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Commercial fertilizers

B. H. Hite

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West Virginia Agricultural Experiment Station.

MORGANTOWN, W. VA.

COMMERCIAL
FERTILIZERS.

By B. H. HITE.

DECEMBER, 1895.

CHARLESTON, W. VA.
MOSES W. DONNALLY, PUBLIC PRINTER
1896.

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Introduction.

The great majority of our farmers understand the meaning of a fertilizer analysis and are being guided largely by such analyses in the selection of their fertilizers. To such farmers the following pages will contain little that is new, except the tables containing the fertilizer analyses for the year. The rest was written for those of our farmers who do not yet understand such analyses, and who are, consequently, still at the mercy of the dealer; and if in these few pages accompanying our usual fertilizer bulletin, such farmers should find anything that will induce them to make the little effort necessary to understand such analyses, the object in writing them will have been attained.

The Inspector for 1895 takes this opportunity to thank the dealers for the uniform courtesy and kindness received at their hands.

B. H. HITE,

Chemist W. Va. Agr. Expt. Station and
Inspector of Commercial Fertilizers for 1895.

Phosphates.

Some of our farmers do not understand the terms "soluble," "insoluble," "reverted" and "available" phosphoric acid, and the Inspector was asked repeatedly to explain these terms in our next fertilizer bulletin. We will attempt to do so.

There are three kinds of calcium phosphate or phosphate of lime, known as the "soluble," "insoluble" and "reverted" forms. The first is soluble in water and may be taken up at once by the plant. The second is insoluble in water, but is rendered soluble in the course of a long time by the action of the soil. The "reverted" form is insoluble in water, but is readily rendered soluble by the action of the soil. The "soluble" and "reverted" constitute the "available."

All three forms are to be found in the soil, the insoluble in large quantities, the available in very small quantities, and the supply of the available is being continually decreased by the growing crops. It is being continually replenished by the action of the soil on the insoluble phosphate, but this, as we have said is a slow process,—too slow for modern methods of farming on average soil. A much more rapid method is needed.

This insoluble phosphate of lime is readily converted into the available form by treating it with a strong acid such as oil of vitrol,

but of course this method cannot be applied to the phosphate already in the soil. The best that can be done is to obtain the insoluble phosphate from some other source, treat it with the acid and apply it to the soil as a fertilizer. Fortunately, there are large deposits of this rock in various parts of the world. The principal ones developed in this country are in South Carolina, Florida and Tennessee. If this rock were ground up and applied to the soil, it would become available *in time*, just as the insoluble phosphate that is already in the ground. To make it available *at once*, it is treated with an acid, when it becomes the "Acid Phosphate or "Dissolved S. C. Phosphate," etc., of commerce. Sometimes it is called dissolved S. C. "*bone*," or dissolved "*bone*" phosphate, but this is only an attempt to deceive, for there is not a bone used in its manufacture. The only excuse for using the word bone is that these phosphate deposits were formed from bones and animal rubbish. But this was a thousand, thousand years ago; there is no nitrogenous or organic matter left.

There are fertilizers made by treating bones with an acid. These of course, contain ammonia (or nitrogen) because the bones contain a large amount of nitrogenous matter. They also contain a large amount of organic matter. This nitrogenous and organic matter makes such fertilizers much more valuable than those made from the phosphate rock, but both contain phosphoric acid, and phosphoric acid is phosphoric acid no matter where it comes from.

There is a law in some States restricting the use of the word "bone" to fertilizers made from bones. We have no such law in this State, but our farmers need not be deceived if they will bear in mind the fact that fertilizers made from bones (excepting bone ash or bone black) necessarily contain nitrogen.

Farm Manure.

So much has been written on the subject of farm manure and the importance of taking proper care of it, that we are almost ashamed to have to refer to it again, but the questions that the Inspector was asked during his tour of the State, leave little room for doubt that a great deal more will have to be written, or that what has been written will have to be repeated many times. So many of our farmers still prefer to waste the farm manure (by taking little or no care of it, or by making poor use of it) and pay out a very respectable per cent. of the available proceeds of one crop to buy fertilizers for the next. Now, we believe that it is necessary to use commercial fertilizers pretty liberally in our little mountain State. It is the *judicious* use of them that we are pleading for. A well conducted farm ought to furnish a large per cent. of the fertilizers required for it.

Good farm manure contains about two per cent. each of phosphoric acid, potash and nitrogen, and is very rich in organic matter. Its weak point as a complete fertilizer is the phosphoric acid, which should be about eight to ten per cent. Now, it so happens

that, one of the cheapest fertilizers on the market, acid phosphate or dissolved S. C. Rock contains no organic matter, but is rich in phosphoric acid. A good acid phosphate costs about \$15. This mixed (or used separately) with about an equal amount of good stable manure makes a most excellent complete fertilizer. The two tons of the mixture would be equal to about \$40 worth of commercial fertilizer. The acid phosphate is the only part of the mixture that costs the farmer anything, it being about as easy to save the farm manure as it is to let it go to waste.

Chicken manure runs a little higher than stable manure in phosphoric acid, potash and nitrogen, has a more uniform composition and is more easily mixed and handled. Like stable manure it is weak in phosphoric acid, and mixed with an equal part of an acid phosphate it makes a good, complete fertilizer.

While engaged in the inspection work we were told, time and again, that "Plenty of good stable manure will insure a crop of anything." And so it will, but such a method of using it is about as rational as the prescriptions of some young physicians, who, not knowing just what their patient needs, prescribe almost everything in the pharmacopæ. Stable manure contains a little of everything used in the manufacture of fertilizers, but no crop requires such an array of food stuffs in any considerable quantity. Certain crops on certain soils may require the principal ingredients of farm manure in about the proportion they are contained in it, but most crops require a higher per cent. of some particular ingredient, and to supply this by using more of the manure is a waste of the other ingredients. In such cases, less of the stable manure should be used and the particular ingredient added to it.

Selecting Fertilizers. Appearance, Odor, Etc.

There are two practical methods of estimating the value of a fertilizer. One is to use it, and the objections to this method are obvious. The fertilizer may be a very good one of its kind, and yet be very poorly adapted to the crop or soil on which it is used. And then, the season may be such as to completely conceal the effects of the fertilizer. The principal objection to this method is that by the time one has arrived at a conclusion it is too late to reject the fertilizer should it prove unsatisfactory. This method, however, has its advantages, and conclusions of great value may often be reached in spite of the irregularity of the season. Fertilizers should always be used in such a way that some conclusions may be drawn in regard to them. Every farm should, in a sense, be an experimental farm.

The other method, which is the only practical one for our present purpose, is to make a chemical analysis of the fertilizer. Then, and not until then, we know just what it contains, just what it is worth, just what to expect of it. Our law provides for such an examination, and there is no reason why our farmers should not always know just what they are buying. The only objection (if it may be

called an objection) to this method is that some of our farmers do not yet know the meaning of the chemical analyses, and do not make the little effort necessary to inform themselves. Such farmers still prefer to select fertilizers with their noses. The dealer shows them a number of samples (which have been provided with a odor for the purpose) the farmer shakes the bottle, removes the cork, smells the goods and buys the one that smells the loudest for the money.

It is true that a strong odor may be due to decaying nitrogenous matter. But suppose it is. It really gives no idea as to the *amount*, for a very little decaying nitrogenous matter goes such a long way in this respect. The one ten thousandth part of one per cent. of nitrogen in proper combination would thoroughly scent the whole mass.

With the possible exception of ground bone, little or nothing can be told about a fertilizer by the appearance or odor. Many farmers seem to think that a ground bone should be of a very light color, and practically odorless. The Inspector never found such a bone on sale, but some one would speak of it as "a very pretty bone." Now, any one can form a pretty correct idea as to the appearance of a pure ground raw bone. It is not colorless and it is not odorless. If it is so, it has been steamed, or treated in some way to remove the oily nitrogenous matter, which is really the most valuable constituent of the bone. This, however, is often extracted because it brings a good price at the soap and candle factories, and it seems that manufacturers can often get as much for such an extracted bone as they can for one that has not been extracted, on account of the improved appearance.

The Tags.

The best way to tell anything about a fertilizer is to make a chemical analysis of it. Even the manufacturers have to resort to this method. As we have said, little or nothing can be told by the appearance of a fertilizer, and about all that can be told by the odor is whether or not there is something rotten in it, and until our State passed a law requiring an accurate chemical analysis to accompany the goods, this was about all our farmers could tell about them,—that is, whether or not there was something rotten in them. But with our present fertilizer law, if a farmer is ever deceived in his fertilizers, it is no body's fault but his own. The tags are the farmers' protection—his best protection. If he chooses to overlook them, or to remain in ignorance of what they mean, or to buy goods that are not properly tagged, we see no way to help him. The analyses and valuations are made out with the greatest care, and the tags contain all the data necessary to enable one to buy fertilizers intelligently. A great majority of our farmers either know, or are making an effort to find out what the tags mean, and are using their knowledge of the subject to the very best advantage. In some of our best farming sections the farmers

study the analyses as carefully as do the dealers who tell us that if their goods fall short as much as one per cent. in phosphoric acid, potash, or nitrogen, they may lose the sale of fifty tons in a season.

The law requires that there be a tag attached in a conspicuous place, to every parcel or package of commercial fertilizer or material used for manurial purposes that is offered or exposed for sale in the State. The manufacturers usually attend to putting the tags on the sacks because it is more convenient for them to do it, but it is the agents or dealers who are held responsible by the law for the tags being in place. Should the manufacturers neglect to put the tags on, or to send them with the goods, it is the dealers' misfortune, but it does not in any way excuse him, should he offer or expose the goods for sale.

The object of the law is to protect the farmers. By a violation of the law the farmers have nothing to gain, everything to lose. If farmers do not find goods properly tagged, they may rest assured there is something wrong. The dealer is not going to run the risk of violating the law without a reason for doing so, and there is little reason for the farmers to believe that their interests have received much consideration in the matter. Have nothing to do with goods not properly tagged.

Relative Commercial Value.

The relative commercial value is the price at which farmers ought to be able to buy the goods at an average point in the State. It is based of course, on the analysis of the goods, but it is also supposed to allow for freight at an average point in the State, and to leave the dealer a profit of about twenty per cent.

Freights of course vary in different parts of the State. For example, at Parkersburg or Martinsburg, which are on main trunk lines, freights will be lower, and our valuations will be a little too high; while at Buckhannon and Davis, where freights are beyond all reason, the valuations will be much too low.

So far as we have been able to learn, the average profit of the dealers is about twenty per cent., for cash; some of the larger dealers being contented with smaller profits, while some of the smaller dealers want a great deal more. But this is not always the case. There are dealers doing a big business who are making perhaps a hundred per cent. or more. While inspecting some goods that had probably cost one of our larger dealers about fourteen dollars, the inspector noticed that all the tags had been torn off but one, which evidently had been overlooked. A piece of a tag was left on some of the bags, the part containing the valuations being torn off. We managed to get their prices on this brand, which proved to be about what we had expected, "\$28 wholesale, higher figures on smaller lots." And in this connection we beg to repeat that to offer or expose fertilizers for sale, not properly tagged, is a direct violation of the law, and that it is not necessary for dealers to go

to the trouble and risk of violating the law in order to promote the farmers' interests.

The valuations are only relative, but they are not far from the figures at which dealers could sell, if they chose to do so. The valuations necessarily vary from year to year with the price of the materials used in their manufacture. Each year we adopt a system or scale, according to which all valuations for the year are calculated. This scale of valuation is based on the most reliable information that we can obtain as to the actual cost of the materials used. As *relative* valuations our figures are undoubtedly right, all being calculated on the same basis. As *absolute* valuations they are as close as we know how to adjust them.*

Dealers frequently tell us that our valuations are too low, and are anxious to show us their bills and books, that we may see just what they have to pay for their goods. These dealers are doubtless sincere. The trouble is that the manufacturers are charging them too much, and it is one of the objects of the law, as we understand it, to induce manufacturers, as well as dealers, to sell at reasonable figures, or get out of the market.

In concluding this subject, we would say on behalf of our valuations, that there are a number of the oldest and most reliable manufacturers in the land who tell us that they will be only too glad to deliver, at our valuations, any quantity of any class or grade of fertilizers at any reasonable point in the State.

Inspection Law.

Our law authorizes the Director of the Experiment Station to prescribe such rules and regulations as he may deem necessary to carry fully into effect the true intent and meaning of the law. Without some such provision as this it would be an easy matter for manufacturers to "doctor" the samples which they send to us, until

* NOTE.—Our valuations of Ground Bone during the past year were 67 cents per ton less than the actual average price at which Ground Bones were sold in W. Va. Our valuations of Acid Phosphate were 55 cents per ton higher, and our valuations of mixed goods were 85 cents per ton higher than the actual average price at which fertilizers were sold at retail, for cash, during the past year in this State.

Our valuations for the coming year will be corrected accordingly, so that if a farmer can not secure the fertilizer at our quotations, he should investigate the causes leading to extra charges.

Our valuations allow for \$2.50 per ton freight, and 20 per cent. commission, calculated upon the capital invested in the fertilizer.

The valuations for 1896, will be as follows:

FOR MIXED FERTILIZERS.

Available Phosphoric Acid.....	3½ cents per lb.
Insoluble Phosphoric Acid.....	2 cents per lb.
Nitrogen.....	21 cents per lb.
Potash.....	6 cents per lb.

FOR BONES.

Total Phosphoric Acid.....	2½ cents per lb.
Nitrogen.....	13 cents per lb.

ACID PHOSPHATES.

Available Phosphoric Acid.....	3½ cents per lb.
Insoluble Phosphoric Acid.....	2 cents per lb.

Add \$2.50 per ton freight.

Add 20 per cent. commission on money invested including freight.

JOHN A. MYERS,
Director.

they would show a much higher analysis and valuation than the goods they are supposed to represent. Some manufacturers, it seems, have discovered this fact. And some of the dealers have discovered in case the tags make it a difficult matter to sell fertilizers at two prices that it is an easy matter to tear off the tags or to "forget" to put them on. We propose to do everything in our power to make this evasion of the law unprofitable.

There seems to be a pretty general misunderstanding as to who is responsible when the law is violated. The dealers seem to think it is the manufacturers in almost every case, while as a matter of fact, *it is the dealer that is responsible in almost every case.* The manufacturer is *responsible for the quality of the goods*, provided they have not been tampered with by the dealer. *It is the dealer who is responsible if the goods have not been registered, or if they are not properly tagged.* Our State can not make laws for fertilizer manufacturers in Baltimore any more than it can make laws for brewers in Cincinnati, but just as our State can make laws regulating the sale of alcohol *in the State*, so it can make laws regulating the sale of commercial fertilizers, and *it is upon the parties handling the goods in the State—the dealers—that the penalties of the law must fall.* They must see that fertilizers come into their hands properly tagged and analyzed.

An Inspector has been in the field this year, from time to time, since the 1st of May. By far the greater part of our fertilizers are shipped into the State and sold during a very short period in the Spring and Fall, and it is difficult for one Inspector to reach all the points in the State where fertilizers are on sale during these short periods. Farmers and honest dealers could greatly assist in this work. They are the people who are benefitted by it. They would only need to let us know who is selling goods that are not properly tagged, and if convenient, the name of the brand. Such communications shall be strictly confidential, if so desired.

Analyses of Commercial Fertilizers for 1895.

The following table contains the analyses of all brands that have been registered in this State this year. It also contains the manufacturer's guaranteed analyses and the analyses of the samples collected by the Inspector. These are all arranged in parallel columns so that they may be readily compared. The first column contains the names of the manufacturers. Their addresses appear at the end of the table. The remaining columns contain the analyses and valuations and are arranged in groups of three columns each. The first group of three columns is devoted to Total Phosphoric Acid; the second, to Available Phosphoric Acid; the third to Nitrogen; the fourth to Potash; and the fifth to valuations.

The first column in each group contains the figures guaranteed by the manufacturers. These figures are all obtained from the affidavits.

The second column of each group contains the figures obtained

by analyzing the sample submitted by the manufacturers, which sample they make oath is a fair sample of the goods they will ship into the State. These figures in the second columns are, of course, the same as those found on the tags.

The third columns in the groups contain the analyses of the samples collected by the Inspector.

The valuations are all calculated on the same basis. Those in the first column are calculated from the manufacturer's guaranteed analysis. Those in the second column from the analyses of the official sample. Those in the third column from the analyses of the Inspector's samples. We trust this arrangement will be found convenient.

The analytical work was done by B. H. Hite, G. Wm. Gray and T. F. Watson.

TABLE I.

Showing the Manufacturers' Guaranteed Analyses, the Analyses of Official Samples and the Analyses of the Inspector's Samples for 1895.

NAME OF MANUFACTURER.	NAME OF BRAND.	Total Phosphoric Acid Guaranteed.			Total Phosphoric Acid in Official Sample.			Available Phosphoric Acid in Inspector's Sample.			Nitrogen.		Potash.		Valuations.		
		Total Phosphoric Acid in Official Sample.	Total Phosphoric Acid in Inspector's Sample.	Total Phosphoric Acid in Inspector's Sample.	Available Phosphoric Acid in Guaranteed.	Available Phosphoric Acid in Official Sample.	Available Phosphoric Acid in Inspector's Sample.	Nitrogen in Official Sample.	Nitrogen in Inspector's Sample.	Potash Guaranteed.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation Calculated from Guaranteed Analysis.	Valuation of Official Sample.	Valuation of Inspector's Sample.		
Allison & Addison, Richmond, Va.	Acid Phosphate.	13.00	15.84	15.88	12.00	14.14	14.95	2.47	2.40	1.50	2.27	1.87	12.60	15.16	15.51		
Allison & Addison, Richmond, Va.	Anchor Brand Tobacco Fert.	10.50	11.87	10.54	8.50	10.04	9.08	1.26	2.11	1.25	1.38	1.87	26.87	28.94	27.08		
Allison & Addison, Richmond, Va.	Star Brand Guano.	9.00	12.39	10.54	8.00	10.23	9.08	2.00	2.89	1.00	1.65	1.87	22.03	26.98	27.08		
Amour & Co., Chicago, Ill.	Ammo. Bone and Potash.	10.00	12.52	7.00	7.00	8.90	8.90	5.76	5.81	1.00	1.65	1.87	33.40	30.42	30.42		
Amour & Co., Chicago, Ill.	Bone and Blood.	9.00	14.65	5.00	5.00	8.90	8.90	2.50	2.88	1.00	1.65	1.87	35.59	41.17	41.17		
Amour & Co., Chicago, Ill.	Bone Meal.	25.00	26.61	11.50	11.50	13.98	13.98	2.50	2.88	1.00	1.65	1.87	31.00	37.63	37.63		
Atlantic & Va. Fer. Co. Richmond, Va.	Eureka Acid Phosphate.	?	16.22	10.00	10.00	15.02	15.02	2.06	2.09	2.00	2.45	2.29	25.02	28.29	28.29		
Atlantic & Va. Fer. Co. Richmond, Va.	Eureka Ammo. Bone for Tobacco.	?	12.23	8.00	9.00	10.58	10.58	1.65	1.45	2.00	2.88	2.29	32.33	35.58	35.58		
Atlantic & Va. Fer. Co. Richmond, Va.	Eureka Ammo. Bone Superphos.	?	11.65	8.00	10.00	10.12	10.12	1.65	1.45	2.00	2.88	2.29	32.33	35.58	35.58		
Atlantic & Va. Fer. Co. Richmond, Va.	Eureka Bone and Potash Comp.	?	14.65	10.00	10.00	13.54	13.54	1.65	1.45	2.00	3.09	2.29	16.40	21.88	21.88		
Atlantic & Va. Fer. Co. Richmond, Va.	Crenshaw's Acid Phosphate.	?	16.24	13.00	13.00	15.16	15.16	1.58	1.58	5.14	5.14	5.14	13.00	15.81	15.81		
Atlantic & Va. Fer. Co. Richmond, Va.	Richmond Special Mixture.	?	11.84	10.00	10.00	10.14	10.14	1.58	1.58	5.14	5.14	5.14	13.00	15.81	15.81		
Baker, E. J. & Co., Baltimore, Md.	Pure Dissolved S.C. Phosphate.	16.00	15.95	14.00	14.00	14.34	14.34	1.23	1.46	2.00	1.91	2.29	15.20	15.31	15.31		
Baltimore Guano Co., Baltimore, Md.	Bl. G. Ammo. Bone Phosphate.	10.00	10.56	11.32	8.00	8.96	8.63	1.23	1.46	2.00	1.91	2.29	15.20	15.31	15.31		
Baltimore Guano Co., Baltimore, Md.	Delance Bone.	13.00	13.19	11.00	11.00	11.52	11.52	1.23	1.46	2.00	3.24	2.29	18.60	20.41	20.41		
Baltimore Guano Co., Baltimore, Md.	Dissolved Bone Phosphate.	15.00	16.02	13.00	13.00	13.33	13.33	2.11	2.93	2.50	2.53	2.53	25.46	31.53	31.53		
Baltimore Guano Co., Baltimore, Md.	Game Guano.	10.00	11.88	9.00	9.00	10.15	10.15	2.05	2.05	2.33	0.50	1.49	24.24	26.51	27.29		
Baugh & Sons Co., Baltimore, Md.	Double Eagle Phosphate.	11.00	13.09	12.67	8.00	8.15	9.58	2.05	2.05	3.84	0.50	1.49	24.24	26.51	27.29		
Baugh & Sons Co., Baltimore, Md.	Double Eagle Phosphate.	11.00	13.09	12.46	8.00	8.15	9.58	1.64	2.42	2.62	2.00	2.82	2.10	27.48	27.48		
Baugh & Sons Co., Baltimore, Md.	Export Bone-with Potash.	11.00	12.39	12.04	8.00	10.39	8.95	1.82	1.03	1.58	1.00	2.25	16.17	22.23	23.29		
Baugh & Sons Co., Baltimore, Md.	General Crop Grower.	?	11.73	11.48	8.00	10.39	8.95	1.82	1.03	2.26	1.00	2.25	17.17	22.23	23.29		
Baugh & Sons Co., Baltimore, Md.	General Crop Grower.	?	11.73	11.48	8.00	10.39	8.95	1.82	1.03	2.26	1.00	2.25	17.17	22.23	23.29		

TABLE I.—Continued.

NAME OF MANUFACTURER.	NAME OF BRAND	Total Phosphoric Acid.			Available Phosphoric Acid.			Nitrogen.			Potash.			Valuations.		
		Total Phosphoric Acid Guaranteed.	Total Phosphoric Acid in Official Sample.	Total Phosphoric Acid in Inspector's Sample.	Available Phosphoric Acid Guaranteed.	Available Phosphoric Acid in Official Sample.	Available Phosphoric Acid in Inspector's Sample.	Nitrogen Guaranteed.	Nitrogen in Official Sample.	Nitrogen in Inspector's Sample.	Potash Guaranteed.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation Calculated from Guaranteed Analyses.	Valuation of Official Sample.	Valuation of Inspector's Sample.
Baugh & Sons Co., Baltimore, Md.	Pure Diss. Animal Bone	14.00	17.36	16.41	10.00	13.24	14.86	3.00	3.40					26.77	33.99	
Baugh & Sons Co., Baltimore, Md.	High Grade Acid Phos.	15.00	15.93	15.83	14.00	15.04	14.86							14.60	15.57	15.80
Baugh & Sons Co., Baltimore, Md.	High Grade Acid Phos.	15.00	15.93	15.83	14.00	15.04	14.86							14.60	15.57	15.80
Baugh & Sons Co., Baltimore, Md.	Pure Raw Bone Meal	21.50	22.86	22.83	10.00	13.60	14.95	3.18	4.15	3.84	2.00	4.25		27.73	31.25	30.31
Baugh & Sons Co., Baltimore, Md.	Soluble All-alkaline Superphos.	?	14.29		10.00	13.60								16.40	33.11	
Boal, Wm. M., Ronceverte, W. Va.	Ground Animal Bone		23.07						3.97						31.16	
Bonday, James Jr. & Co., Balt., Md.	Old Reliable Br'd Genl'l's Kainit															
Bowker Fertilizer Co., Boston, Mass.	Acid Phosphate	13.00	16.53		11.00	13.56					12.40	12.53		14.88	15.14	
Bowker Fertilizer Co., Boston, Mass.	Fresh Ground Bone	18.00	25.24		5.00	12.23								12.20	15.35	
Bowker Fertilizer Co., Boston, Mass.	Superphosphate with Potash	12.00	15.30		10.00	12.46		2.50	2.78		1.00	3.32		27.30	36.31	
Bowker Fertilizer Co., Boston, Mass.	Sure Crop Phosphate	10.00	10.12		8.00	10.30		.62	1.06		1.00	1.38		16.40	22.15	
Bradley Fertilizer Co.	*Bradley's Potato Fertilizer.		14.80							2.17			3.44	18.86	23.10	
Chemical Co. of Canton, Balt., Md.	Baker's Special W. C. & G. Mixt.	10.00	11.59		9.00	9.83	10.64	.82	1.17		2.00	2.22		20.43	23.46	
Chemical Co. of Canton, Balt., Md.	Gem Phosphate	15.00	15.94		13.00	14.54								14.20	15.38	
Chemical Co. of Canton, Balt., Md.	Potato Manure	10.00	11.64	12.24	8.00	10.36	11.11	.82	1.37	1.21	4.50	3.69	5.10	23.01	26.31	21.91
Chemical Co. of Canton, Balt., Md.	Pure Diss. S. C. Bone	15.00	15.69		13.00	14.05								14.20	15.05	
Chemical Co. of Canton, Balt., Md.	Soluble Bone and Potash	11.00	11.77		10.00	10.10					2.00	2.60		17.00	18.22	
Chemical Co. of Canton, Balt., Md.	Virginia High Grade	10.00	8.49		8.00	7.07		2.00	3.52		1.50	2.15		24.40	30.23	
Chesapeake Guano Co., Balt., Md.	Dissolved Bone Phosphate	?	15.58		14.00	14.89								14.00	15.30	
Cincinnati Desiccating Co., Cin., O.	Acidulated Bone	19.00	19.75		12.00	16.31		3.70	4.16					35.74	39.15	
Cincinnati Desiccating Co., Cin., O.	*Complete Garden Truck		13.57				12.92			2.89			5.67	25.66	27.57	37.79
Cincinnati Desiccating Co., Cin., O.	Fine Ground Bone	20.00	21.14					3.38	3.33					25.66	27.57	
Cincinnati Desiccating Co., Cin., O.	Gilead	12.00	11.67	13.77	9.00	6.23	11.35	2.50	3.07	3.41	2.00	2.35	2.22	28.70	30.32	34.79
Cincinnati Desiccating Co., Cin., O.	Gold and Silver	12.00	13.71		12.00	13.16								12.00	13.49	
Cincinnati Desiccating Co., Cin., O.	Ohio Valley	11.00	11.25		8.00	7.08		1.65	2.34		2.00	1.75		21.13	26.51	
Cincinnati Desiccating Co., Cin., O.	Phoenix	10.00	11.32		8.00	6.24		1.63	2.21		1.00	1.06		22.33	24.84	
Cincinnati Desiccating Co., Cin., O.	Tobacco and Potato	11.00	12.72	13.15	9.00	10.09	11.65	3.33	4.40	3.72	5.00	5.28	5.74	35.19	41.43	40.06

TABLE I.—Continued.

NAME OF MANUFACTURER	NAME OF BRAND.	Total Phosphoric Acid.			Available Phosphoric Acid.			Nitrogen.		Potash.		Valuations.					
		Total Phosphoric Acid Guaranteed.	Total Phosphoric Acid in Official Sample.	Total Phosphoric Acid in Inspector's Sample.	Available Phosphoric Acid Guaranteed.	Available Phosphoric Acid in Official Sample.	Available Phosphoric Acid in Inspector's Sample.	Nitrogen Guaranteed.	Nitrogen in Official Sample.	Nitrogen in Inspector's Sample.	Potash Guaranteed.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation Calculated from Guaranteed Analyses.	Valuation of Official Sample.	Valuation of Inspector's Sample.	
Cleveland Dryer Co., Cleveland, O.	Buckeye Ammo Bone Superphos	11.00	13.36	13.73	9.00	11.46	10.74	2.46	3.07	1.91	1.00	.17	36.78	30.70	21.56	6.14	
Cleveland Dryer Co., Cleveland, O.	Buckeye Ammo Bone Superphos	11.00	13.36	12.88	9.00	11.46	11.27	2.46	3.07	2.46	1.00	.17	36.78	30.70	26.42	4.28	
Cleveland Dryer Co., Cleveland, O.	Ohio Seed Maker	15.00	15.24	15.19	10.00	13.12	1.49	1.23	1.55	1.03	1.00		22.19	21.92	23.30	1.62	
Cleveland Dryer Co., Cleveland, O.	Potato and Vegetable	10.00	12.35	10.63	8.00	10.57	8.29	3.28	3.38	3.55	4.00	4.71	3.00	32.81	36.48	32.36	4.12
Cleveland Dryer Co., Cleveland, O.	Potato and Vegetable	10.00	12.35	12.28	8.00	10.57	8.35	3.28	3.38	3.57	4.00	4.71	2.98	32.81	36.48	31.25	5.20
Cleveland Dryer Co., Cleveland, O.	Phospho Bone	15.00	15.61	15.61	10.00	12.31		0.65	.98		1.00	1.24	13.80	21.90			
Cleveland Dryer Co., Cleveland, O.	Square Bone	20.00	20.54	13.56	6.00	12.77	9.95	2.46	3.01	2.42			28.78	31.17	26.28	7.89	
Cleveland Dryer Co., Cleveland, O.	Square Bone	20.00	20.54	12.74	6.00	12.77	10.58	2.46	3.01	2.33			28.78	31.17	25.73	8.34	
Cleveland Dryer Co., Cleveland, O.	Square Bone	20.00	20.51	13.15	6.00	12.77	10.22	2.46	3.01	2.07			28.78	31.17	24.66	9.51	
Cleveland Dryer Co., Cleveland, O.	Superior Bone Meal	22.00	23.31	20.83				3.71	4.34	2.99			19.47	32.51	26.23	6.31	
Cleveland Dryer Co., Cleveland, O.	XXX Phosphate	15.00	17.27	15.98	13.00	12.66	14.75						14.20	15.46	15.49	.03	
Crocker Fert & Chem Co, Buffalo, N. Y.	General Crop Phosphate	8.00	9.87		7.00	7.48		.82	1.06		1.08	1.45	17.31	20.10			
Crocker Fert & Chem Co, Buffalo, N. Y.	New Rival Ammo Superphos.	11.00	12.68		10.00	10.67		1.20	1.34		1.60	2.10	22.56	25.13			
Crocker Fert & Chem Co, Buffalo, N. Y.	Universal Grain Grower	8.00	8.45		7.00	7.58		.82	1.05		2.70	3.11	19.28	22.24			
Detrick Fert & Chem Co, Balt., Md	Ammo, Bone Phosphate	11.00	14.76		9.00	11.72		1.25	1.36		1.00	1.19	21.05	25.08			
Detrick Fert & Chem Co, Balt., Md	Dissolved S. C. Bone	15.00	16.34		14.00	15.63							14.01	16.16			
Detrick Fert & Chem Co, Balt., Md	Pure Fine Ground Bone	20.00	24.35					3.00	3.75				23.56	28.08			
Detrick Fert & Chem Co, Balt., Md	Soluble Bone Phos and Potash	12.00	14.46	12.67	10.00	13.40	11.29				2.00	1.88	17.60	20.25	18.54	1.75	
Detrick Fert & Chem Co, Balt., Md	Soluble Bone Phos and Potash	12.00	14.46	10.86	10.00	13.40	10.13				2.00	1.88	17.60	20.25	17.77	2.52	
Detrick Fert & Chem Co, Balt., Md	Wheat Fertilizer	12.00	15.01		10.00	12.62		1.00	1.09				19.40	22.63			
Detrick Fert & Chem Co, Balt., Md	Vegetator Am Bone Superphos	12.00	15.32		10.00	12.75		2.00	2.03		1.50	1.97	26.40	30.18			
Durham Fertilizer Co, Durham, N. C.	High Grade Acid Phos	11.00	16.00	12.92	10.00	14.91	11.86						11.60	15.62	12.50	3.12	
Eureka Fertilizer Co, Perryville, Md	King's S. C. Bone	15.00	16.25		13.00	13.78							14.20	15.26			
Great Eastern Fert Co, Rutland, Vt	Corn Fertilizer	9.00	12.66	11.04	8.00	10.98	9.47	.82	.99	1.19	4.00	3.71	21.80	25.00	23.21	3.39	
Great Eastern Fert Co, Rutland, Vt	Corn Fertilizer	9.00	12.66	10.81	8.00	10.98	9.65	.82	.99	.99	4.00	3.71	21.80	25.00	23.60	2.00	
Great Eastern Fert Co, Rutland, Vt	English Wheat Grower.	9.00	9.48		8.00	8.70		1.64	1.13		8.00	8.16	22.89	23.69			
Great Eastern Fert Co, Rutland, Vt	Garden Special	9.00	9.50		8.00	8.25		3.28	3.45		8.00	8.16	31.37	33.28			

TABLE I.—Continued.

NAME OF MANUFACTURER.	NAME OF BRAND.	Total Phosphoric Acid in			Available Phosphoric Acid.			Nitrogen.			Potash.			Valuations.		
		Guaranteed.	Official Sample.	Inspector's Sample.	Guaranteed.	Available Phosphoric Acid in Official Sample.	Available Phosphoric Acid in Inspector's Sample.	Nitrogen Guaranteed.	Nitrogen in Official Sample.	Nitrogen in Inspector's Sample.	Potash Guaranteed.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation Calculated from Guaranteed Analyses	Valuation of Official Sample.	Valuation of Inspector's Sample.
Great Eastern Fert Co, Rutland, Vt.	General Soluble Bone & Potash.	?	13.85	13.47	11.00	12.23	10.64				2.00	1.75	2.41	17.40	19.30	19.22
Great Eastern Fert Co, Rutland, Vt.	General Dissolved Bone.	?	15.45	14.98	13.00	10.83	13.73							13.00	13.60	14.48
Great Eastern Fert Co, Rutland, Vt.	Vegetable Vine and Tobacco	?	12.45	11.87	13.00	10.83	13.40							13.00	13.60	14.48
Hess, S. M. & Bro., Philadelphia, Pa.	Emperor Phosphate.	11.00	13.38	11.80	10.00	11.57	10.44	2.50	2.74	2.20	3.25	3.46	3.63	28.00	32.30	29.38
Hess, S. M. & Bro., Philadelphia, Pa.	Keystone Bone Phosphate	9.00	13.77	8.00	10.00	12.90		.82	1.57		1.00	1.81	1.17	16.80	18.91	16.66
Jarecki Chemical Co, Sandusky, O.	*Lake Erie Fish Guano	11.50	13.86	14.96	10.00	11.13	9.15	1.65	1.54	.81	1.00	2.04	1.53	24.03	26.68	22.88
Jarecki Chemical Co, Sandusky, O.	Pure Ground Bone	25.00	27.67					2.90	2.53					29.28	30.23	
Kaufmann & Sons, Indianapolis, Ind.	Celebrated Potash Fertilizer	?	1.96		1.29	1.51					4.04	1.10		10.18	7.10	
Lechlider Bros., Hagerstown, Md.	S. C. Bone	6.00	6.68	5.50	8.00	5.79								5.80	6.32	
Lippitt, W. F., Charles Town, W. Va.	Special Mixt. Ammo Bone Phos.	9.00	11.82		8.00	7.86		1.60	1.13		1.50	2.19		19.73	22.61	
Lister's Agr. Chem. Wks, Newark, N. J.	Crescent Bone Dust	?	14.42		11.00	6.74		2.29	2.82					24.49	27.19	
Lister's Agr. Chem. Wks, Newark, N. J.	Harvest Queen	9.50	12.29		9.50	9.78		1.50	1.89		2.00	2.43		23.20	27.14	
Lister's Agr. Chem. Wks, Newark, N. J.	Standard Superphosphate	10.00	13.73		10.00	11.15		2.85	2.30		1.50	2.12		28.77	29.90	
Lister's Agr. Chem. Wks, Newark, N. J.	U. S. Phosphate	7.00	10.60	11.77	7.00	9.03	9.61	1.60	1.88	2.59	2.00	2.64	2.22	21.12	25.20	29.35
Loudenback Fertilizer Co., Urbana, O.	Urbana Prize Po. & To. Grower.	12.00	12.68	10.00	9.00	9.98		2.68	2.24		6.00	6.65		31.41	34.41	
Loudenback Fertilizer Co., Urbana, O.	Urbana Superphos & Potash	11.00	12.78	15.35	9.00	9.79	12.39	1.64	1.65	2.63	2.50	3.29	3.86	24.40	27.44	34.82
Maryland Fert & Mfg Co, Balt, Md.	Ammoniated Bone	10.00	12.20		9.00	8.71		1.85	2.10		1.50	1.70		24.27	26.66	
Maryland Fert & Mfg Co, Balt, Md.	Dissolved Phosphate	14.00	15.15		13.00	14.22								13.60	14.78	
Maryland Fert & Mfg Co, Balt, Md.	Dissolved S. C. Bone	14.00	15.57		13.00	14.59								13.60	15.18	
Maryland Fert & Mfg Co, Balt, Md.	Globe Complete Manure.	10.00	11.72	11.59	9.00	9.48	9.89	1.44	2.01	2.00	1.50	1.99	1.99	22.45	26.65	26.70
Maryland Fert & Mfg Co, Balt, Md.	Linden Superphosphate.	11.00	13.20		10.00	11.34					2.00	2.21		17.00	19.11	
Maryland Fert & Mfg Co, Balt, Md.	Pure Fine Ground Animal Bone.	21.00	24.19					2.47	4.07					24.70	32.88	
Maryland Fert & Mfg Co, Balt, Md.	Tornado Fertilizer	12.00	13.92		11.00	12.78		.41	.52		3.25	3.31		22.22	24.62	
Mt. Airy Mfg Co, Baltimore, Md.	Piedm't Diss Bone Phos Pot G'ds	11.00	11.80	11.21	10.50	10.33	10.26				1.00	1.03	.53	16.30	16.24	15.47
Mt. Airy Mfg Co, Baltimore, Md.	Piedm't Diss Bone Phos Pot G'ds	11.00	11.80	10.50	10.33	10.44					1.00	1.03	1.18	16.30	16.24	17.07
Mt. Airy Mfg Co, Baltimore, Md.	Piedmont Potato Producer.	7.00	7.67	8.56	5.00	6.63	6.40	2.46	2.09	2.36	6.00	6.91	3.53	28.78	29.32	26.96

TABLE I.—Continued.

NAME OF MANUFACTURER	NAME OF BRAND	Total Phosphoric Acid			Available Phosphoric Acid			Nitrogen		Potash		Valuations.					
		Total Phosphoric Acid Guaranteed	Total Phosphoric Acid in Official Sample.	Total Phosphoric Acid in Inspector's Sample.	Available Phosphoric Acid Guaranteed.	Available Phosphoric Acid in Official Sample.	Available Phosphoric Acid in Inspector's Sample.	Nitrogen Guaranteed.	Nitrogen in Official Sample.	Potash Guaranteed.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation (Calculated from Guaranteed Analyses.	Valuation of Official Sample.	Valuation of Inspector's Sample.		
Mt. Airy Mfg Co, Baltimore, Md	Piedmont Potato Producer	7.00	7.67	7.71	5.00	6.63	6.12	2.46	2.09	1.92	6.00	6.91	5.61	28.78	39.82	26.87	2.45
Mt. Airy Mfg Co, Baltimore, Md	Piedmont Pure Raw Bone Mixture	11.00	8.15		7.00	6.67		1.87	.84		1.00	1.74		19.04	18.17		
Mt. Airy Mfg Co, Baltimore, Md	Piedmont Royal Am. Bone & Pot	7.00	7.48	7.61	6.00	6.33	6.83	1.02	.89	1.15	3.00	3.25	3.43	19.69	19.66	21.24	1.58
Mt. Airy Mfg Co, Baltimore, Md	Piedmont Royal Am. Bone & Pot	7.00	7.48	7.61	6.00	6.33	6.83	1.07	.89	2.39	3.00	3.25	3.38	19.69	19.66	30.01	10.35
Mt. Airy Mfg Co, Baltimore, Md	*Mt. Airy S. C. Bone Phos			16.07			13.95									15.92	
Newburg Fertilizer Co, Cleveland, O	Acene Bone	18.00	22.69		9.00	7.99		2.50	2.16					28.90	29.52		
Newburg Fertilizer Co, Cleveland, O	Ammoniated Phosphate	10.00	11.30	13.60	9.00	11.60	11.05	1.50	1.29	1.13	1.00	1.36	1.23	22.10	25.97	23.81	2.66
Newburg Fertilizer Co, Cleveland, O	Pure Bone Dust	23.00	22.90		6.00	9.68		3.71	4.46					37.14	40.38		
Northwestern Fert Co, Chicago, Ill	"H. S. B." Fine Raw Bone	22.00	23.41	22.86				3.29	4.00	3.92				28.13	31.53	31.83	1.76
Northwestern Fert Co, Chicago, Ill	"H. S. B." Fine Raw Bone	22.00	23.41	21.59				3.29	4.00	3.92				28.13	31.53	29.82	8.29
Northwestern Fert Co, Chicago, Ill	"H. S. B." Garden City Phos	12.00	12.37	13.34	8.00	8.27	8.96	2.05	2.27	2.30	.54	1.12	1.08	21.65	26.61	27.55	.94
Northwestern Fert Co, Chicago, Ill	"H. S. B." Garden City Phos	12.00	12.37	13.34	8.00	8.27	9.94	2.05	2.27	2.17	.54	1.12	.78	21.65	26.61	26.91	.30
Northwestern Fert Co, Chicago, Ill	"H. S. B." Garden City Phos	12.00	12.37	12.20	8.00	8.27	9.16	2.05	2.27	2.44	.54	1.12	1.29	21.65	26.61	27.77	1.16
Northwestern Fert Co, Chicago, Ill	"H. S. B." Potato Grower	9.00	11.94	12.98	7.00	8.06	9.47	2.46	3.06	2.50	2.00	2.81	3.54	25.92	31.65	30.33	1.32
Northwestern Fert Co, Chicago, Ill	"H. S. B." Prairie Phosphate	9.00	11.26	12.22	6.00	6.90	8.15	1.04	1.73	1.92		.35	.35	18.12	22.20	24.08	
Northwestern Fert Co, Chicago, Ill	"H. S. B." Prairie Phosphate	9.00	11.26	10.84	6.00	6.90	7.13	1.04	1.73	.85	.85	.35	.48	18.12	22.20	23.63	
Ober, G. & Sons Co, Baltimore, Md	*Bone Meal			22.02						3.05						30.26	
Ober, G. & Sons Co, Baltimore, Md	Farmer's Standard	10.00	11.76	11.42	8.00	9.17	8.60	1.75	2.10	2.28	1.50	2.29	2.43	35.27	29.29	27.82	.53
Ober, G. & Sons Co, Baltimore, Md	Ober's Diss. Bone Phosphate	15.00	16.82	17.50	14.00	15.10	16.32						15.20	16.13	17.03		.90
Ober, G. & Sons Co, Baltimore, Md	Shenandoah Bone Phos	11.00	10.80		8.00	9.87		1.65	1.72		1.75	2.96	23.83	26.20			
Ober, G. & Sons Co, Baltimore, Md	Special Ammon. Diss. Bone	10.00	13.78	12.40	8.00	11.85	11.12	1.35	1.83	1.28	1.50	2.30	1.98	21.35	28.45	24.03	3.85
Ober, G. & Sons Co, Baltimore, Md	Special Mixture for Wheat	10.00	12.11		8.00	11.37		1.00	1.00		1.50	2.74	20.22	24.26			
Ober, G. & Sons Co, Baltimore, Md	S. & S. Special Wheat Compound	10.00	11.02		8.50	9.94		1.40	1.77		2.00	3.00	22.68	26.62			
Old Dominion Guano Co, Norfolk, Va	High Grade Alkaline Bone	?	10.70		10.09	10.80					2.00	1.99		16.40	18.33		
Old Dominion Guano Co, Norfolk, Va	High Grade Phos for Wheat	?	15.71		13.00	14.02								13.00	15.05		
Old Dominion Guano Co, Norfolk, Va	Special Wheat Guano	?	10.62		8.00	8.64		1.65	1.76		2.00	1.92		22.33	24.52		

NAME OF MANUFACTURER.

NAME OF BRAND.

NAME OF MANUFACTURER.	NAME OF BRAND.	Total Phosphoric Acid			Available Phosphoric Acid.			Nitrogen.		Potash.		Valuations.				
		Total Phosphoric Acid in Guaranteed.	Total Phosphoric Acid in Official Sample.	Total Phosphoric Acid in Inspector's Sample.	Available Phosphoric Acid Guaranteed.	Available Phosphoric Acid in Official Sample	Available Phosphoric Acid in Inspector's Sample.	Nitrogen Guaranteed.	Nitrogen in Official Sample.	Nitrogen in Inspector's Sample.	Potash Guaranteed.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation Calculated from Guaranteed Analysis	Valuation of Official Sample.	Valuation of Inspector's Sample.
Samson Fert Co., North East, Pa.	*High Grade Fish Guano.	11.50	12.33	12.33		11.16	10.45	1.96	1.37	3.42	2.16	98.69	24.92	3.77		
Samson Fert Co., North East, Pa.	*XXXX Acid Phosphate.	?	16.58	13.92		13.01	12.41					13.0	16.01	13.32		
Scott Fert Co., Elkton, Md.	Tip-Top Soluble Bone.	?	15.27			11.00	15.22			2.00	2.05	17.40	22.47			
Scott Fert Co., Elkton, Md.	Tip-Top Soluble Bone & Potash.	14.00	14.67			11.00	14.42			2.50	3.09	20.60	22.19			
Singluff & Co., Baltimore, Md.	Corn and Oats Fertilizer.	14.00	16.15			13.00	13.99			2.00	2.41	14.00	15.89			
Singluff & Co., Baltimore, Md.	Dissolved South Carolina.	10.00	12.58	12.86		9.00	11.90	.90	1.03	.74	2.15	20.78	24.33	23.02	1.51	
Susquehanna Fert Co., Balt., Md.	*Universal Guano	15.00	15.61	12.56		13.61	10.92		.65			13.06	13.06	1.95		
Susquehanna Fert Co., Balt., Md.	*Dissolved S. C. Bone.		21.28			14.00	14.33		3.07			14.60	15.01			
Susquehanna Fert Co., Balt., Md.	*Fine Ground Bone.		18.00													
Susquehanna Fert Co., Balt., Md.	*Pure Dissolved Bone.	10.00	10.97	11.55		8.00	8.67	.82	1.21	.99	1.00	18.84	21.94	21.55	3.39	
Swift & Co., Chicago, Ill.	*XXV Phosphate.		35.16						3.75				32.93			
Swift & Co., Chicago, Ill.	*Pure Raw Bone.		25.14						4.09				34.00			
Thomas, I. P. & Sons Co., Phila., Pa.	*Farmer's Choice Bone Phos.	11.00	12.26			9.50	10.41	1.61	1.81		2.00	2.42	25.03	27.03		
Thomas, I. P. & Sons Co., Phila., Pa.	Improved Superphosphate.	14.00	13.07	14.38		12.00	12.15	1.03	.70	.63			14.32	19.61	20.12	.78
Thomas, I. P. & Sons Co., Phila., Pa.	Normal Bone Phosphate.	11.50	12.10			8.50	10.68	1.03	1.21		1.50	1.85	21.42	23.87		
Thomas, I. P. & Sons Co., Phila., Pa.	Pure Ground Bone	23.00	21.39					3.69	3.21	4.26			30.24	27.38		
Thomas, I. P. & Sons Co., Phila., Pa.	S. C. Phos late.	15.00	15.99	15.06		13.00	13.62						16.20	15.0	14.51	.49
Thompson & Edwards, Chicago, Ill.	*Sure Growth Superphosphate.	9.00	10.93	12.83		8.00	7.56		.86		.38		21.73	18.58		
Travers, S. W. & Co., Richmond, Va.	*Beef, Blood and Bone	11.00	13.99	12.81		8.00	9.52	2.15	1.55		1.00	1.42	10.60	12.99	12.08	.91
Travers, S. W. & Co., Richmond, Va.	Capitol Diss. S. C. Bone.	9.00	11.20			8.00	10.99	.2	1.20		2.00	2.00	19.44	21.99		
Travers, S. W. & Co., Richmond, Va.	Champion Corn Grower	9.50	10.17			8.50	9.58	1.85	3.86		2.25	2.23	24.58	28.38		
Travers, S. W. & Co., Richmond, Va.	National Tobacco Fertilizer	11.00	15.01	13.00		13.00	13.97						13.69	14.19		
Travers, S. W. & Co., Richmond, Va.	Standard S. C. Bone.	?	17.61	14.00		14.00	16.34	2.47	2.73		5.00	2.66	11.00	17.13		
Tygart-Allen Fert. Co., Phila., Pa.	Dissolved S. C. Rock	?	9.79			6.00	7.90						27.33	28.70		
Tygart-Allen Fert. Co., Phila., Pa.	Gold Edge Potato Guano.															

TABLE I.—Continued.

NAME OF MANUFACTURER.	NAME OF BRAND.	Total Phosphoric Acid in			Total Phosphoric Acid in			Available Phosphoric Acid			Nitrogen.			Potash.			Valuations.		
		Guaranteed.	Official Sample.	Inspector's Sample.	Guaranteed.	Inspector's Sample.	Available Phosphoric Acid	Available Phosphoric Acid	In Inspector's Sample.	Nitrogen in Official Sample.	Nitrogen in Inspector's Sample.	Potash Guaranteed.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation Calculated from Guaranteed Analysis.	Valuation of Official Sample.	Valuation of Inspector's Sample.		
Tygart-Allen Fert. Co., Phila., Pa.	Star Bone Phosphate	20.50	11.87	8.50	10.36	10.00	11.78	10.00	11.78	1.85	1.89	2.50	3.62	2.47	28.55	16.30	28.55		
Tygart-Allen Fert. Co., Phila., Pa.	Star Ground Bone	20.50	12.79	10.00	12.75	10.00	12.75	10.00	12.75	1.65	1.42	2.00	2.13	16.40	18.94	16.40	18.94		
Tygart-Allen Fert. Co., Phila., Pa.	Soluble Bone and Potash	15.00	15.48	12.77	10.17	11.00	12.75	10.17	10.17	1.82	1.44	1.92	1.00	1.37	1.15	19.81	20.70	22.20	.74
Walker Stratman & Co., Pittsburg, Pa.	Big Bonanza	11.00	8.38	11.28	9.83	8.00	7.46	9.83	9.83	1.65	1.41	1.83	5.00	4.62	5.05	29.23	28.99	29.45	.46
Walker Stratman & Co., Pittsburg, Pa.	Four Fold	22.00	12.72	13.32	9.00	12.23	12.03	9.00	12.23	3.29	3.61	4.03	2.00	2.31	2.73	26.49	26.49	31.33	.16
Walker Stratman & Co., Pittsburg, Pa.	Potato Special	15.00	10.87	11.00	10.18	12.00	11.08	12.95	12.95	1.65	1.83	2.00	2.31	2.73	26.49	26.49	31.33		
Walker Stratman & Co., Pittsburg, Pa.	Pure Raw Bone Meal	13.00	15.31	15.12	12.00	14.08	12.78	12.00	14.08	2.00	2.80	2.30	5.00	5.49	5.36	26.21	32.42	30.43	.99
Williams & Clark Fert. Co., N. Y.	Tobacco Special	14.00	15.34	14.79	12.00	14.08	12.78	12.00	14.08	2.05	2.42	2.51	1.00	2.60	1.68	16.58	25.28	22.58	2.70
Williams & Clark Fert. Co., N. Y.	Acorn Bran Acid Phos	14.00	14.82	16.29	6.00	9.34	7.93	6.00	9.34	1.42	1.21	1.21	1.00	2.60	1.68	16.58	25.28	22.58	2.70
Williams & Clark Fert. Co., N. Y.	Acorn Bran Acid Phos	7.00	11.54	9.32	6.00	9.34	7.93	6.00	9.34	1.42	1.21	1.21	1.00	2.60	1.68	16.58	25.28	22.58	2.70
Williams & Clark Fert. Co., N. Y.	Garteret Ground Bone	7.00	12.31	9.65	6.00	9.34	7.93	6.00	9.34	1.42	1.21	1.21	1.00	2.60	1.68	16.58	25.28	22.58	2.70
Williams & Clark Fert. Co., N. Y.	Potato Phosphate	20.00	29.53	23.27	7.00	12.32	7.00	10.02	9.07	2.04	2.64	3.35	2.00	2.48	2.80	19.54	24.33	26.70	2.73
Williams & Clark Fert. Co., N. Y.	Prolific Crop Producer	8.00	12.12	12.22	7.00	10.02	9.07	7.00	10.02	1.08	1.21	1.52	2.00	2.48	2.80	19.54	24.33	26.70	2.73
Williams & Clark Fert. Co., N. Y.	Pure Bone Meal	8.00	12.12	12.26	7.00	10.02	9.07	7.00	10.02	1.08	1.21	1.52	2.00	2.48	2.80	19.54	24.33	26.70	2.73
Williams & Clark Fert. Co., N. Y.	Royal Bone Phosphate	11.00	13.32	8.00	9.99	8.00	9.99	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Williams & Clark Fert. Co., N. Y.	Royal Bone Phosphate	15.00	16.49	8.00	9.99	8.00	9.99	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Williams & Clark Fert. Co., N. Y.	K. K. Kangaroo Compound	11.00	13.35	8.00	10.01	8.00	10.01	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Wooldridge Fertilizer Co., Balt., Md.	Orechilla Guano	15.00	16.49	8.00	10.01	8.00	10.01	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Wooldridge Fertilizer Co., Balt., Md.	Quickstep	10.00	14.65	8.00	10.01	8.00	10.01	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Wooldridge Fertilizer Co., Balt., Md.	16 to 4 Bone and Potash Mixture	10.00	14.65	8.00	10.01	8.00	10.01	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Wooldridge Fertilizer Co., Balt., Md.	Sockless and Shoeless	10.00	14.65	8.00	10.01	8.00	10.01	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Wooldridge Fertilizer Co., Balt., Md.	X-Extra Florida Acid Phos	11.00	16.17	8.00	10.01	8.00	10.01	9.07	9.55	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Wooldridge Fertilizer Co., Balt., Md.	Calvert Guano	15.00	16.65	16.23	13.00	14.94	15.31	15.00	16.65	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Zell Guano Co., Baltimore, Md.	Dissolved Bone Phosphate	15.00	16.65	16.12	13.00	14.94	15.31	15.00	16.65	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Zell Guano Co., Baltimore, Md.	Dissolved Bone Phosphate	15.00	16.65	15.52	13.00	14.94	15.31	15.00	16.65	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81
Zell Guano Co., Baltimore, Md.	Dissolved Bone Phosphate	15.00	16.65	15.52	13.00	14.94	15.31	15.00	16.65	1.64	1.75	1.81	2.00	2.27	2.41	13.22	13.22	13.22	2.81

TABLE I.—Continued.

NAME OF MANUFACTURER.	NAME OF BRAND.	Total Phosphoric Acid.			Available Phosphoric Acid.			Nitrogen.		Potash.		Valuations.			
		Total Phosphoric Acid in Guaranteed.	Total Phosphoric Acid in Official Sample.	Total Phosphoric Acid in Inspector's Sample.	Available Phosphoric Acid Guaranteed.	Available Phosphoric Acid in Official Sample.	Available Phosphoric Acid in Inspector's Sample.	Nitrogen in Official Sample.	Nitrogen in Inspector's Sample.	Potash in Official Sample.	Potash in Inspector's Sample.	Valuation Calculated from Guaranteed Analyses.	Valuation of Official Sample.	Valuation of Inspector's Sample.	
Zell Guano Co., Baltimore, Md	Dissolved S. C. Phosphate	14.02	14.49	12.00	13.27	12.55		3.28	3.85	1.00	2.24	12.00	13.73	13.83	10
Zell Guano Co., Baltimore, Md	Dissolved S. C. Phosphate	14.02	15.00	12.00	13.27	13.75		.82	1.30			12.00	13.73	14.50	27
Zell Guano Co., Baltimore, Md	Economizer	11.87		9.00	11.27							18.66	24.78		57
Zell Guano Co., Baltimore, Md	Pure Ground Bone	20.00	21.93	22.60				3.28	3.85	1.00	2.24	26.53	29.86	30.43	

Brands marked with a star () were not registered at the time they were found on sale.

Observations on Table I.

We regret that we could not find a sample of every brand on sale in the State. We have succeeded at last in getting a pretty complete list of the dealers, and this, we hope, will enable us hereafter to find all the brands on sale in the State.

In many cases we could only find a single sample. Now, we are fully aware that unless fertilizers are well mixed their composition will vary, and that the analysis of a single sample may run higher or lower than the average composition of the goods, yet if proper care has been taken in the mixing variations in composition ought not to affect the valuation more than about one dollar. If the valuation of the Inspector's sample falls short of the valuation of the manufacturer's sample more than a dollar, the goods should be regarded with suspicion. For example, the sample of Powell's Dissolved S. C. Bone submitted by the manufacturer's last year contained 17.00 per cent. Available Phosphoric Acid, and only .25 per cent. Insoluble Phosphoric Acid. The Inspector last year found but one sample of this brand. It contained 14.92 per cent. Available Phosphoric Acid, and 1.56 per cent. Insoluble Phosphoric Acid, the valuation of this sample falling short of the valuation of the manufacturer's sample \$1.30 (calculated according to this year's standard). We place a great deal of confidence in the analysis of a single sample, when we know that the sample has been properly drawn, and the Inspector stated last year that it was highly probable that the sample of Powell's Dissolved S. C. Bone submitted by the manufacturers was not a fair sample of the goods they were shipping into the State. This year again the manufacturer's sample of the same brand gave about the same analysis as their sample last year, (the valuation was lower on account of changes in the price of raw material). But the Inspector this year managed to find five samples of this brand on sale in the State, and the analyses of these fully confirmed our suspicions, the goods falling short of the manufacturers' sample on average of about \$4 per ton. On calling the Powell Company's attention to the above we were informed that they sold their goods on their own guaranteed analysis, not on our analysis. We have been told the same by other manufacturers, and this is our reason for publishing the guaranteed analyses in full and the valuations calculated from these guaranteed analyses. We think it well that our farmers should know just how little some of the manufacturers guarantee some of their goods to contain, and we may add that the manufacturers are not likely to place their guarantee much lower than they know their goods may run. The Powell Company finally concluded to send another official sample, the analysis of which will be found in the table. This sample contains 15.10 per cent. Total Phosphoric Acid and 14.19 per cent. Available Phosphoric Acid, which gives a valuation \$14.74. The average valuation of the Inspector's samples of this brand for this year is \$14.75, from which it would appear that manufacturers *can* send a fair sample of their goods, if they choose to do so.

If the manufacturers' samples fairly represent their goods it is only reasonable to expect that some of the Inspector's samples will be found to be a little above, others a little below them, as for example in the case of the Mt. Airy Company. We do not expect that every sample of a manufacturer's goods that we can find in the State shall be better than his official sample, as in the case of Baugh & Sons, although we are very glad whenever we find it so, nor do we expect that almost every sample we find shall fall short, as is notably the case with the Cleveland Drye Co. and the Powell Fert. & Chem. Co.

The great majority of the manufacturers doing business in this State are complying with the law to the very letter, and it is only just to these, as well as to our farmers, that a manufacturer who may, from time to time, try to do an unfair business, should get full credit for his efforts.

Of course we keep a careful record of the analysis of all fertilizers collected by the Inspector, but we propose hereafter to publish such a record, from time to time, that farmers may see just how the various brands run from year to year. Such a record in the course of a few years will be very valuable indeed, as it will enable our farmers to locate the manufacturers who are keeping up the standard of their goods. Table II is such a record for 1894-5. The valuations are all calculated on this year's standard that they may be more readily compared.

The analytical work for 1894 was done by Dr. Rudolph deRoode and T. F. Watson; that for 1895 by B. H. Hite, Dr. G. Wm. Gray and T. F. Watson.

TABLE II.
Analyses of Inspector's Samples for 1894 and 1895.

NAME OF MANUFACTURER.	NAME OF BRAND	1894.						1895.					
		Number of Samples Averaged.	Total Phosphoric Acid.	Availible Phos-phoric Acid.	Nitrogen.	Potash.	Relative Commer-cial Value.	Number of Samples Averaged	Total Phosphoric Acid.	Availible Phos-phoric Acid.	Nitrogen.	Potash.	Relative Commer-cial Value.
Allison & Addison.	Allison and Addison Acid Phos.	1	14.80	12.96			14.06	2	15.28	13.97			14.76
Allison & Addison.	Anchor Brand Tobacco Fertilizer	1	11.77	9.42	2.77	1.85	29.70						
Allison & Addison.	Star Brand Guano.	1	9.96	8.80	1.91	2.82	25.30	1	10.59	9.08	2.34	1.87	27.03
Atlantic & Virginia Fert. Co.	Crenshaw's Acid Phosphate	1	15.10	13.54			14.48						
Atlantic & Virginia Fert. Co.	Our Acid Phosphate	1	15.80	13.18			14.76						
Baltimore Guano Co	B. G. Amm nated Bone												
Baugh & Sons Co	Doub's Eagle Phosphate												
Baugh & Sons Co.	Export Bone with Potash												
Baugh & Sons Co.	General Crop Grower												
Baugh & Sons Co.	High Grade Acid Phosphate												
Baugh & Sons Co.	Pure Raw Bone Meal												
Bradley & Sons Co.	Bradley's Potato Fertilizer												
Bradley Fertilizer Co.	Baker's Special W. C. & G. Mixture												
Chemical Co. of Canton.	Potato Manure	1	11.33	9.96	1.14	2.04	23.02						
Cincinnati Dessicating Co.	Gilead Phosphate	1	14.82	8.18	2.54	2.89	30.40	1	12.24	11.11		5.10	21.91
Cincinnati Dessicating Co.	Ohio Valley Phosphate	1	15.48	10.35	1.94	2.03	29.01	1	13.77	11.35	3.41	2.22	24.89
Cincinnati Dessicating Co.	Phoenix Phosphate	1	13.37	9.56	1.73	1.05	25.87						
Cincinnati Dessicating Co.	Pure Acidulated Bone	1	18.92	13.55	3.88		36.86						
Cincinnati Dessicating Co.	Tobacco and Potato Fertilizer												
Chesapeake Guano Co.	Dissolved Bone Phosphate	2	16.23	14.78			15.65	1	13.15	11.65		5.74	23.44
Cleveland Dryer Co	Buckeye Ammon'd. Bone Superphos.	5	14.07	10.82	2.05	.25	26.68	2	13.38	11.00	1.98	.23	25.49
Cleveland Dryer Co	Ohio Seed Maker	2	15.70	12.42	1.47		24.56						
Cleveland Dryer Co	Potato and Vegetable Fertilizer												
Cleveland Dryer Co	Square Bone	4	13.71	8.72	2.35		25.60	2	11.44	8.32	3.11	2.99	33.32
Cleveland Dryer Co	Superior Bone Meal	1	22.08		3.04		27.89	3	13.23	10.25	2.41		25.56
Cleveland Dryer Co	XXX Phosphate	2	15.63	12.57			14.41	1	20.83	10.25	2.99		26.23
Cleveland Dryer Co	Soluble Bone Phos. and Potash	2	14.31	13.07		2.10	20.35						
De-trick Fertilizer and Chemical Co.	Corn Fertilizer	2						2	15.98	14.75		2.34	15.49
Great Eastern Fertilizer Co.	Great Eastern Fertilizer Co.	2						2	11.77	10.71	1.09		18.16
Great Eastern Fertilizer Co.	Dissolved Bone	2						2	10.93	9.55		2.89	23.40
Great Eastern Fertilizer Co.	Soluble Bone and Potash	1						1	14.93	13.57			14.33
Great Eastern Fertilizer Co.		1						1	13.47	10.63		2.41	19.22

TABLE II.—Continued.

NAME OF MANUFACTURER.	NAME OF BRAND.	1894.					1895.						
		Number of Samples Averaged.	Total Phosphoric Acid.	Available Phos- phoric Acid.	Nitrogen.	Potash.	Relative Commer- cial Value.	Number of samples Averaged.	Total Phosphoric Acid.	Available Phos- phoric Acid.	Nitrogen.	Potash.	Relative Commer- cial Value.
Great Eastern Fertilizer Co.	Vegetable Vine and Tobacco Fert.							1	11.80	9.21	2.20	3.63	29.38
Durham Fertilizer Co.	High Grade Acid Phos.							1	12.92	11.86			15.50
Hess, S. M. & Bro.	Emperor Phosphate							1	11.80	10.41		1.17	13.68
Jarecki Chemical Co.	Lake Erie Fish Guano.	3	13.07	8.83	1.06	.51	21.47	*1	14.96	9.15	.81	1.53	22.88
Laudenback Fertilizer Co.	Urbana Bone Phos. & Potash	1	6.47	4.91	.81	1.96	16.60		15.35	12.39	2.63	3.86	31.82
Laudenback Fertilizer Co.	Urbana Prize Potato & Tobacco Grower.	1	12.66	10.46	1.29	4.81	28.41	1					
Lister's Agr. Chemical Works.	Lister's Harvest Queen	1	11.54	8.53	1.97	1.76	25.72						
Lister's Agr. Chemical Works.	Lister's Standard Phosphate	1	12.72	10.33	2.41	2.03	29.34						
Lister's Agr. Chemical Works.	Lister's U. S. Phosphate							1	11.77	9.61	2.59	2.23	29.35
Maryland Fertilizer & M'fg Co.	Globe Complete Manure.	1	12.76	10.20		.95	16.88	2	11.59	9.89	2.00	1.99	24.70
Mt. Airy M'fg Co.	Diss. Bone Phos. Potash Goods.	1						2	11.84	10.35		.85	16.27
Mt. Airy M'fg Co.	Mt. Airy S. C. Bone Phosphate							1	16.07	13.95			15.22
Mt. Airy M'fg Co.	Piedmont Potato Producer							2	8.13	6.41	2.12	4.52	26.92
Mt. Airy M'fg Co.	Piedmont Pure Raw Bone Mix.	1	10.36	7.23	1.05	1.05	19.78						
Mt. Airy M'fg Co.	P. G. Ammon'd Superphos. of Lime.	2	10.14	8.57	1.20	1.00	20.75	*1	10.98	8.96	.85	1.08	20.66
Mt. Airy M'fg Co.	Royal Ammon'd Bone and Potash.							1	11.10	10.65	2.39	3.38	30.01
Newburg Fertilizer Co.	Ammoniated Phosphate.	1	12.41	10.13	2.38		25.50	1	15.60	11.05	1.13	1.23	23.81
Newburg Fertilizer Co.	Champion Fertilizer												
Newburg Fertilizer Co.	Pure Bone Dust												
Northwestern Fertilizer Co.	"H. S. B." Garden City Superphos.							3	19.49	14.03	3.46	1.58	27.41
Northwestern Fertilizer Co.	"H. S. B." Fine Raw Bone	2	23.98		4.10		22.30	3	24.38	4.03			31.65
Northwestern Fertilizer Co.	"H. S. B." Potato Grower							1	12.98	9.47	2.50	3.51	30.33
Northwestern Fertilizer Co.	"H. S. B." Prairie Phosphate	1	13.52	9.62	2.48		26.38		11.53	7.66	2.00	.42	23.85
Ober, G. & Sons Co.	Bone Meal							*1	22.02		3.95		30.26
Ober, G. & Sons Co.	Dissolved Bone Phosphate.	1	15.43	14.08			14.89		17.50	16.32			17.03
Ober, G. & Sons Co.	Farmers' Standard Ammon'd Phos.							2	11.42	8.68	2.28	2.13	27.82
Ober, G. & Sons Co.	Shenandoah Bone Phos.	1	14.66	9.24	2.20	1.77	28.86						
Ober, G. & Sons Co.	Special Ammon'd Diss. Bone	1	11.72	10.49	1.76	2.00	26.02	1	12.40	11.12	1.28	1.98	24.64
Ober, G. & Sons Co.	Special Mixture for Wheat	1	12.19	10.36	1.27	2.24	24.48						
Old Dominion Fertilizer Co.	High Grade Acid Phosphate.	2	15.20	13.58			14.55						
Old Dominion Fertilizer Co.	Special Wheat Guano.	1	9.94	8.80	2.21	2.20	26.41						

TABLE II.—Continued.

NAME OF MANUFACTURER.	NAME OF BRAND.	1894.					1895.					
		Total Phosphoric Acid.	Available Phos-phoric Acid.	Nitrogen.	Potash.	Relative Commer-cial Value.	Number of Samples Averaged.	Total Phosphoric Acid.	Available Phos-phoric Acid.	Nitrogen.	Potash.	Relative Commer-cial Value.
Orth, Ella.....	Ohio Valley Bone Dust.....	1	16.48	14.92		15.86	18.00	10.38	2.56		2.33	22.39
Powell Fertilizer and Chemical Co.	Bone and Potash Fertilizer.....	1					12.02	10.38				18.71
Powell Fertilizer and Chemical Co.	Dissolved S. C. Bone.....	1					15.54	13.56				14.75
Powell Fertilizer and Chemical Co.	Green Bag Fertilizer for Strawberries.....	1					7.61	5.70	3.74	3.89		32.22
Powell Fertilizer and Chemical Co.	Hard Times Fertilizer.....	1					7.25	6.36	1.01	3.84		20.73
Powell Fertilizer and Chemical Co.	Potato Producer.....	1					6.23	4.76	1.20	3.92		30.39
Powell Fertilizer and Chemical Co.	Pure Ray Bone Meal.....	1					22.13		4.31			32.22
Powell Fertilizer and Chemical Co.	Red Bag Fertilizer.....	2					11.01	9.12	1.66	1.89		24.49
Reese, John S. & Co.	Diss. Bone Phos. of Lime.....	1					16.71	15.34				16.16
Reese, John S. & Co.	Excellenza Soluble Bone.....	1					11.85	10.03	.99	1.54		27.99
Reese, John S. & Co.	Half and Half Guano and Diss. Bone.....	1					14.69	13.13	.75			21.22
Samsen Fertilizer Co.	XXXX Acid Phos.....	1					18.92	12.41				13.32
Samsen Fertilizer Co.	High Grade Fish Guano.....	1	23.51		3.93	31.38	12.33	10.45	1.37	2.16		24.92
Scott Fertilizer Co.	Pure Ground Bone.....	1	16.54	14.74		15.82						
Scott Fertilizer Co.	Tip Top Soluble Bone.....	1					12.86	11.25	.74	2.24		23.02
Slinguff & Co.	Universal Guano.....	1					12.56	10.92	.95	2.15		23.47
Susquehanna Fertilizer Co.	Susquehanna Alkaline Bone Phos.....	2					15.88	12.50				14.49
Susquehanna Fertilizer Co.	Dissolved S. C. Bone.....	1					21.28		3.07			26.85
Susquehanna Fertilizer Co.	Fine Ground Bone.....	1	10.39	9.15	1.07	21.22	11.85	10.03	.99	1.06		21.55
Susquehanna Fertilizer Co.	XXV Phosphate.....	1	25.56	4.12		33.63	26.16		3.99			33.88
Swift & Co.	Pure Ray Bone Meal.....	1	11.88	10.05	2.00	28.16						
Thomas, I. P. & Son Co.	Farmer's Choice Bone Phos.....	1					14.38	12.81				13.75
Thomas, I. P. & Son Co.	Improved Superphosphate.....	1					15.06	13.68				14.51
Thomas, I. P. & Son Co.	S. C. Phosphate.....	1					12.81	10.99				12.08
Travers, S. W. & Co.	Capital Diss. S. C. Bone.....	1					12.83	7.56	.86	.38		19.79
Thompson & Edwards.	Sure Growth Superphosphate.....	1	13.13	7.44	1.09	20.41	12.77	10.17	2.00	2.94		28.66
Walker Stratman & Co.	Big Bonanza.....	1					11.28	9.83	1.22	1.15		22.20
Walker Stratman & Co.	Four Fold.....	1	8.47	6.08	2.67	25.11	13.32	12.03	1.33	5.05		29.45
Walker Stratman & Co.	Potato Special.....	1										

TABLE II--Continued.

NAME OF MANUFACTURER.	NAME OF BRAND	1894.						1895.					
		Total Phosphoric Acid.	Available Phos-phoric Acid.	Nitrogen.	Potash.	Relative Commer-cial Value.	Number of Samples Averaged.	Total Pho phoric Acid.	Available Phos-phoric Acid.	Nitrogen.	Potash.	Relative Commer-cial Value.	
Walker Stratman & Co.	Pure Raw Bone Meal.....	.....	.....	.....	.....	.....	1	23.01	12.86	4.03	.....	31.33	
Williams & Clark	Acorn Brand Acid Phos.	.....	.....	.....	.....	.....	2	14.95	.....	.....	.....	14.18	
Williams & Clark	Americus Pure Raw Bone	.....	.....	.....	.....	.....	1	23.37	.....	3.35	.....	29.34	
Williams & Clark	Cartwright Ground Bone	.....	.....	.....	.....	.....	*	16.39	.....	2.30	.....	20.39	
Williams & Clark	Prolific Crop Producer.....	.....	.....	.....	.....	.....	1	10.92	7.75	1.28	1.74	21.87	
Williams & Clark	Potato Phosphate.....	.....	.....	.....	.....	.....	1	9.32	7.11	2.51	5.36	30.43	
Williams & Clark	Royal Bone Phosphate.....	.....	.....	.....	.....	.....	1	12.21	9.31	1.63	2.51	26.67	
Zell Guano Co.	Calvert Guano.....	.....	.....	.....	.....	.....	1	12.39	11.21	.87	2.24	23.21	
Zell Guano Co.	Dissolved Bone Phosphate.....	15.72	14.10	.....	.....	15.07	4	15.72	14.60	.....	.....	15.27	
Zell Guano Co.	Dissolved S C Phosphate.....	.....	.....	.....	.....	.....	2	14.75	13.30	.....	.....	14.17	
Zell Guano Co.	Pure Ground Raw Bone	.....	.....	.....	.....	.....	1	21.60	.....	3.86	.....	30.43	
Cincinnati Dessicating Co.	Complete Green Truck.....	.....	.....	.....	.....	.....	1	13.57	12.92	2.89	5.67	37.79	

* Brands marked with a star (*) in the above table were not registered at the time they were found on sale

An Act Concerning Commercial Fertilizers.**STATE OF WEST VIRGINIA.**

CHAPTER LXXII.

AN ACT concerning Commercial Fertilizers and repealing chapter twenty-five of the acts of the Legislature of West Virginia of 1879.

[Passed March 6, 1891.]

Be it enacted by the Legislature of West Virginia:

1. Every person or company who shall sell, offer or expose for sale in this State, any commercial fertilizer or manure, shall affix conspicuously to every package thereof a plainly printed statement, clearly and truly certifying the number of net pounds of fertilizer in the package, the name, brand or trade-mark under which the fertilizer is sold, the name and address of the manufacturer, the place of manufacture, and a chemical analysis, stating the percentage of nitrogen or its equivalent in ammonia, of potash soluble in distilled water, and of phosphoric acid in available form, soluble in distilled water, and reverted, as well as the total phosphoric acid. In the case of those fertilizers which consist of other cheaper materials, said labels shall give a correct general statement of the composition and ingredients of the elements relied upon, contained in the fertilizer which it accompanies. If any such fertilizer be sold in bulk, such printed statement shall accompany and go with every lot and parcel sold, offered or exposed for sale.

2. Before any commercial fertilizer is sold, offered or exposed for sale in this State, the manufacturer, importer or party who causes it to be sold, exposed or offered for sale, shall file with the Director of the West Virginia Agricultural Experiment Station a certified copy of the statement named in section one of this Act, and shall also deposit with said Director, a sealed glass jar or bottle, or sealed tin can, containing not less than one pound of fertilizer named and described in said statement, accompanied by an affidavit that it is a fair average sample thereof. The making of any affidavit required by this chapter falsely, shall be perjury.

3. The manufacturer, importer, agent or seller of any brand of commercial fertilizer or material used for manurial purposes, shall pay for each brand at the time he files the statement required in section one of this Act, an analysis fee of ten dollars for each of the fertilizing ingredients claimed to exist in each and every brand as fertilizer which he sells, offers or exposes for sale within this State, provided that whenever the manufacturer, or importer shall have paid the analysis fee herein required, for any particular brand

of fertilizer, no agent or seller shall be required to pay any other or further analysis fee for said brand.

4. The analysis fee required to be paid by section three of this Act shall be paid to the Treasurer of the West Virginia University for the use of the Agricultural Experiment Station, and the party making such payments shall take from said Treasurer triplicate receipts therefor, one of which he shall retain, and the others shall be deposited, one with the Director of the Agricultural Experiment Station, and the other with the Secretary of the Board of Regents of the West Virginia University, and by them filed and preserved in their respective offices.

5. Immediately after the filing of the receipt aforesaid with the Director of the Agricultural Experiment Station, said Director shall issue a certificate to the party making such payment, stating the amount of fees paid, and the name, brand or trade mark under which the fertilizer is sold, the name and address of the manufacturer or importer, the place of manufacture and the name and place of business of the dealer, and chemical analysis as set forth in the statement by section one of this Act, and that the applicant for said certificate is authorized to sell said fertilizer within the State of West Virginia for the period of one year from the first day of January to the 31st day of December, inclusive. Said certificates may be issued at any time for and during the current year and may be issued during the month of December for the year commencing on the first day of January thereafter.

6. It shall be the duty of the Director of the West Virginia Agricultural Experiment Station to make or cause to be made a chemical analysis of every sample of commercial fertilizer so furnished him, and he shall print the result of such analysis in the form of a label or tag. Such printed label or tag shall set forth the name of the manufacturer, the place of manufacture, the brand of the fertilizer, and the essential ingredients contained in said fertilizer, expressed in terms and manner approved by the Director, together with a certificate from the Director, setting forth that said analysis is a true and complete analysis of the sample furnished him of such brand of fertilizer, of the ingredients claimed to be contained therein. And he shall also place upon each label or tag the money value per ton of such fertilizer, computed from its composition as he may determine. The Director shall furnish such labels or tags in quantities of one hundred or multiple thereof, to any person or company complying with this act, and desiring to sell, offer or expose for sale, any commercial fertilizer in this State, and shall receive therefor the sum of fifty cents for every one hundred so delivered, and shall without delay pay the same to the Treasurer of the West Virginia University for the use of the Agricultural Experiment Station, and take duplicate receipts therefor, one of which he shall retain and the other he shall deliver to the Secretary of the Board of Regents, who shall file and preserve the same in his office.

7. The Board of Regents of the West Virginia University shall

expend the money received under the provisions of this Act in meeting the legitimate expenses of the Station, in 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 State, and shall include in their annual report a statement of the receipts and disbursements thereof.

8. The Director of said Experiment Station is hereby authorized in person or by deputy to take samples for analysis from any lot or from any commercial fertilizer which may be in the possession of any dealer in the State. And he is hereby authorized to prescribe and enforce such rules and regulations as he may deem necessary to carry fully into effect the true intent and meaning of this act; and any agriculturist, a purchaser of any commercial fertilizer in this State, may take a sample of the same under the rules and regulations of the Director of the said Experimental Station, or forward the same to the Experimental Station for Analysis, and if the Director has reason to believe that the manufacturer of, or dealer in, said fertilizer has made any false or fraudulent representation in regard to said fertilizer, he shall cause the said sample to be analyzed free of charge, and certify the same to the person forwarding the sample.

9. Said Director shall also publish, by bulletin, the brand, name and location of the manufacturer, and chemical analysis of every fertilizer analyzed or caused to be analyzed by him. Said last publication to be made, if practicable, before the time at which said fertilizer is to be applied to the soil.

10. Any manufacturer or vendor of any chemical fertilizer who shall sell, or offer or expose for sale, any commercial fertilizer without having previously complied with the provisions of this act herein before set forth, shall be deemed guilty of a misdemeanor, and upon conviction thereof; shall be fined not less than fifty nor more than five hundred dollars.

11. Any company, firm or person who shall willfully remove from or deface or change any label, or tag, or brand affixed to any package of fertilizer under the provisions of this act, before such fertilizer has been used for manurial purposes, or who shall sell such fertilizer without such label or tag being affixed thereto at the time of sale, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than ten nor more than fifty dollars for each offense.

12. Any company, firm or person who shall remove from or cause to be removed from any package of commercial fertilizer any statement, label or tag affixed thereto under the provisions of this act, and affix or cause the same to be affixed to any other package of commercial fertilizer shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than ten nor more than fifty dollars for each offense.

13. Any company, firm or person violating any of the provisions of this act, or who fails to comply with the requirements of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall, when no other penalty is prescribed, be

fined not less than ten nor more than one hundred dollars for each offense. But this act shall not be construed to apply to any one who manufactures fertilizers for his own use and not for sale.

14. The Director of said Experiment Station shall report to the prosecuting attorney of the county wherein the offense was committed, all violations of the provisions of this act, and failure to comply therewith, and a copy of any statement, label or tag required to be filed with said Director, or prepared by him, and any analysis made or caused to be made by him, when duly certified by said Director, shall be received in evidence in any prosecution of a suit for any violation of the provisions of this act.

15. That chapter 25 of the acts of the Legislature of West Virginia, passed on the 4th day of March, 1879, entitled "An act to protect the purchasers of fertilizers in this State," be and the same is hereby repealed.