25
	Barnes-Crosby Co., office supplies .....	17.95
	H. B. Bush, feed stuff .....	39.66
	Daily Tribune, advertising .....	2.50
	Dorn & Cloney, office supplies .....	1.14
	General Photo Co., photo prints .....	2.50
	Light and Heat Station, repairs.....	1.63
	J. W. Connoway, salary .....	118.75
	F. H. Demaree, salary .....	66.67
	Loraine Gans, salary .....	40.00
	R. H. Gray, salary .....	25.00
	Leota Rodgers, salary .....	30.00
	Mamie Shaw, salary .....	12.50
	John Schnabel, salary .....	45.00
	Edna McCullough, salary .....	25.00
	F. B. Mumford, salary .....	137.50
	S. T. Simpson, salary .....	15.00
	J. C Whitten, salary .....	137.50
April 30	Libby Williams Co., office stationery.....	35.92
	N. D. Robnett, implements .....	123.50
	J. B. Johnson, labor .....	40.00
	Frank Washington, labor .....	35.00
	H. B. Bush, feed stuff .....	54.00
	I. T. Van Note, supplies .....	3.60
	H. B. Bush, feed stuff .....	30.42
	R. B. Gordon, supplies.....	.50
	W. H. Pike, supplies .....	1.00
	Smith-Premier Co., supplies .....	15.00
	Waters-Pierce Co., gasoline .....	4.75
	Loraine Gans, stenographer .....	40.00
	Leota Rodgers, stenographer .....	30.00
	Stephens Printing Co., printing .....	440.28
May 31	A. A. Jones, traveling expenses .....	61.97
	Dr. J. E. Thornton, chemicals .....	10.00
	H. F. Williams, traveling expenses .....	37.96
June 30	Light and Heat Station, repairs .....	1.55

## 446 MISSOURI AGRICULTURAL EXPERIMENT STATION, BULLETIN 91.

June 30	F. F. Trowbridge, traveling expenses .....	29.60
	Bushnell & Co., seeds .....	4.15
	Coombe Bros., blacksmithing .....	7.80
	Kansas Agricultural College, seeds .....	4.50
	Matthews Hardware Co., wire fence .....	7.00
	J. B. Johnson, labor .....	40.00
	Frank Washington, labor .....	35.00
	F. M. McCrosky, salary .....	45.00
	Smith Manufacturing Co., office supplies .....	1.70
	S. T. Simpson, salary .....	50.00
	Taylor-Estes Co., lumber .....	9.42
	West's Machine Shop, repairs .....	6.75
	H. B. Bush, feed stuff .....	30.54
	Coombe Bros., repairs .....	6.50
	Light and Heat Station, repairs .....	4.69
	Newman Hardware Co., hardware .....	3.40
	Jos. Oskamp, salary .....	12 75
	Taylor-Estes Co., lumber .....	1.50
	West's Machine Shop, repairs .....	2.00
	Missouri Store, envelopes .....	6.75
	Libby & Co., stationery .....	13.70
	Stephens Publishing Co., bulletins .....	553.37
	Art Metal Co., office furniture .....	124.20
	Hatton & Knight, chemicals .....	21.90
	Strawn-Holland Co., rug .....	3.75
	Dorn & Cloney, laundry work .....	1.18
	E. E. Tyler, chemical supplies .....	3 50
	Edna McCullough, salary .....	25 00
	R. H. Gray, salary .....	25.00
	M. F. Miller, salary .....	50.00
	F. B. Mumford, salary .....	137.50
	Leota Rodgers, salary .....	30.00
	J. C. Whitten, salary .....	137.50
	J. G. Babb, secretary, labor .....	175.09
Aug. 31	Butler Paper Co., stationery .....	7.50
	Dorn & Cloney, laundry work .....	.76
	Fredendall's Store, merchandise .....	.35
	Hatton Bros., paper supplies .....	33.50
	Hatton Bros., paper supplies .....	46.90.
Sept. 30	Dorn & Cloney, laundry work.....	1.03
	A. A. Jones, salary .....	21.77
	Newman Hardware Co., hardware .....	1.98
	L. E. Neil, salary and expenses .....	75.82
	Sargent & Co., chemicals .....	18.09
	P. F. Trowbridge, traveling expenses .....	26.20
	Chas. Matthews, hardware .....	10.50
	University Co-op., stationery .....	34.72
	Stephens Publishing Co., printing .....	7.07
Oct. 31	R. C. Bishop, traveling expenses .....	201.45
	Hetzler Bros., supplies .....	2.25
	Lammert Furniture Co., furniture .....	14.00



Oct. 31	Amfra McGruder, stenographer .....	19.35
	C. R. Moulton, traveling expenses .....	25.87
	P. F. Trowbridge, traveling expenses .....	64.76
	Boone County Mill, feed stuff .....	46.40
	L. B. Garrard, feed stuffs .....	64.80
	Arch Allen, clerical work .....	35.00
	Light and Heat Station, repairs .....	23.14
	Black Diamond Coal Co., wood .....	2.00
	Chandler & Chandler, livery .....	2.00
	Fredendall's Store, dry goods .....	1.80
	Hetzler Bros., supplies .....	2.50
	F. H. Demaree, traveling expenses .....	20.35
	J. B. Johnson, labor .....	40.00
	Frank Washington, labor .....	35.00
	Leota Rodgers, stenographer .....	30.00
	Boone County Lumber Co., lumber .....	207.00
	Stephens Publishing Co., printing .....	19.53
Nov. 30	Light and Heat Station, repairs .....	4.97
	W. I. Watkins, salary .....	50.00
	T. W. Ficklin, blacksmithing .....	6.25
	Light and Heat Station, repairs .....	3.23
	Leota Rodgers, salary .....	30.00
Dec. 31	Archer Daniels Co., feed .....	495.00
	Boone County Lumber Co., lumber .....	29.30
	Light and Heat Station, repairs .....	8.75
	I. T. Van Note, salary .....	85.50
	University Co-op. Store, stationery .....	9.86
	Light and Heat Station, repairs .....	82.57
	Edna McCullough, stenographer .....	25.00
	Butler Paper Co., stationery .....	20.00
	F. B. Mumford, traveling expenses .....	27.30
	Geo. M. Reed, supplies .....	12.80
	Smith-Premier Co., stationery .....	4.00
	Reyburn Manufacturing Co., printing .....	139.50
	Stephens Publishing Co., printing .....	100.77
	F. B. Mumford, salary .....	150.00
	Susan Arnold, salary .....	12.50
	A. A. Jones, salary .....	60.00
	R. H. Gray, salary .....	25.00
	J. C. Whitten, salary .....	137.50
	Leota Rodgers, salary .....	30.00
	Baker, Robinson & Co., merchandise .....	2.00
	Saml. Haigh, supplies .....	15.45
	Grasselli Chem. Co., chemicals .....	5.30
	L. P. Stephens, supplies .....	8.00
	P. F. Trowbridge, salary .....	151.30
	F. H. Demaree, expenses .....	14.05
	Palmer & Laughlin, hardware .....	3.26
	Barkwell & Forbis, supplies .....	64.75
	J. G. Babb, secretary labor .....	430.00
	R. C. Bishop, salary .....	20.00

Dec. 31	Modern Oil Co., oils .....	8.80
	Sargent & Co., chemicals .....	2.95
	Smith-Premier Co., stationery .....	2.11
	Baker, Robinson & Co., merchandise .....	1.90
	American Lead Pencil Co., merchandise .....	2.00
	State Fund transfer .....	383.83
		<hr/>
	Total .....	8,483.47