

KENTUCKY
AGRICULTURAL EXPERIMENT STATION

OF THE

STATE COLLEGE OF KENTUCKY.

BULLETIN NO. 75.

COMMERCIAL FERTILIZERS.

LEXINGTON, KENTUCKY.

June, 1898.

75.

KENTUCKY
Agricultural Experiment Station.

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The Bulletins of the Station will be mailed free to any citizen of Kentucky who sends his name and address to the Station for that purpose.

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ADDRESS :

KENTUCKY AGRICULTURAL EXPERIMENT STATION,
LEXINGTON, KY.

BULLETIN No. 75.

COMMERCIAL FERTILIZERS.

The Legislature, at its last session, amended the law regulating the sale of fertilizers in this Commonwealth in several very important particulars. The new law went into effect March 14th, in the midst of the spring season, when a large number of manufacturers had already entered their fertilizers for sale in the State for the year 1898 under the provisions of the old law. The passage of the new law could not effect these, but all applications received after March 14th were entered according to the new law. We publish in this bulletin the analyses of all the samples that had been entered by manufacturers for 1898 under the old law, and also the analyses of four samples, Nos. 3800 to 3803, entered by Dunn & Backer, Troy, Ind., in 1897 which were omitted from Bulletin No. 71 through oversight.

As soon as possible after the passage of the new law, all manufacturers of fertilizers doing business in the State were notified of its provisions, and we take this opportunity of publishing the law among the farmers of the State, and of adding a few words of explanation of the most important changes that were made, and of the proper method to follow in applying for free analyses under the law.

The new law requires manufacturers to make affidavit to the Director guaranteeing the minimum analysis of each brand of fertilizer which they propose to sell in the State and the Director shall print this guaranteed analysis over his facsimile signature in the form of a tag, and every package of fertilizer sold or offered for sale in the State shall have one of these

tags attached, and this tag analysis shall be the standard by which the fertilizer is to be judged. The tag shall also show the net weight of fertilizer contained in each package. The manufacturer also sends to the Director a fair sample of each kind of fertilizer which he proposes to put on sale. The Director is given authority to take samples for analysis from any fertilizer on sale in the state, and is required to make every year at least one analysis of each kind of fertilizer that has been entered for sale. The law also provides that any purchaser of a fertilizer, *who is not an agent or dealer*, may take a sample of the same, under proper regulations, and have it analyzed at the Station free, and such a purchaser shall not be required to give the name of the fertilizer or of the person from whom it was bought until after the analysis has been made and reported. But after the purchaser has received the report of analysis he must give the Director all information about the fertilizer that may be required for publication in the Station bulletins or for prosecution of the case if it appear that the law has been violated.

IMPORTANT TO CAREFULLY SAMPLE. It is very important that samples for analysis be carefully taken in such a way as to be sure that they fairly represent the fertilizer purchased, and we request that any one intending to have an analysis made will read Section 8 of the law very carefully before taking the sample. To avoid the charge of unfairness in sampling, the law provides that the person or agent who sold the fertilizer be present when the sample is taken, but if this is not possible or convenient, the sample may be taken in presence of two disinterested witnesses. It is required that the sample be taken from at least a tenth of the whole number of sacks purchased, but the more sacks sampled the better, and it is always best to take the sample from at least two or three sacks. A quantity should be taken from each of the sacks selected to be opened, and all mixed together in one pile, and a quart jar filled from the mixture. The jar should be sealed and marked with the name and address of the sender in such a way that there can be no mistake about the identity of the sample, and forwarded at once to the Director of the

Station. The Station will furnish blank forms for the certificate, which is to go with the sample, but if there is not time to write for them, it may be made out after the form printed herewith. (See page 84.) All such samples must be taken at, or soon after, the time of purchasing the fertilizer, as it is not intended that a fertilizer be kept for months, possibly subject to change from exposure, and then be submitted to analysis.

ESTIMATED VALUATION. It will be noticed that under the new law the estimated value per ton is not given on the tag. It was thought best to leave it off for two reasons. First, because the ingredients of which fertilizers are made vary in price from time to time during the year and as the tags are good for a year, or until used, the estimated value might not represent anywhere near the true valuation during a portion of the year, at least. And second, because it is much more important that the farmer should buy on the percentage of phosphoric acid, nitrogen and potash in the fertilizer than on the estimated value. The estimated value includes the value of the nitrogen, the phosphoric acid and the potash. Some soils only need phosphoric acid and others nitrogen, while still others potash. Take, for example, a soil that needs potash only—as the blue grass soil of Kentucky; it is evident that a fertilizer rich in potash should be purchased. Suppose, however, that a farmer living in the blue grass region should be offered a fertilizer containing 10 per cent. of available phosphoric acid, 5 per cent. of nitrogen and 1 per cent. of potash. The estimated value of this would be \$32.90 a ton; the potash in the fertilizer is valued at \$1.40, the phosphoric acid at \$14.00 and the nitrogen at \$17.50. Now, if he were offered this fertilizer, say at \$25.00 a ton and its estimated value was \$32.90, he might think he was getting it at a low figure, and would purchase it in preference to another fertilizer rich in potash. He would be paying a large amount, however, for the phosphoric acid and nitrogen, which he did not need. If, however, he did not purchase on the valuation, but on the percentages of the ingredients, he would see at once that 1 per cent. of potash and 10 per cent. of phosphoric acid

and 5 per cent. of nitrogen, was not the composition of fertilizer he was seeking, and he would refuse to buy because it did not contain potash in large quantities. Other examples might be given where nitrogen was needed, also phosphoric acid. The only true way for a farmer to purchase a fertilizer is on its composition. He must look to see how much available phosphoric acid, how much nitrogen and how much potash it contains, and purchase accordingly.

The estimated value of each fertilizer will be found in the fertilizer bulletins.

The following is the law in full, and all farmers interested in the use of fertilizers are requested to read it through carefully. To guide those who intend sending samples of fertilizers for free analysis we have printed after the law the form of certificate filled out so as to indicate how the blanks should be filled :

The Kentucky Fertilizer Law.

AN ACT REGULATING THE SALE OF FERTILIZERS IN THIS COMMONWEALTH.

SECTION 1. In each year, before any person or company shall sell, offer or expose for sale in this State any commercial fertilizer, said person or company shall furnish to the Director of the Agricultural Experiment Station of the Agricultural and Mechanical College of Kentucky, which Station is hereby recognized as the "Kentucky Agricultural Experiment Station," a sealed quantity of such commercial fertilizer, not less than one pound, sufficient for analysis, accompanied by an affidavit that the sample so furnished is a fair and true sample of a commercial fertilizer which the said person or company desires to sell in this State; and said affidavit shall also state the name and address of the manufacturer, the name of the fertilizer, the number of net pounds in each package, and the minimum percentages of the essential ingredients guaranteed in said fertilizer, in such form and manner as may be prescribed by said Director.

SEC. 2. The Director of said Experiment Station, upon receipt of affidavit and sample as provided for in section 1 and upon receipt of the fees hereinafter provided, shall issue to said person or company a sufficient number of labels to tag not less than twenty (20) tons of said fertilizer, on which label shall be printed the name and address of the manufacturer, the name of the fertilizer, the number of net pounds in

each package, and the minimum percentage composition in terms approved by the said Director as certified to in affidavit furnished by said person or company, together with a certificate from the Director over his facsimile signature, authorizing the sale of such package according to the provisions of this Act.

SEC. 3. Every bag or other package or quantity of any commercial fertilizer, in any shape or form whatever, sold or offered for sale in this State, shall have attached to it in a conspicuous place a label as provided in section 2.

SEC. 4. Any manufacturer or vendor of any commercial fertilizer, or any person or company who shall sell, offer or expose for sale any fertilizer without having previously complied with the provisions of this Act, shall be fined not less than one hundred nor more than five hundred dollars for each violation or evasion of this Act.

SEC. 5. The Director shall receive for the labels described in section 2 of this Act fifty (50) cents for such number as may be required for one ton of fertilizer; provided, That he may not furnish at any one time a less number than is sufficient for ten (10) tons of fertilizer.

SEC. 6. The Director of said Kentucky Agricultural Experiment Station shall pay all such fees received by him into the Treasury of the Kentucky Agricultural Experiment Station, the authorities of which shall expend the same in meeting the legitimate expenses of the Station, and for inspecting and making analyses of fertilizers, in experimental tests of same, and in such other experimental work and purchases as shall inure to the benefit of the farmers of this Commonwealth. The Director shall, within two months of the biennial meeting of the General Assembly, present to the Commissioner of Agriculture a report of the work done by him, together with an itemized statement of receipts and expenditures for the two years preceding under the operations of this Act.

SEC. 7. The Director of said Experiment Station is hereby authorized, in person or by deputy, to take samples for analysis from any bag or other package or quantity of any commercial fertilizer in the possession of any dealer or transportation company in this State; to enforce the provisions of this Act; and to make and enforce such rules and regulations as he may deem necessary to carry fully into effect the true intent and meaning of this Act.

SEC. 8. Any person not a dealer in, or agent for the sale of any fertilizer who may purchase any commercial fertilizer in this State for his own use and not for sale, may take a sample of the same for analysis, which analysis shall be made by the said Experiment Station free of charge. Such sample for free analysis shall be taken by the purchaser in the presence of the person, company or agent selling the fertilizer, from at least ten (10) per cent. of the sacks or other packages comprising the whole lot purchased, and shall be thoroughly mixed and at least one pound of the material after mixing must be put into a jar or can, securely sealed and marked in such a way as to surely identify the sample and show by

whom it was sent, without giving the name of the fertilizer or the person from whom it was purchased, and must be forwarded to the Director of the Kentucky Agricultural Experiment Station, Lexington, Ky. The purchaser shall also send with the sample a certificate signed by himself and witness, or by two witnesses, stating that the sender has purchased the fertilizer for his own use and not for sale, and that the sample was taken in the manner prescribed in this Section. Provided, however, that if the person, company or agent shall refuse to witness the taking of the sample, then the sample may be taken at the time of the purchase in the manner already described in the presence of two witnesses who shall certify to the manner of taking the sample. The purchaser shall preserve the official label from one of the bags or other packages sampled to be sent to the Director after having received the report of analysis of the sample, and at the same time he shall furnish to the Director the name and address of the firm of whom the fertilizer was purchased and the amount purchased; and any person having sent a sample for free analysis, under the provisions of this section, who shall, after having received the report of analysis of the same, refuse to furnish the required information, shall thereafter forfeit the privilege of free analysis of fertilizers under this section. But if any sample shall have been submitted for free analysis without all the requirements of this section having been complied with, the Director shall inquire into the case and may accept the sample for free analysis if he believe that it is a fair sample of the fertilizer as it was delivered to the purchaser.

SEC. 9. The label attached, according to section 2, to any bag or other package of commercial fertilizer sold, offered or exposed for sale in this State, shall be accepted as the guarantee of the manufacturer, dealer or agent, that the fertilizer contains the kinds and amounts of essential ingredients printed on the tag; and any person fraudulently attaching or permitting to be attached to any package of fertilizer a fraudulent or counterfeit label, a genuine label used a second time, or a label representing it to contain a larger percentage of any one or more of the essential ingredients than is actually found by analysis to be contained in the said fertilizer, may be fined as provided in section 4 of this Act and shall also be liable for reasonable damages sustained by the purchaser of such fertilizer; Provided, however, That a deficiency of one-fourth of one per cent. in any of the essential ingredients shall not be considered evidence of fraudulent intent.

SEC. 10. The Director of said Experiment Station shall annually analyze or cause to be analyzed at least one sample of every fertilizer sold or offered for sale under the provisions of this Act; and he shall publish in one or more bulletins the analyses made during the year, together with the relative commercial value of each fertilizer computed from its analysis as he may determine, and the analysis guaranteed by the manufacturer.

SEC. 11. To facilitate the inspection of fertilizers, the Director is authorized to require all manufacturers making shipments into or within

the State to notify him of the kinds, amounts, dates, destinations and consignees of all such shipments.

SEC. 12. If the Director of the said Experiment Station shall believe that any fertilizer offered for sale in this State is of no practical manurial value, he shall refuse to furnish any labels to be placed on such fertilizer.

SEC. 13. All Acts or parts of Acts in conflict with this Act are hereby repealed. Whereas, the time is near at hand for the purchase of fertilizers for the spring crops, and as agriculturists are anxious to test the analysis of their fertilizers, Therefore, an emergency is hereby declared to exist, so this Act shall take effect from and after its passage.

Form of Certificate.

The following is the proper form of certificate to accompany samples for free analysis. The words in italics are supposed to have been written in the blanks of one of our printed forms by the sender of the sample and give an idea of how these blanks should be filled. Anyone intending to send a sample for free analysis can get these blank certificates by writing to the Station.

Certificate for Free Analysis.

Smithville, Ky., June 1st, 1898.

M. A. SCOVELL, Director,
LEXINGTON, KY.

This is to certify that I am not a dealer in, or agent for the sale of any fertilizer, and that the fertilizer, a sample of which I have sent by express to you for free analysis was purchased by me for my own use and not for sale.

I further certify that the sample was taken at the time of purchase from at least 10 per cent. of the sacks or other packages comprising the whole lot purchased, and that it was taken as provided in Section 8 of the fertilizer law, in the following described manner, to wit: I opened four sacks of the fertilizer and took two shovels full from each and mixed them all together thoroughly on a clean floor and immediately filled a quart jar with the mixed fertilizer and labeled it "No. 1 from John Smith, Smithville, Ky."

Upon receipt of the analysis from you, I agree to furnish you with a tag taken from one of the sacks sampled, the name and address of the firm or agent of whom the fertilizer was purchased and the amount purchased.

(Signature) John Smith,

(P. O. Address) Smithville, Ky.

Signature of Witnesses:

Sam Jones.

Will Brown.

Explanations in Regard to the Tables.

For convenience, the analyses in this bulletin are arranged in two tables :

Table I., contains ground bones, ammoniated bones, etc.

Table II., those fertilizers whose phosphatic materials have been acted upon by sulphuric acid in order to render the phosphoric acid in them more soluble.

The finer a bone is ground the more valuable it is. For this reason we divide ground bone into "fine bone" and "medium bone" and give the amount of phosphoric acid in each separately in the tables. In computing the estimated value, the phosphoric acid in the "fine bone" is given a greater value than that in the "medium bone."

In Table II., the phosphoric acid is stated as "soluble," "reverted" and "insoluble" phosphoric acid in the fertilizer. The sum of the "soluble" and "reverted" is "available" phosphoric acid, or the phosphoric acid that is of immediate use to plants. In this table is also given the nitrogen, as well as its "equivalent in ammonia," or, in other words, the greatest amount of ammonia which would be possible to be made from the nitrogen ; also the amount of potash either in the form of sulphate or muriate or both. As sulphate of potash is somewhat more costly than muriate, it is thought best to give the form in which the potash is found in the fertilizers analyzed.

Values Used.

The same values for the "essential ingredients" will be used in 1898 as in 1897, as follows :

Soluble and reverted phosphoric acid in mixed fertilizers, 7 cents ; in plain acid and unacidulated phosphates, 5 cents per pound.

Insoluble phosphoric acid in mixed fertilizers, $2\frac{1}{2}$ cents ; in plain acid phosphates, nothing ; in Orchilla guano, 3 cents ; in other unacidulated phosphates, 2 cents per pound.

Phosphoric acid in fine bone*, 4 cents ; in medium bone*, 3 cents per pound.

Nitrogen in all fertilizers, $17\frac{1}{2}$ cents per pound.

Potash in all fertilizers, from sulphate, 7 cents ; from muriate, 6 cents per pound.

*Fine Bone is all that passes through a sieve with meshes 1-25 inch square. Medium bone passes through a sieve with meshes 1-6 inch square, but does not include fine bone.

TABLE 1.—Raw Bone Manures.

Station Number.	NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	POUNDS IN THE HUNDRED.						Estimated Value per Ton.
			Phosphoric Acid.			Phosphate.	Nitrogen.	Equivalent to Ammonia.	
			In Fine Bone.	In Medium Bone.	Total.				
4159	The Armour Fertilizer Works, Chicago, Ill.....	Raw Bone Meal.....	17.00	8.53	25.53	55.77	3.91	4.75	\$32.41
4160	Same	Bone Meal.....	20.95	4.51	25.46	55.60	3.36	4.08	31.23
4246	The Cleveland Dryer Co., Cleve- land, O.....	Superior Bone	12.67	12.56	25.23	55.10	3.89	4.72	31.30
3802	Dunn & Backer, Troy, Ind.....	Clover Leaf Brand, No. 7 Grower.....	10.49	5.19	15.68	34.25	3.48	4.22	31.85*
3803	Same	Clover Leaf Brand, No. 9 Grower.....	16.30	8.77	25.07	54.76	3.88	4.71	31.88
4212	J. B. Jones, Louisville, Ky	Raw Bone Meal.....	12.27	8.63	20.90	45.65	4.29	5.21	30.02
4213	Same	Ammoniated Bone Meal.....	10.87	2.31	13.18	28.78	3.29	3.99	21.61
4123	The Jones Fertilizing Co., Cincin- nati, O.....	Fine Ground Bone	16.20	6.42	22.62	49.40	3.60	4.37	29.41
4124	Same	Ammoniated Bone Meal.....	18.89	4.04	22.93	50.07	3.46	4.20	29.64

4223	Michigan Carbon Works, Detroit, Mich.....	Desiccated Bone	26.54	5.44	31.98	69.86	1.27	1.54	28 94
4224	Same.....	Banner Raw Bone.....	13.83	8.33	22.16	48.39	3.68	4.47	28 94
4165	North-Western Fertilizing Co., Chicago, Ill.....	Horse Shoe Brand Fine Raw Bone.....	14.75	9.04	23.79	51.97	4.03	4.89	31 33
4171	Same.....	H. S. B. Pure Ground Bone.....	16.32	5.50	21.82	47.67	3 70	4.49	29 31

* Potash from muriate 6.81 per cent.

Commercial Fertilizers.

4242	Same	Phospho Bone	6.81	2.94	1.98	1.03	1.25	1.50	.....	20 05
4243	Same	XXX Superphosphate	3.53	9.80	2.24	.....	.....	.....	.....	13 33
4244	Same	Horsehead Phosphate	7.41	3.60	1.32	.....	.....	.....	.....	11 01
4245	Same	Square Bone	2.88	10.57	9.45	2.59	3.14	.....	.....	32 63
4247	Same	White Burley Tobacco Fertilizer	7.18	2.18	3.84	2.86	3.47	2.93	.....	28 55
4248	Same	Potato and General Crop Fertilizer	5.77	3.25	3.65	1.65	2.00	6.17	.....	27 64
4249	Same	Kentucky Tobacco Grower	6.32	3.50	4.11	1.58	1.92	2.57	.....	24 42
4263	The Currie Fertilizer Co., Louisville, Ky.	Currie's Special for Oats, Corn and Grass	8.17	2.32	2.49	0.85	1.03	.....	2.65	22 63
4264	Same	Currie's Corn and Wheat Special	8.53	3.49	3.98	0.32	0.39	.....	0.79	21 05
4265	Same	Currie's Golden Leaf Tobacco and Potato Grower	6.67	2.32	1.82	1.50	1.82	.....	4.04	24 41
4266	Same	Currie's Climax Tobacco and Potato Grower	8.67	2.65	3.16	0.52	0.63	.....	1.40	21 21
4267	Same	Currie's Soluble Bone	8.83	2.68	3.19	0.50	0.61	.....	1.45	21 49
4268	Same	Currie's Corn Grower	8 57	2.98	3.17	0.49	0.59	.....	1.39	21 43
3800	Dunn & Backer, Troy, Ind.	Clover Leaf Brand, No 3 Grower	2.81	3.60	7.71	2.32	2.82	9.09	.....	31 86
3801	Same	Clover Leaf Brand, No. 4 Grower	0.82	4.31	7.80	3.93	4.77	10.74	.....	37 73
4183	Globe Fertilizer Co., Louisville, Ky.	Globe Special Tobacco Grower	8.62	1.46	0.78	2.78	3.37	.....	10 65	39 14
4184	Same	Globe Potato Grower	8.05	1.61	1.00	3.97	4.82	.....	5.04	34 98
4185	Same	Globe Soluble Vegetable Manure	8.85	1.67	1.06	2.87	3.48	.....	3 42	30 10

TABLE II.—Complete Fertilizers, Superphosphates, Etc.—Continued.

Station Number.	NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	POUNDS IN THE HUNDRED.										Estimated Value per Ton.
			Soluble.	Reverted.	Insoluble.	Nitrogen.	Equivalent to Ammonia.	From Muriate.	From Sulphate.	Phosphoric Acid.	Potash.		
4186	Globe Fertilizer Co., Louisville, Ky.	Kentucky Standard Tobacco Grower	8.65	1.72	1.02	3.04	3.69	.....	.....	3.37	30 39
4187	Same	Big Four Tobacco Grower	7.57	1.62	0.74	2.23	2.71	.....	.....	3.13	25 43
4188	Same	Eagle Corn and Wheat Grower	8.34	1.75	1.27	2.40	2.91	.....	.....	2.09	26 10
4189	Same	Globe Bone Dust	7.54	2.30	1.57	1.76	2.14	.....	.....	0.83	21 89
4190	Same	Bone and Potash	10.49	2.34	0.86	0.38	0.46	.....	.....	1.28	21 51
4191	Same	Globe Wheat Grower	8.44	1.94	1.02	2.33	2.83	.....	.....	2.06	26 08
4192	Same	Golden Harvest Bone Meal	9.74	2.81	1.34	2.45	2.97	.....	.....	1.05	28 29
4230	Same	Progress Corn and Wheat Grower	7.59	1.95	1.51	2.01	2.44	.....	.....	1.32	23 01
4211	Greer Machinery Co., Knoxville, Tenn.	Farmers Compound Fertilizer.	7.29	4.99	1.51	.....	.....	.....	2.10	.....	20 47
4259	Same	Greer's Challenge Fertilizer.	9.81	2.88	2.19	2.07	2.51	.....	2.26	.....	28 83

TABLE II.—Complete Fertilizers, Superphosphates, Etc.—Continued.

Station Number.	NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	POUNDS IN THE HUNDRED.							Estimated Value per Ton.
			Phosphoric Acid.			Nitrogen.	Equivalent to Ammonia.	Potash.		
			Soluble.	Reverted.	Insoluble.				From Muriate.	From Sulphate.
4145	Same	Champion Corn Grower.....	7.20	1.96	0.70	1.15	1.40	2.64	.....	20 37
4146	Same	Capital Tobacco Fertilizer.....	4.64	2.01	1.52	3.98	4.83	3.88	0.93	29 96
4147	Same	National Tobacco Fertilizer.....	4.84	1.75	2.19	2.29	2.78	1.14	3.13	24 10
4148	Same	Beef Blood and Bone Fertilizer	5.26	2.91	4.48	1.91	2.32	2.17	.....	22 95
4149	Same	Orchilla Guano.....	.....	5.49	12.04	.....	.....	.....	.....	12 71
4150	Same	National Wheat and Grass Grower	6.56	2.06	1.70	2.16	2.62	2 03	.....	22 92

JUNE 1, 1898.

M. A. SCOVELL, Director.
A. M. PETER.
H. E. CURTIS.

4177	Same	H. S. B. Acidulated Bone and Potash.....	8.80	1.86	2.43	1.12	1.36	.....	2.06	22 94
4178	Same	H. S. B. Raw Bone and Phosphate Mixture.....	3.03	6.43	5.94	3.51	4.26	.....	0.74	29 54
4179	Same	H. S. B. Potato Grower.....	3.30	4.22	2.38	3.00	3.64	.....	2.93	26 32
4260	Read Fertilizer Company, Charleston, S. C.....	Read's High Grade Tobacco Grower	3.29	4.60	2.10	1.89	2.29	4.04	.....	23 57
4283	Same	Same	3.17	5.30	2.24	1.76	2.14	4.47	.....	24 50
4261	Same	Alkaline Bone.....	8.33	2.71	1.57	.....	.....	2.47	.....	19 21
4262	Same	Blood and Bone Fertilizer No. 1	4.43	4.52	3.15	1.94	2.36	2.75	.....	24 20
4151	J. F. & W. H. Singer, Nashville, Tenn.....	Singer's Tobacco Grower.....	7.05	3.43	1.65	2.76	3.35	.....	2.63	28 84
4154	Tennessee Chemical Co, Nashville, Tenn.....	Ox Bone with Ammonia and Potash.....	7.47	3.25	2.11	0.93	1.13	.....	.....	20 69
4197	Same	Ox Special Tobacco Guano	8 61	3.49	1.59	2.08	2.53	2.52	.....	28 04
4198	Same	Ox High Grade Dissolved Bone	12.15	2.42	1.68	.....	.....	.....	.....	14 57
4204	Same	Ox Special Wheat and Grass Guano	10.59	2.93	1.93	1.24	1.51	1.59	.....	26 15
4216	Same	Ox Alkaline Bone	6.24	4.39	1.24	.....	.....	2.27	.....	18 22
4217	Same	Ox Special Corn Guano	11.44	3.47	1.55	1.31	1.59	1.69	.....	28 27
4142	S. W. Travers & Company, Richmond, Va.....	Capital Dissolved S. C. Bone..	7.97	3.36	2.44	.....	.....	.....	.....	11 33
4143	Same	Travers Dissolved Bone Phosphate	12.09	1.99	2.32	.....	.....	.....	.....	14 08
4144	Same	Capital Bone Potash Compound	7.33	2.31	1.80	.....	.....	1.70	.....	16 44

TABLE II.—Complete Fertilizers, Superphosphates, Etc.—Continued.

Station Number.	NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	POUNDS IN THE HUNDRED.						Estimated Value per Ton.	
			Phosphoric Acid.			Nitrogen.	Equivalent to Ammonia.	Potash.		
			Soluble.	Reverted.	Insoluble.					From Muriate.	From Sulphate.
4166	North-Western Fertilizing Co., Chicago, Ill.....	Horse Shoe Brand Tobacco Grower.....	3.02	5.55	3.17	3.37	4.09	...	3.21	29 88
4167	Same.....	H. S. B. Ky. Tobacco Grower..	3.98	2.74	1.66	2.58	3.13	.....	2.01	22 08
4168	Same.....	H. S. B. Corn and Wheat Grower.....	6.08	3.73	2.37	2.29	2.78	.....	1.71	25 33
4169	Same.....	H. S. B. Acidulated Bone.....	7.09	2.67	3.01	1.38	1.68	.....	.....	20 00
4170	Same.....	H. S. B. Bone and Potash.....	8.96	2.21	2.85	0.61	0.74	.....	1.12	20 78
4172	Same.....	H. S. B. Quick Acting Phosphate.....	12.13	2.72	3.90	.....	.....	.....	.....	14 85
4173	Same.....	H. S. B. Dissolved Bone Phosphate.....	8.51	2.06	2.39	1.43	1.74	.....	.....	21 01
4174	Same.....	H. S. B. Challenge Corn Grower	3.54	4.79	2.15	3.03	3.68	.....	1.81	25 88
4175	Same.....	H. S. B. Ky-Ana Phosphate...	5.09	1.90	2.21	1.49	1.81	.....	.....	16 12
4176	Same.....	H. S. B. Prairie Phosphate.....	3.84	2.22	4.35	2.20	2.67	.....	1.60	20 60

4141	J. B. Jones, Louisville, Ky.	Tobacco and Potato Grower.....	7.71	3.13	1.94	2.83	3.44	.....	7.62	36 73
4214	Same.....	Kentucky Phosphate.....	4.71	5.24	2.93	2.68	3.25	3.61	.....	29 11
4125	The Jones Fertilizing Co., Cincinnati, O.....	Acidulated Bone Meal.....	2.80	6.46	7.01	5.09	6.18	.....	.....	34 30
4127	Same.....	Bone and Potash.....	2.44	3.91	2.84	1.50	1.82	.....	4.85	22 35
4129	Same.....	Jones Reliable Phosphate.....	2.88	4.35	2.83	1.50	1.82	.....	2.08	19 70
4130	Same.....	Jewel Phosphate.....	2.62	5.71	2.58	0.90	1.09	.....	.....	16 10
4201	Same.....	Miami Valley Phosphate.....	3.07	6.70	5.17	3.44	4.18	.....	3.47	33 17
4202	Same.....	Tobacco and Potato Grower.....	4.27	5.60	3.22	3.88	4.71	.....	7.13	38 99
4215	The Loudonback Fertilizer Co., Urbana, O.....	Urbana Bone Phosphate and Potash.....	7.04	3.05	2.52	1.18	1.43	2.37	.....	22 36
4158	The Louisville Fertilizer Works, Louisville, Ky.....	Potato and Tobacco Grower.....	2.74	7.39	3.58	2.53	3.07	.....	3.23	29 35
4203	Same.....	Special Tobacco and Corn Grower.....	5.09	5.97	1.92	0.95	1.15	.....	2.55	23 34
4221	Michigan Carbon Works, Detroit, Mich.....	Homestead Corn and Wheat Grower.....	6.69	3.66	1.29	2.54	3.08	3.29	.....	27 98
4274	Same.....	Same.....	9.15	1.29	0.72	2.33	2.83	1.94	.....	25 47
4222	Same.....	Homestead Tobacco Grower.....	10.25	0.09	0.18	3.40	4.13	3.98	.....	31 25
4225	Same.....	Acid Phosphate.....	5.69	7.50	1.61	.....	.....	.....	.....	13 19
4226	Same.....	Red Line Ammoniated Phos- phate.....	6.22	2.58	2.33	1.80	2.19	.....	.....	19 79
4227	Same.....	Red Line Phosphate with Pot- ash.....	1.77	9.28	1.68	.....	.....	2.91	.....	19 80
4228	Same.....	Red Line Complete Manure.....	2.26	6.86	2.62	1.26	1.53	2.08	.....	20 99

Commercial Fertilizers.