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TEXAS AGRICULTURAL EXPERIMENT STATION

A. B. CONNER, DIRECTOR
COLLEGE STATION, BRAZOS COUNTY, TEXAS

BULLETIN NO. 387 OCTOBER, 1928

DIVISION OF CHEMISTRY

COMMERCIAL FERTILIZERS IN 1927-28 AND THEIR USES

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS
T. O. WALTON, President

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†As of October 1, 1928. *Dean, School of Veterinary Medicine.
**In cooperation with U. S. Department of Agriculture.
***In cooperation with the School of Agriculture.

SYNOPSIS

This is the annual Fertilizer Control bulletin. It contains statistics regarding fertilizers sold in Texas, information regarding the fertilizer law, and analyses of samples of the fertilizer sold by different manufacturers. The extent to which the various manufacturers are coming up to their guarantees is shown.

The total sales of fertilizer in Texas for 1927-28 were 139,126 tons; in 1926-27 they were 79,863 tons exclusive of cottonseed meal sold as a feed but used as a fertilizer. Practically all the sales of mixed fertilizers were confined to 20 analyses.

The Bulletin contains a discussion of the use of fertilizer and suggestions for their use on various crops and in various sections of the state. Tables are also given showing the approximate quantity of fertilizer used per acre and percentage of the crops fertilized for some of the counties which use fertilizer.

"Superphosphate" is a new name that will replace the name "acid phosphate."

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BULLETIN NO. 387 OCTOBER, 1928

COMMERCIAL FERTILIZERS 1927–28

G. S. FRAPS AND S. E. ASBURY

A fertilizer law was first passed in Texas in 1899. It was revised and amended in 1911. The results of the fertilizer inspection have been published in bulletins of the Agricultural Experiment Station, regularly since 1906. This is the twenty-fifth Fertilizer Control bulletin and contains statistics and suggestions as to the use of fertilizer as well as a report on the analyses made in enforcing the provisions of the fertilizer law.

EXPLANATION OF TERMS

Available phosphoric acid is the phosphoric acid which can be taken up immediately by plants. Phosphoric acid promotes the fruiting of plants, though it is necessary for the development of all parts of the plant.

Total phosphoric acid is the entire quantity of the phosphoric acid present, whether available or not. A guarantee of "total phosphoric acid" in place of "available" is made in bone, tankage, rock phosphate, and Thomas phosphate.

Nitrogen refers to the total nitrogen in the fertilizer. It is necessary in proper amounts for the development of all parts of the plant, but an excess of nitrogen delays maturity and is liable to promote the growth of stalk and leaves at expense of fruit. Nitrogen is needed by many Texas soils.

Potash is required to be soluble in water. Many Texas soils contain a sufficient quantity of potash, so that its use in fertilizer on such soils is a useless expense. Potash, like nitrogen, is needed by all parts of the plant, but especially by stalk and leaves. An excess of potash delays maturity and is liable to promote growth of the stalk and leaves at the expense of the fruit.

Valuation per ton represents the approximate cost of the plant food in the unmixed raw material, at retail, in large markets. It is not the price at which the fertilizer is sold. The selling price includes also cost of mixing, sacks, transportation, manufacturers' and dealers' profits. The valuations are decided on about September 1, and the prices may change before the active fertilizer season, which is February to April. The following valuations were used in 1927-28:

	Cents Per Pound
Available phosphoric acid	6
Total phosphoric acid in Thomas phosphate, tankage, and bone meal	4
Nitrogen	22.5
Potash	6

Information on the Fertilizer Bag and Tag

A fertilizer tax tag is required on every bag of fertilizer before it is offered for sale or sold. The guaranteed analysis of the fertilizer is required by law to be printed on the bag or on a tag attached to the bag. Total phosphoric acid may be guaranteed in bone or tankage instead of available phosphoric acid. The information required on the package is as follows:

Net weight.
Name of fertilizer in full.
Name and address of manufacturer:
Guaranteed analysis:
Available phosphoric acid, per cent.
Nitrogen, per cent.
Potash, per cent.

Meaning of the Figures Naming a Fertilizer

When a fertilizer is now named by figures in Texas and other parts of the South, the first figure stands for the percentage of available phosphoric acid, the second for the percentage of nitrogen, and the third for the percentage of water-soluble potash. Thus 8-4-4 fertilizer contains 8 per cent available phosphoric acid, 4 per cent nitrogen and 4 per cent potash, and one knows exactly what kind of fertilizer is referred to. This is the usage in Texas at the present time, but the National Fertilizer Association and the second National Fertilizer Conference have adopted the order: nitrogen, phosphoric acid, and potash. This change will probably be made in all states now using the other system, and we will then have both National and International uniformity in the order of terms.

How to Calculate the Valuation

The valuation of fertilizer is calculated by multiplying the composition by the valuation of each unit of plant food and adding the products. A unit is one per cent of a ton, or 20 pounds; so if the valuation of available phosphoric acid is 6 cents a pound, the valuation of a unit is 6x20 = $1.20. The valuation of a unit of nitrogen at 22.5c a pound would be 22.5x20 = $4.50, and of a unit of potash at 6c a pound would be $1.20. The following is an example of the calculation at the prices given above:

Valuation of 8-4-4 Fertilizer.

Available phosphoric acid	8 ×	$1.20 =	$ 9.60
Nitrogen	4 ×	4.50 =	18.00
Potash	4 ×	1.20 =	4.80
Total valuation per ton			$32.40

Quantity Sold

The quantities of commercial fertilizers sold in Texas for several seasons are given in Table 1. The sales in 1927-28 were more than for last season and are the largest yet made in Texas. Fertilizer statistics for a number of years have been published in Bulletin 350.

Table 1.—Fertilizers sold in Texas.

(Not including cottonseed meal sold as feed but used as fertilizer.)

Year	Tons.
1905–06	13,500
1910–11	52,985
1913–14	77,400
1914–15	17,500
1917–18	58,000
1918–19	46,000
1919–20	56,700
1920–21	14,850
1921–22	33,000
1922–23	73,300
1923–24	126,179
1924–25	97,719
1925–26	121,747
1926–27	79,863
1927–28	139,126

Quantity of Sales by Grades

Table 2 contains the sales of fertilizer by grades for three seasons. Nearly 50 per cent of the fertilizer sold consisted of two grades, 10-3-3 and 12-4-4, which have practically the same ratio of plant food, namely, 3-1-1. Only 78 tons of 9-5-0 were sold, and only 69 tons of 10-5-5.

Table 2.—Fertilizer sold by grades by tons, in order of tonnage for 1927–28.

	1927-28	1926-27	1925-26	1924-25
10-3-3	31,305	13,120	19,055	.....
12-4-4	30,685	8,535	13,794	5,589
10-2-2	13,640	8,817	15,089	.....
Acid Phosphate 18 Per Cent	11,353	12,517	19,515	7,467
8-4-4	10,615	3,735	3,985	1,595
Acid Phosphate 20 Per Cent	4,811	4,053	3,992	.....
Acid Phosphate 16 Per Cent	4,318	6,355	13,493	16,837
10-4-2	4,467	1,906	3,790	2,036
8-4-6	4,219	2,779	3,133	859
15-5-5	3,765	1,249	.....	.....
8-3-3	3,539	1,889	2,184	.....
Nitrate of Soda 15 Per Cent	2,846	1,095	2,614	1,873
10-6-7	2,120	1,483	630	.....
12-6-6	1,749	.....	.....	.....
Cottonseed Meal	1,530	2,034	4,396	2,613
12-2-2	1,060	680	2,243	2,442
9-6-3	1,084	73	80	.....
10-4-7	893	1,000	.....	.....
10-3-8	706	838	.....	.....
Sulphate of Ammonia 20 Per Cent	680	553	669	1,125
15-0-6	648	1,173	899	.....
Other Mixed Fertilizer	466	330	2,771	49,178
Muriate of Potash 50 Per Cent	440	409	569	186
Bone Meal	420	477	318	.....
Kainit 12 Per Cent	372	1,174	1,030	827
9-3-0	315	.....	.....	.....
Other Unmixed Fertilizer	267	285	533	455
12-0-4	250	441	337	533
18-6-6	207	75	79	.....
Kainit 14 Per Cent	186	174	.....	.....
9-5-0	78	.....	.....	.....
10-5-5	69	.....	.....	.....
Sulphate of Potash 48 Per Cent	23	4	2	.....
12-3-3	.....	1,144	3,532	3,653
8-3-5	.....	597	459	.....
12-4-0	.....	202	332	162

Table 2.—Fertilizer sold by grades by tons, in order of tonnage for 1927-28—Continued.

	1927–28	1926–27	1925–26	1924–25
7-5-5	.....	.....	66	64
Manure Salts	.....	40	112	.....
15-4.11-5	.....	.....	1,984	.....
12-3-0	.....	.....	261	216
8-7-0	.....	.....	32	9
16-8-12	.....	.....	6	.....
Total	139,126	79,236	121,984	97,719

Quantity of Cottonseed Meal Used as a Fertilizer

The tonnage of cottonseed meal reported in Table 2 includes only that sold as a fertilizer. Considerable quantities of cottonseed meal sold as feed are used as fertilizer, but up to last year we have not been in position to estimate the amount.

An estimate of the percentage used of mixed fertilizer, cottonseed meal, superphosphate (acid phosphate), and other unmixed fertilizer was requested in connection with the request for fertilizer information discussed in another part of this Bulletin, both this year and last year. The average estimate from 129 replies was 71.8 per cent mixed fertilizer, 12.8 per cent cottonseed meal, 11.4 per cent superphosphate (acid phosphate), and 4.0 per cent other fertilizer. The actual consumption to July 1 was 111,147 tons of mixed fertilizer, 20,279 tons of superphosphate, and 6,435 tons of other materials. The consumption of superphosphate was about 25 per cent higher than the estimate. If the proportions between the superphosphate and cottonseed meal are assumed to hold good, the consumption of cottonseed meal as a fertilizer in Texas this year was about 22,800 tons. As 1,530 tons were sold as fertilizer, about 21,470 tons would have been sold as feed but used as fertilizer in 1928. The estimated use of cottonseed meal as a fertilizer last year was about 30,000 tons, of which only 2,034 tons were tagged with fertilizer tags. It is evident that a large quantity of cottonseed meal was used as fertilizer in Texas in 1928, even though the price was very high.

Composition and Selling Price of Different Grades of Fertilizers

Table 3 contains the average composition, the guaranteed valuation, the valuation found by analysis, and the average retail selling price per ton, of the various grades of fertilizers. The average retail selling price is the average of the cash retail price as furnished to the inspector by the dealer. The retail price includes handling costs, carrying charges, and the dealer's profits, as well as the items mentioned under valuation.

Table 3.—Average composition, valuation and selling prices of different grades of fertilizer, 1927-28.

	Number Averaged	Available Phosphoric Acid	Nitrogen	Potash	Guaranteed Valuation	Valuation Found	Selling Price
9-5-0 Fertilizer	5	9.69	4.88	.00	$ 33.33	$ 33.60	$ 39.92
8-3-3 Fertilizer	23	9.12	3.11	3.39	26.70	29.02	33.69
9-3-0 Fertilizer	5	9.49	3.05	.00	24.30	25.14	33.00
8-4-4 Fertilizer	71	8.75	3.97	4.04	32.40	33.21	37.86
8-4-6 Fertilizer	34	8.74	3.97	5.85	34.80	35.36	39.65
9-6-3 Fertilizer	13	10.30	5.33	3.39	41.40	40.42	44.30
10-2-2 Fertilizer	66	10.44	2.17	2.36	23.40	25.20	30.12
10-3-3 Fertilizer	148	10.41	3.08	3.10	29.10	30.07	34.41
10-3-8 Fertilizer	5	10.07	3.05	7.64	35.10	35.00	39.88
10-4-2 Fertilizer	27	10.47	4.00	2.40	32.40	33.45	37.72
10-4-7 Fertilizer	3	10.32	4.35	6.58	38.40	39.86	44.08
10-6-7 Fertilizer	14	10.36	5.82	6.73	47.40	46.72	48.55
12-2-2 Fertilizer	6	12.45	2.08	2.18	25.80	26.92	32.04
10-5-5 Fertilizer	1	10.98	4.42	4.94	40.50	39.00	44.00
12-6-6 Fertilizer	20	12.53	5.93	5.88	48.60	48.77	48.81
12-4-4 Fertilizer	179	12.19	4.03	4.16	37.20	37.81	41.78
15-5-5 Fertilizer	42	15.02	4.95	5.19	46.50	46.52	48.51
18-6-6 Fertilizer	3	17.78	6.12	5.46	55.80	55.42	56.15
Acid Phosphate 16 Per Cent	11	18.13	.00	.00	19.20	21.76	21.55
Acid Phosphate 18 Per Cent	54	18.76	.00	.00	21.60	22.52	22.44
Acid Phosphate 20 Per Cent	29	20.29	.00	.00	24.00	24.34	24.44
Kainit 12 Per Cent	5	.00	.00	13.76	14.40	16.52	22.34
Sulphate of Ammonia	6	.00	22.26	.00	91.68	92.66	70.55
Nitrate of Soda	30	.00	15.49	.00	67.50	69.70	65.72
Muriate of Potash	8	.00	.00	43.60	60.00	58.84	50.90
Bone Meal	2	19.38	4.28	.00	32.71	34.78	39.25
Cottonseed Meal (complete guarantee)	7	2.64	6.93	1.63	33.39	36.34	49.71
Cottonseed Meal (Nitrogen only)	.....	.00	6.76	.00	30.05	30.39	44.00

The guaranteed analysis is given in the first column of the table. It is to be noted that the average analyses are usually higher than the guarantee of phosphoric acid and potash, but sometimes under the guarantee of nitrogen. The total valuation found exceeds the guaranteed valuation in almost every case. The exceptions are 9-6-3, 10-5-5, and 18-6-6.

Table 4.—Approximate average retail cost of plant food in cents per pound, arranged in order of increasing cost.

	Available Phosphoric Acid	Nitrogen	Potash
Sulphate of Ammonia	.....	17.33	.....
Muriate of Potash	.....	.....	5.09
Nitrate of Soda	.....	21.92	.....
12-6-6	6.02	22.59	6.02
18-6-6	6.04	22.64	6.04
Acid Phosphate 20 Per Cent	6.11	.....	6.11
10-6-7	6.14	23.04	6.14
Acid Phosphate 18 Per Cent	6.23	.....	6.23
15-5-5	6.26	23.47	6.26
9-6-3	6.42	24.08	6.42
10-5-5	6.52	24.44	6.52
Acid Phosphate 16 Per Cent	6.73	.....	6.73
12-4-4	6.73	25.25	6.73
10-3-8	6.82	25.56	6.82
8-4-6	6.83	25.63	6.83
10-4-7	6.88	25.81	6.88
10-4-2	6.98	26.19	6.98
8-4-4	7.01	26.30	7.01
10-3-3	7.09	26.60	7.09
9-5-0	7.19	26.96	7.19
Bone Meal	7,20	27.00	7.20
12-2-2	7.45	27.95	7.45
8-3-3	7.57	28.40	7.57
10-2-2	7.72	28.96	7.72
9-3-0	8.15	30.56	.....
Cottonseed Meal (Nitrogen only)	.....	32.94	.....
Cottonseed Meal (complete guarantee)	8.93	33.50	8.93
Kainit 12 Per Cent	.....	.....	9.31

COST OF PLANT FOOD

Table 4 contains the retail cost of a pound of available phosphoric acid, of nitrogen, and of potash, in cents per pound, as calculated from the cash selling prices per ton of Table 3 and the guaranteed composition. It was assumed that the prices were in the same ratio as the valuations. As the prices of the same fertilizer vary, these figures are not correct for any one locality, but represent averages only and are for purposes of comparison. The prices were collected from retail merchants handling fertilizers. The fertilizers with the lowest prices are given first.

Plant food cost the most in 9-3-0; the cost was less in 10-2-2, 8-3-3, and 12-2-2 in the order given. The highly concentrated fertilizers 12-6-6 and 18-6-6 furnished plant food in the least expensive forms.

Cost of Phosphoric acid. The cheapest source of phosphoric acid is 20 per cent acid phosphate. Available phosphoric acid cost about 2 per

cent more per pound in 18 per cent superphosphate than in 20 per cent, and about 7 per cent more in 16 per cent than in 20 per cent. Available phosphoric acid cost more in 16 per cent superphosphate than in the following mixed fertilizers: 12-6-6, 18-6-6, 10-6-7, 15-5-5, 9-6-3, and 10-5-5. Phosphoric acid was most expensive in 9-3-0 fertilizer, next in 12-2-2; then follows 8-3-3 and 12-2-2.

Cost of Nitrogen. Sulphate of ammonia was the cheapest source of nitrogen; nitrate of soda was next. Cottonseed meal was unusually low last season, rating next to sulphate of ammonia, but this year it was the most expensive. Nitrogen in nitrate of soda cost about one-fourth more than in sulphate of ammonia. Nitrogen costs more in the mixed fertilizers than in the raw materials, as the expense of mixing enters into the cost. A pound of nitrogen cost the most in 9-3-0 fertilizer, the 10-2-2 came next, and 8-3-3 was third. The lowest-priced nitrogen in the mixed fertilizer was in the 12-6-6, followed by the 18-6-6, 10-6-7, and 15-5-5.

Cost of Potash. Muriate of potash was the cheapest form of potash, costing about 55 per cent of the cost of potash in kainit. Potash was the most expensive in kainit. Potash can be purchased more cheaply in mixed fertilizer than in kainit. It is certainly not economical to buy kainit. Evidently a person desiring to buy unmixed potash should buy muriate of potash, and not kainit.

Relation to Freight Charges

Freight rates in part account for the fact that phosphoric acid in 20 per cent acid phosphate costs less, on an average, than that in 16 per cent and for the high cost in kainit compared with the low cost in muriate of potash.

The ratios of plant food in the 8-3-3, 10-3-3, 12-4-4, 15-5-5, and 18-6-6 fertilizers are nearly the same, as the proportions are about 3 parts phosphoric acid to one of nitrogen and one of potash. Table 5

Table 5.—Relative cost of approximately the same amount of plant food in different grades of fertilizer.

Grade	Available Phosphoric Acid	Nitrogen	Potash	Cost
Group 1	Pounds	Pounds	Pounds	
1 ton—18-6-6	360	120	120	$ 56.15
1.2 tons—15-5-5	360	120	120	58.21
1.5 tons—12-4-4	360	120	120	62.67
2 tons—10-3-3	400	120	120	68.82
2 tons—8-3-3	320	120	120	67.38
Group 2				
1 ton—12-6-6	240	120	120	48.81
1.2 tons—10-5-5	240	120	120	52.80
1.5 tons—8-4-4	240	120	120	56.79

shows the approximate cost of nearly equal quantities of plant food in these fertilizers. The plant food in 12-4-4 costs $6.52 more than an equal quantity in 18-6-6. The two tons of 10-3-3 costs $6.15 more than the 1½ tons of 12-4-4 but contains 40 pounds more phosphoric acid with a valuation of $2.40. The two tons of 8-3-3 contains 40 pounds less phosphoric acid than the 18-6-6 or 12-4-4; at the same time containing about $2.40 less phosphoric acid. That is, the most concentrated mixed fertilizer was the cheapest per pound of plant food, or to put it another way, the highest-priced fertilizer per ton may be the lowest-priced per pound of plant food. This difference is caused partly by freight charges, partly by the cost of bagging, etc.

FERTILIZER ANALYSES TO BE SOLD IN 1928-29

Some changes have been made in the analyses to be placed on the market next season. The 12-2-2, 9-5-0, and 10-5-5 fertilizers were dropped. There were added 8-8-4 and 30-15-15. The analyses of mixed fertilizer which will be sold in 1928-29 are as follows:

8-3-3	10-3-3	12-6-6
8-4-4	10-3-8	15-0-6
8-4-6	10-4-2	15-5-5
8-8-4	10-4-7	18-6-6
9-3-0	10-6-7	30-15-15
9-6-3	12-0-4	
10-2-2	12-4-4	

It will be noticed that the ratio of phosphoric acid to nitrogen and potash is 3 to 1, or nearly so, in 8-3-3, 10-3-3, 12-4-4, 15-5-5, and 18-6-6, and that it is 2 to 1 in 8-4-4 and 12-6-6.

FERTILIZER STATISTICS, 1928

In June, 1928, a blank requesting information regarding the use of fertilizer was sent out to farmers, fertilizer dealers, county agents, and others probably in position to give information. These were sent chiefly in the counties using fertilizer, though some were sent in different sections. Our thanks are due to those who gave the information requested.

Table 6 gives the average percentage of the various crops fertilized.

Table 6.—Estimated percentage of the cotton, corn, etc., fertilized.

County	Number Averaged	Cotton	Corn	Irish Potatoes	Sweet Potatoes	Tomatoes	Onions	Melons	Strawberries	Peach Trees	Other Fruit	Other Vegetables	Other Field Crops
Anderson	3	40	4	34	10	59	75	50	.....	.....	.....	.....	.....
Bowie	5	62	24	60	45	55	50	37	80	.....	.....	5	.....
Camp	3	58	40	98	83	100	100	70	85	45	.....	60	60
Cass	14	88	52	86	59	86	84	63	77	14	12	70	50
Cherokee	5	73	29	96	56	100	65	76	82	14	10	58	17
Gregg	4	56	31	79	25	83	75	55	.....	10	10	5	5
Harrison	4	56	16	32	17	50	10	25	50	10	.....	5	5
Henderson	12	44	13	94	35	100	77	72	59	19	10	43	12
Hopkins	9	25	13	80	55	60	90	71	10	7	.....	60	45
Houston	6	54	27	93	37	93	43	52	57	4	5	20	20
Limestone	2	35	25	50	50	.....	.....	2	.....	.....	.....	.....	.....
Marion	2	79	55	80	80	65	67	62	.....	.....	.....	60	.....
Nacogdoches	6	75	27	85	36	100	75	90	.....	.....	.....	75	25
Panola	2	75	35	95	75	82	95	95	100	.....	.....	100	.....
Robertson	3	24	18	25	20	20	2	8	5	5	.....	10	5
Rusk	10	74	21	56	30	67	57	66	.....	20	15	25	24
Sabine	2	82	50	97	72	100	100	100	.....	.....	.....	95	90
Shelby	4	51	30	61	32	77	88	68	92	10	10	53	37
Smith	18	52	24	94	41	94	.....	66	86	15	5	92	20
Titus	4	48	15	71	28	3	3	54	2	53	.....	55	.....
Upshur	2	70	27	45	42	.....	.....	10	.....	.....	.....	.....	.....
Van Zandt	4	36	12	50	35	75	35	63	.....	.....	.....	42	.....
Wood	4	20	26	35	20	88	90	55	96	.....	.....	75	.....

Table 7.—Estimated pounds of fertilizer applied per acre.

County	Number Averaged	Cotton	Corn	Irish Potatoes	Sweet Potatoes	Tomatoes	Onions	Melons	Strawberries	Peach Trees	Other Fruit	Other Vegetables	Other Field Crops
Anderson	3	250	200	433	500	500	.....	200	.....	.....	.....	.....	.....
Bowie	4	175	150	367	233	350	500	250	400	.....	.....	.....	.....
Camp	4	217	200	883	267	.....	.....	250	.....	700	.....	200	200
Cass	14	198	148	429	256	475	430	275	350	75	63	400	138
Cherokee	5	230	180	600	300	730	500	250	250	150	150	367	250
Gregg	4	181	163	438	238	750	1000	433	300	.....	.....	.....	.....
Harrison	4	200	163	400	300	400	200	317	200	150	.....	200	150
Henderson	12	221	180	430	321	500	400	185	360	270	225	363	250
Hopkins	9	188	193	414	225	200	200	200	300	200	.....	.....	.....
Houston	6	225	150	383	267	417	150	167	250	300	200	250	97
Limestone	2	100	113	63	63	.....	.....	.....	.....	.....	.....	.....	.....
Marion	2	213	200	600	200	400	550	400	.....	.....	.....	300	200
Nacogdoches	6	248	217	400	200	383	300	775	.....	.....	.....	250	200
Panola	2	250	200	600	450	800	700	400	600	.....	.....	300	.....
Robertson	3	117	133	125	125	200	50	150	.....	100	.....	100	100
Rusk	10	215	166	233	113	500	400	175	.....	75	50	160	65
Sabine	2	200	200	400	250	400	500	400	500	.....	.....	300	300
Shelby	4	188	175	367	175	300	500	200	300	100	100	225	175
Smith	18	201	181	425	209	537	350	229	364	225	150	470	183
Titus	4	181	192	600	267	300	300	200	.....	.....	.....	.....	.....
Upshur	2	200	200	350	300	.....	.....	300	.....	.....	.....	.....	.....
Van Zandt	5	215	191	225	200	500	250	300	.....	.....	.....	113	250
Wood	4	211	188	388	233	367	300	263	450	.....	.....	300	.....

Table 7 gives the average quantity per acre used on the various crops. Additional data were received, but the tables include only averages for certain counties. The acreage planted to various crops in the various counties is not available at the present time. The data are not considered to have any high degree of accuracy, but can only be considered as indicative of conditions.

Bowie, Cass, Cherokee, Nacogdoches, Rusk, and Smith Counties used the largest amounts of fertilizer in 1925-26, over 4000 tons each. In 1927-28 it was estimated that 12 to 88 per cent of the cotton planted was fertilized in Bowie, Cass, Nacogdoches, and Rusk Counties, with 74 per cent in Cherokee and 52 in Smith. These are larger than for 1926-27.

FREE ANALYSIS

Fertilizer samples, if taken in accordance with the requirements of the law, will be analyzed free of charge. Those who desire the free analysis of a sample of fertilizer should write for a blank "Application for Free Fertilizer Analysis" to the State Chemist, College Station, Texas, before taking any sample. The proper sampling of a fertilizer requires care. If the sample is not properly taken, it does not represent the lot of fertilizer, and the analysis may be better or poorer than the goods actually are.

BULK SALES

The law permits fertilizers to be sold in bulk by manufacturers direct to consumers for their own use; the tax must, in such case, be paid by the manufacturer. The law requires that fertilizer purchased in bulk and then sold or distributed, be bagged, and that it have a tax tag attached to each sack; also a tag showing the guaranteed analysis of the fertilizer.

ANALYSIS OF FERTILIZERS, 1927-28

Table 10 contains a list of the samples of fertilizer subjected to analysis in the season beginning September 1, 1927. Analyses below guarantee are brought out in heavy type. Practically all the samples of fertilizer were collected by our inspectors. Analyses and inspection were made by S. E. Asbury, T. L. Ogier, Waldo Walker, J. E. Evans, G. S. Crenshaw, and Gideon Smith.

Table 8.—Comparative valuation of all fertilizer guaranteed and found by analysis in dollars a ton.

Name of Manufacturer	Number Averaged	Valuation Guarantee	Valuation Found
Arkansas Fertilizer Company	34	$ 31.53	$ 31.25
Armour Fertilizer Works	119	37.40	38.50
George L. Barber	1	67.50	69.80
The Barrett Company	1	92.25	93.20
Bryan Cotton Oil and Fertilizer Company	3	25.50	25.60
East Texas Cotton Oil Company	8	28.27	29.28
Farmers Cotton Oil Company	7	30.72	32.05
Fidelity Cotton Oil Company	21	30.21	31.38
Gate City Fertilizer Co	3	31.20	30.14
Gilmer Cotton Oil and Fertilizer Company	6	33.64	32.97
Hope Fertilizer Company	16	32.91	33.90
Kelly Weber & Company	3	39.60	37.92
Longview Cotton Oil Company	33	29.48	30.90
Louis Tobian & Son	5	30.96	31.58
Marshall Cotton Oil Co	43	32.81	33.65
Meridian Fertilizer Company	87	32.69	34.15
Mixson Brothers	12	35.00	35.88
Nitrate Agencies	7	67.50	69.55
Oil Mill and Fertilizer Works	23	32.60	33.59
Palestine Oil Mill and Fertilizer Company	65	32.94	33.65
Pate Brothers	21	34.56	36.24
Pelican Fertilizer Works	2	32.40	33.00
Pittsburg Cotton Oil Company and Fertilizer Works	21	31.64	32.50
Planters Fertilizer and Chemical Company	7	34.29	35.95
Shreveport Fertilizer Works	33	31.14	31.98
Swift and Company Fertilizer Works	157	36.55	37.45
Texas Chemical Company	2	32.72	34.79
Texas Farm Bureau Service Corporation	9	39.80	39.47
Texas Fertilizer Works	2	38.10	41.06
Thomas Self	2	29.40	28.25
Tri-State Fertilizer Company	7	31.20	29.92
Virginia Carolina Chemical Corporation	54	31.89	32.47
Tyler Fertilizer Company	16	33.75	33.94

Relation of Valuation Guaranteed to Valuation Delivered

Table 8 contains the average guaranteed valuation, and the average valuation found by our analyses, for all manufacturers doing business in Texas. In the preparation of this table, all analyses made are averaged even though several were made of each brand, and fertilizer materials are included as well as mixed fertilizers.

Table 9.—Average composition found and guaranteed of mixed fertilizer, 1927–28.

Manufacturer	Number Averaged	Phosphoric Acid Per Cent		Nitrogen Per Cent		Potash Per Cent		Valuation Per Ton	
		Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Arkansas Fertilizer Company	28	10.32	10.56	3.46	3.26	3.29	3.55	$ 31.92	$ 31.60
Armour Fertilizer Works	101	11.58	12.11	4.28	4.34	4.19	4.28	38.20	39.22
Bryan Cotton Oil and Fertilizer Company	2	11.00	11.81	2.50	2.34	2.50	2.19	27.45	27.30
East Texas Cotton Oil Company	5	10.80	10.88	3.20	3.24	3.20	3.49	31.20	31.83
Farmers Cotton Oil Company	6	10.83	11.22	3.17	3.34	4.17	4.46	32.25	33.85
Fidelity Chemical Corporation	16	10.94	11.31	3.31	3.40	3.82	4.26	32.61	33.95
Gate City Fertilizer Company	2	10.00	10.59	4.00	3.68	4.00	3.49	34.80	33.43
Gilmer Cotton Oil and Fertilizer Company	6	9.50	10.73	3.83	3.56	3.33	3.41	33.05	32.98
Hope Fertilizer Company	13	10.54	10.42	3.46	3.60	3.62	3.92	32.56	33.41
Kelly Weber & Company	2	12.00	11.66	6.00	5.64	6.00	5.96	48.60	46.50
Longview Cotton Oil Company	25	9.60	10.24	3.24	3.30	3.24	3.68	29.99	31.53
Marshall Cotton Oil Company	35	10.11	10.53	3.63	3.65	3.51	3.71	32.68	33.50
Meridian Fertilizer Factory	67	10.18	10.44	3.42	3.56	3.27	3.50	31.52	32.77
Mixson Brothers	10	10.40	10.69	3.30	3.41	4.80	4.65	33.09	33.85
Oil Mill and Fertilizer Works	21	10.48	10.96	3.67	3.68	3.71	4.09	33.53	34.63
Palestine Oil Mill and Fertilizer Company	49	10.31	10.58	3.55	3.58	3.51	3.57	32.56	33.08
Pate Brothers	18	10.11	10.93	3.44	3.51	3.55	3.94	31.90	33.63
Pelican Fertilizer Works	2	8.00	8.28	4.00	3.93	4.00	4.50	32.40	33.00
Pittsburg Cotton Oil Company	19	10.05	10.57	3.63	3.62	3.47	3.73	32.57	33.43
Planters Fertilizer and Chemical Company	6	10.17	10.95	4.00	4.24	5.17	4.94	36.40	38.17
Shreveport Fertilizer Works	29	10.69	11.23	3.41	3.40	3.41	3.66	32.29	33.15
Swift & Company Fertilizer Works	129	10.69	11.17	3.93	3.93	3.92	4.00	35.11	35.89
Texas Farm Bureau Service Corporation	8	11.88	11.69	3.88	3.79	3.88	3.82	36.34	35.66
Texas Fertilizer Works	2	10.50	10.27	5.00	4.48	2.50	5.48	38.10	41.06
Tri-State Fertilizer Company	7	9.71	9.02	3.43	3.47	3.43	2.89	31.20	29.92
Tyler Fertilizer Company	15	9.66	10.29	4.26	4.14	3.26	3.21	34.72	34.82
Virginia-Carolina Chemical Corporation	46	10.28	10.67	3.57	3.57	3.50	3.61	32.58	33.19

Table 9 contains the average guaranteed analyses, and the average analyses found for *mixed* fertilizers sold by the various manufacturers. The averages in these tables do not include acid phosphate, nitrate of soda, and other fertilizer materials, but only the mixed fertilizers.

Averages below Guarantee

Whenever any lot of fertilizer is 4 per cent or more below guarantee, the law requires all persons who have sold this lot of fertilizer to make good the deficiency to all purchasers. The rebate is paid by the manufacturer to the dealer and by the dealer to the customer. During the last season, rebates were required on 38 lots of fertilizer.

INVESTIGATIONS UNDER THE FERTILIZER LAW

The State Chemist is required by the fertilizer law to "investigate the composition, properties and agricultural values of fertilizers, or of fertilizer materials, or ingredients of fertilizer sold, offered for sale within the State of Texas, and shall publish his results as he may find."

Relation to Experiment Station Work

The work of the State Chemist is closely related to the chemical work of the Experiment Station. In his capacity as chemist to the Experiment Station, the State Chemist is carrying out extensive investigations into the fundamental properties of soils, especially with respect to their content of plant food. This work is related closely to the use of fertilizers, and is connected with investigations as to the agricultural values of fertilizers required by the Fertilizer Control, for fertilizers vary in effect upon the different soils.

Sulphur and Gypsum as a Fertilizer

We are unable to recommend the use of sulphur or gypsum as a fertilizer in Texas. The experiments which have been carried out do not show satisfactory results under Texas conditions.

Greensand Marl

Extensive deposits of greensand marl are found in Texas, and from time to time attempts are made to exploit some deposit commercially. Most of these deposits are low in plant food. A deposit of greensand marl containing much more plant food than usual is found near San Antonio. One sample of this marl was found to contain 100 pounds of total phosphoric acid and 18 pounds of acid-soluble potash in a ton. It does not contain any available phosphoric acid or any water-soluble potash, and so can not be compared directly with a commercial fertilizer.

The greensand marl found near San Antonio varies in composition.

It contains 4 to 6 per cent total phosphoric acid and 2 to 3½ per cent total potash. The phosphoric acid is not in the form termed available in fertilizer; the potash is not soluble in water, as is required in fertilizer. It is not possible to say exactly what would be the value of this material compared with commercial fertilizer, but it would perhaps have about one-fourth the value of the same plant food in commercial fertilizer. If the greensand marl contains 10 per cent of phosphoric acid and potash together in the forms present in commercial fertilizer it would have a fertilizer valuation of about $12.00 a ton. As the plant food in this material is less easily taken up by plants it would probably have a value of about one-fourth of this, or about $3.00 a ton.

The study of past work indicates that from 5 to 15 tons of greensand marl should be used to the acre. The material contains no nitrogen and for this reason is not a balanced fertilizer. It would be well to supply nitrogen in the form of well-rotted manure or use such fertilizer material as nitrate of soda or sulphate of ammonia in addition to the greensand marl.

Deposits of greensand marl in New Jersey were formerly used to a considerable extent, but are little used now since commercial fertilizers are available.

INFORMATION CONCERNING USE OF FERTILIZER

Information regarding the nature and use of fertilizer is contained in Bulletin 167, which will be sent free on application. Considerable changes have taken place since the bulletin was written, however. Suggestions for the use of the various fertilizers are given below.

General Considerations on the Use of Fertilizers

Fertilizers supply the three forms of plant food most necessary for growing crops, namely, phosphoric acid, nitrogen, and potash. For best results, other conditions should be favorable, such as soil in good physical condition, a well prepared seed bed, good seed, good cultivation, and a good legume rotation. Nitrogen is the most expensive plant food, and for this reason the amount of fertilizers used generally does not supply all the nitrogen required by the crop. A cropping system which includes the regular growing of legumes, such as clover, cowpeas, or peanuts, to be turned under or grazed off should be followed for the purpose of securing nitrogen from the air. Such a system also adds humus to the soil, utilizes time and labor to better advantage, aids in destroying insect pests and plant diseases, and has other favorable effects.

What fertilizers to use depends upon the kind of soil, the climate, the crop, how long the soil has been in cultivation, whether or not it has grown legumes to be turned under or grazed off, what the soil will produce without fertilizer, and other conditions.

Old soils, or sandy soils generally, need more nitrogen than new soils or clay soils. Soils having a legume rotation need less nitrogen than those cropped constantly to non-legumes.

Clay soils and soils with clay or loam subsoils in cultivation less than 15 years need little potash in Texas for ordinary farm crops, but light sandy soils with sandy subsoils may need potash. Larger amounts of fertilizer may be profitably used on crops with a high acre value, such as fruit or truck crops, than on ordinary farm crops. The fertilizer on cotton may profitably be twice as much as that used on corn.

Best results are secured by well-balanced plant food in the soil. An excess of nitrogen and a sufficiency of potash is shown by the production of a heavy stalk or vine, with a deficiency of fruit or delayed maturity. If such land has not been fertilized, the best fertilizer to use is 200 to 400 pounds of acid phosphate to the acre. This will frequently (but not always) promote fruiting. If a fertilizer has been used, the remedy is to decrease the percentage of nitrogen and to increase the percentage of phosphoric acid in subsequent applications. The percentage of potash may also be decreased.

Excess of nitrogen in the soil with truck crops may produce rapid growth but soft tissues, which do not stand up well under shipment. Strawberries, for example, produce large fruits which are not firm enough to ship well. Lettuce, cabbage, and similar crops may not be firm enough to stand shipment. Increased quantities of potash will not benefit softness caused by excess of nitrogen.

Excess of nitrogen renders plants more liable to attack by some diseases. Excess of nitrogen also delays maturity. Excess of potash, like excess nitrogen, delays maturity of the crop. A well-balanced fertilizer should be selected, due consideration being given to the soil, the crop, the character of growth, and other conditions.

How and When to Apply

Fertilizer is generally to be applied under the seed at the time of planting. It should not touch the seed but should be from one to three inches below it or at the side. A combined planter and fertilizer distributer may be used, but care should be taken to select a machine which applies the fertilizer properly, as some machines are not satisfactory.

Fertilizer may also be placed in the ground not more than three weeks before planting. If applied too early, there is danger of loss of plant food by fixation or leaching.

Applications of more than 600 pounds of fertilizer to the acre are best made partly in the drill and partly broadcast.

In dry sections, where the soil above the seed is liable to dry out, the fertilizer may be applied on the firm soil at the side of the seed. Sometimes it may be advisable to put it in when the land is bedded, in sections where there is little danger of loss by leaching.

How Much to Apply

Farmers not experienced in the use of fertilizer should begin with moderate amounts, 200 to 400 pounds to the acre for cotton or corn and 400 to 500 pounds for truck crops. Larger amounts may be tried on a small scale and larger amounts then used if these trials appear to justify it. The approximate amounts to use are indicated below.

Side Dressings

More than one application of fertilizer is not usually recommended for cotton or corn. Under exceptional conditions, more than one application may be made for cotton or corn. These would include: (1) when more than 600 pounds to the acre are used; (2) when the plants appear to be suffering from deficiency of available plant food, particularly nitrogen; (3) if the weather in the spring has been excessively wet, so as to cause considerable leaching; (4) on deep sandy soil, where the plant food is likely to leach out.

Side dressings of cotton with nitrate of soda or sulphate of ammonia are not generally to be recommended, but may be used when the fertilizer applied at planting does not contain enough nitrogen, or on deep sandy soil, where there may be considerable loss from leaching. Under such conditions, 100 pounds per acre nitrate of soda or sulphate of ammonia may be applied to cotton just after chopping.

Corn may frequently use to advantage a side dressing of nitrate of soda or sulphate of ammonia applied when the corn is knee-high.

Side dressings are frequently applied to truck crops. In such case a complete fertilizer is applied before or at the time of planting, and one or more side dressings of sulphate of ammonia or nitrate of soda afterwards. The reason for this procedure is that there is little danger of loss of phosphoric acid or potash by leaching, while soluble nitrogen is much more easily lost in this way.

Fertilizers for East Texas

The soils of East Texas as a general rule respond well to fertilizers, and the recommendations made here apply chiefly to this section of the State. Many of the East Texas soils are sandy and low in phosphoric acid and nitrogen; they are usually better supplied with potash, but are sometimes low. The heavier soils and the bottom lands are much better supplied with plant food.

Fertilizers for the Black Lands

The heavy black limestone soils of Central Texas do not at present respond well to fertilizers. Sometimes fertilizers give good results, but frequently they do not, and in some cases they give results one year and no results the next. These soils appear to need vegetable matter first,

such as is supplied by well rotted manure, by legume crops turned under or grazed off, or by winter cover crops.

Sandy lands in this section will probably respond to fertilizer, though little has been used on them.

Fertilizers for West Texas

Some of the lighter soils of West Texas are low in phosphoric acid and potash, and fertilizers will probably be needed in this section of the state as time goes on. In fact, fertilizers have already been used with good results in some sections. Some of the soils of West Texas contain no more plant food than those of East Texas, but it is probable that plants root deeper and have more soil to feed upon, so that the plant is able to secure more plant food than from the corresponding depth of soil in the eastern part of the state.

When fertilizers are used in Texas west of the black land section, it is suggested that somewhat smaller amounts be used than is recommended for East Texas, unless the land is irrigated. Also, unless the land is irrigated care should be taken that the fertilizer is in the firm soil in which the plant grows, not in the loose earth, which is likely to dry out.

Fertilizers for the Rio Grande Valley

The soils of this section are generally well supplied with plant food, especially with potash. When the soils are new, they may contain an excess of nitrogen, and tend to produce a heavy growth of stalk and leaves, with deficiency of fruit. Superphosphate (acid phosphate) is the best fertilizer to use in such soils, where there is reason to believe an abundance of nitrogen is present.

When placed under cultivation, these soils are likely to need nitrogen first, as the nitrogen is most readily exhausted. As it is desirable to avoid an excess of nitrogen, low proportions of nitrogen should be used at first. These soils are high in potash, and are less likely to need potash than the East Texas soils, which are lower in potash. However, some potash may be used, especially as the cropping is heavy, but there appears to be no need at present for the percentage of potash to exceed the percentage of nitrogen.

Our suggestion at present for these soils would be then to begin with superphosphate (acid phosphate) if the vegetative growth is very heavy. Follow with 18-6-6 or 12-4-4, or begin with this if vegetative growth is not excessive. In the course of time one would reach such truck fertilizers as 8-4-4, 12-6-6, 9-6-3, and 10-6-7.

Fertilizers for the Gulf Coastal Plains

There is considerable variation in the soils of the Gulf Coastal Plains. Some of the soils in the southern section are very sandy, and somewhat low in plant food. They should have about the same fertilizers as the

sandy land of East Texas. Most of the soils are heavier and better supplied with plant food than the very sandy soils. The fertilizers suggested are the same as for the corresponding soils of East Texas. The heavy black soils at the Experiment Station at Angleton respond well to superphosphate (acid phosphate) on cotton and corn.

Some of the soils of the Gulf Coastal Plains are poorly drained. They should be well drained and placed in good condition before any fertilizer is used.

SUGGESTIONS FOR USE OF FERTILIZER

The recommendations given below represent the best present information and will be modified from time to time, as more experimental data are accumulated, and further practical experience is secured.

Cotton

Loam soils with clay or sandy clay subsoils, such as Susquehanna, Lufkin, Orangeburg, or similar soils. If 200 to 400 pounds are used, 9-3-0 or 10-4-2; if over 400 pounds are to be used, 10-4-2, 12-4-4 (15-5-5, 18-6-6), 8-4-4, 12-6-6, or 8-8-4.

Deep sandy soil, such as Norfolk sand. If 200 to 300 pounds or more are to be used, 12-4-4 (15-5-5, 18-6-6); if 300 to 400 pounds or more are to be used, 12-4-4 or 8-4-4, 12-6-6. However, these are not good cotton and corn soils and are better adapted to vegetables.

Land which produces an excessive stalk and does not fruit well, chiefly bottom land: use 200 to 400 pounds of 18 per cent or 16 per cent superphosphate. Nitrate of soda applied early at the rate of 100 to 200 pounds per acre sometimes gives good results on bottom lands which produce a moderately sized stalk.

Black waxy land, such as Houston black clay or heavy limestone soils of Central Texas. A systematic rotation is needed first. Fertilizers are uncertain. A trial may be made of 200 to 300 pounds of 9-3-0, 12-4-4, or 9-6-3.

Alfalfa

Soil recently put in Alfalfa: use 200 to 600 pounds of superphosphate.

Soil in cultivation six years or longer: (best to rotate) use 200 to 600 pounds of superphosphate (acid phosphate) or 200 to 800 pounds of 15-0-6.

Soils poor in lime should receive lime; see Bulletin 243.

Asparagus

Apply 10 to 12 tons of well rotted manure and 500 to 800 pounds to the acre of an 8-4-4 or 12-6-6 fertilizer when setting out the plants.

If the manure is not available, 600 to 900 pounds of the fertilizer could be used. Every spring apply 400 to 600 pounds of 8-4-4. Just before the cutting season is over or soon after, apply 200 to 400 pounds of 8-4-4. Two top dressings of nitrate of soda of 100 pounds to the acre, applied in the spring, would also be advisable in many cases.

Beans (garden) and Peas (garden or English)

An application of 300 to 500 pounds of 12-4-4 (15-5-5 or 18-6-6) or 8-4-4, or 12-6-6 is suggested.

Beets, Cabbage, Carrots, Lettuce, Squash and Turnips

From 500 to 1000 pounds of 8-4-4, 12-6-6, or 12-4-4 (18-6-6 or 15-5-5) may be used and supplemented by three top dressings of 50 to 100 pounds of nitrate of soda or sulphate of ammonia, ten days to two weeks apart, beginning when the plants have begun to make a good growth. Excessive application of nitrogen and too rapid growth will impair the shipping quality.

The nitrate of soda or sulphate of ammonia should be sprinkled along the row three or four inches from the plants, or applied broadcast after the dew has dried off, or applied just before cultivation.

Citrus Trees

We have not yet sufficient experiments on citrus trees in Texas on which to base recommendations for fertilizer. According to Bulletin 145 of the California Experiment Station, in California nitrogen is chiefly needed, and is best supplied in well-rotted manure. Excess of nitrogen may cause mottle leaf.

Farmers Bulletin 1343 of the U. S. Department of Agriculture recommends three applications for young trees on the poor sandy soils of Florida. The first should be made early in the spring, the second in summer, the third in September. For young trees in Texas, we suggest three applications of a 15-5-5 fertilizer. The total amount should be 1 to 2 pounds per tree, increasing a pound a year until trees are 5 to 6 years old.

For bearing trees, three similar applications are suggested, the first two 12-6-6 or 10-6-7, the last one 15-5-5. Bearing trees ten years old may receive 15 to 30 pounds of fertilizer each per year. More fertilizer is used as the trees become larger, large trees receiving 30 to 75 pounds each.

Over-fertilized trees become affected with "die-back," especially if an excess of nitrogen is applied. Die-back is also caused by hard pan, alkali, or poor drainage. "Mottle leaf" or "freshing" affects poorly nourished trees. It is believed an excess of nitrogen may reduce the shipping quality of the fruit.

The soils on which citrus fruit are grown in Texas are generally

higher in potash than in either phosphoric acid or nitrogen, and there appears no good reason at present to recommend fertilizers high in potash. The percentage of potash need not exceed the percentage of nitrogen.

Corn

Loam or clay soils with clay or sandy clay subsoils, such as Susquehanna, Orangeburg, or similar soils with legume rotation: use 200 or 300 pounds of 18 per cent, or 16 per cent superphosphate (acid phosphate), or 200 to 300 pounds of 9-3-0.

Loam or clay soils with clay or sandy clay subsoils, without legume rotation, in cultivation eleven years or more: use 200 to 300 pounds of 9-3-0 or 10-4-2 or 12-4-4.

Deep sandy soil: use 200 to 300 pounds of 12-4-4. This is not a good corn soil.

Land which produces a heavy stalk but does not fruit well: use 200 to 400 pounds of 18 per cent or 16 per cent superphosphate (acid phosphate).

Black waxy land (Houston black clay), or heavy limestone land of Central Texas. A systematic rotation is needed first. Fertilizers are uncertain. A trial may be made of 200 to 400 pounds of 9-5-0 or 12-4-4.

Cantaloupes, Cucumbers, Squash, or Watermelons

On sandy loam soils: if 200 to 300 pounds are applied, use 12-4-4 or 8-4-4. Larger applications are to be recommended, such as 300 to 500 pounds of 8-4-4, 12-6-6, or 8-4-6. An excess of nitrogen will produce a heavy growth of vine but a deficiency of fruit. The remedy is to use more phosphoric acid or less nitrogen. Well-rotted manure should always be used with melons, if possible.

Egg Plant, Mustard, Okra, Peppers and Radishes

An application of 300 to 700 pounds of 8-4-4, 12-6-6, or 8-4-6 is suggested for trial.

Figs

Recommendations for fertilizers for figs depend upon the nature of the soil and the size of the trees. On soils at Angleton, phosphoric acid gave a slight increase in yield, while nitrogen and potash gave no appreciable increase in yield of figs. An application of 200 pounds per acre of superphosphate is suggested for such soils. Figs seem to do best on a soil containing lime.

For small trees on heavy black soil, 200 to 300 pounds to the acre of 9-3-0 or 10-4-2 is suggested. As the trees grow larger, the quantity of fertilizer should be increased to 600 to 1000 pounds or even more to

the acre. These soils contain a good amount of potash but figs have such a high value to the acre that it is well to use some potash when the trees come into bearing. It would then be well to use 9-6-3, 8-4-4, or 12-6-6 fertilizer.

The fertilizer should be applied in the spring after danger of frost is past, and harrowed in. Weeds should be kept down, especially around young trees. Otherwise the fertilizer may help weeds to grow and thereby hold back the trees.

Onions

The use of 600 to 800 pounds of 12-6-6, 9-6-3, or 10-6-7 is suggested, supplemented with one to three dressings of 100 pounds of nitrate of soda or sulphate of ammonia at intervals of 10 to 15 days after the plants have begun to make rapid growth in the spring.

Peach Trees

Loam soils with clay or sandy clay subsoils, such as Orangeburg, Susquehanna, or similar types: use 200 to 600 pounds per acre of 9-3-0 or 10-4-2.

When the trees are bearing, use, in addition, 200 pounds or more of 9-6-3 or 8-4-4 or 12-6-6, increasing the quantity as the trees grow older.

Deep sandy soil, such as Norfolk sand: use 200 to 600 pounds of 12-4-4 or 8-4-4.

On clay soils, bottom lands, use 200 to 600 pounds of 9-3-0 or 9-6-3.

Potatoes, Sweet

Loam or sandy loam soils with clay or sandy loam subsoils: from 300 to 600 pounds of 12-4-4, 8-4-4, or 12-6-6 may be used.

Deep sandy soil: use 200 to 500 pounds of 8-4-4, 12-6-6, or 8-4-6. Excess of nitrogen will produce excessive growth of vine and deficiency of tubers.

Potatoes, Irish

On loam or sandy soils, 300 to 800 pounds of 8-4-4 or 12-4-4 or 8-4-6 are suggested. In East Texas 500 to 800 pounds of 8-4-4 or 9-6-3 may be used.

Rice

At the Beaumont Substation since 1915, 100 pounds to the acre of sulphate of ammonia has made the largest increase in yield and has been the most profitable treatment used. The sulphate of ammonia should be applied at the time of planting, or not later than six weeks after planting the rice.

Strawberries

An application of 300 to 500 pounds of 8-4-4, 12-6-6, or 12-4-4 (15-5-5, 18-6-6) may be made at the time of setting out the plants. In the spring following the setting of the plants, an early application of the same fertilizer should be used in about the same quantity, put as near the row as convenient, and worked into the soil lightly. Some growers prefer to apply all the fertilizer early in the fall.

Tomatoes

Loam soils with clay or sandy clay subsoils, such as Susquehanna, or Orangeburg: if 300 to 500 pounds are applied, use 8-4-6 or 8-4-4; if 500 to 1000 pounds, 8-4-6, 8-4-4, 10-4-2, or 9-6-3. Less than 500 pounds of fertilizer may be supplemented by 100 to 200 pounds of nitrate of soda if there is no tendency to excessive growth of vine.

Deep sandy soil, such as Norfolk sand: if 200 to 500 pounds are applied, use 8-4-4 or 8-4-6 or if 500 to 1000 pounds are used, 8-4-6. Less than 500 pounds of fertilizer may be supplemented by 100 to 200 pounds of nitrate of soda if there is no tendency to excessive growth of vine.

Land which produces an excessive vine: use 200 to 400 pounds of superphosphate (acid phosphate) 18 per cent or 16 per cent. It is also important to prune the vines. Sometimes on good land, good tomatoes can often be secured by pruning without fertilizer. Suckers should be removed every week, beginning a week after the plants are set out and continuing until a week after the top is pinched off. The top is pinched off as soon as the third cluster is formed. Another method of pruning is to allow the first sucker to come out to form a fork, and prune off all others. The top of the main stalk is pinched off immediately after the third cluster of fruit is formed, and the sucker is pinched off immediately after the second cluster is formed on it. According to New Hampshire Bulletin 28, excess of potash delays maturity of tomatoes, and phosphoric acid hastens maturity.

Fertilizer for Home Garden

The tendency with home gardens is to apply quantities of manure, without sufficient applications of phosphoric acid or potash. This results in an unbalanced condition of the plant food in the soil. The best fertilizer to apply under such conditions would be 200 to 400 pounds of superphosphate (acid phosphate) alone, or 15-0-6 fertilizer. Where applications of manure have been made only in moderate amounts, 300 to 600 pounds of 12-4-4 (15-5-5 or 18-6-6) would probably be excellent. If lighter applications of manure are made, or none at all, 400 to 800 pounds of 8-4-4 or 8-4-6 would be suggested, and top dressings with nitrate of soda or sulphate of ammonia might also be tried.

SUMMARY

This Bulletin contains a report of the Texas Fertilizer Control for 1927-28 and information regarding the use of fertilizer.

Sales of fertilizer in Texas were 139,126 tons in 1927-28. In 1926-27 there were 79,863 tons. This does not include cottonseed meal sold as a feed but used as a fertilizer, which is estimated to be 21,470 tons in 1927-28.

The average selling prices and composition of the different kinds of fertilizer are given.

Available phosphoric acid costs less in 20 per cent superphosphate (acid phosphate) than in 18 per cent or 16 per cent. Kainit is a very expensive source of potash, muriate of potash being much cheaper. Nitrogen costs much less in sulphate of ammonia than nitrate of soda. Cottonseed meal was a very expensive fertilizer. Plant food costs less per pound in the more concentrated fertilizers than in those containing less, though the former costs more per ton. A pound of plant food cost most in the 9-3-0 fertilizer, the 10-2-2 came next, and the 12-2-2 came third.

The use of sulphur or gypsum as a fertilizer is not recommended for Texas.

Greensand marl does not contain enough plant food to be sold as a fertilizer, though some of it could be used locally if it could be mined and applied at a low cost.

The following grades of fertilizer will be sold next year in Texas: 8-3-3, 8-4-4, 8-8-4, 9-3-0, 9-6-3, 10-2-2, 10-3-3, 10-3-8, 10-4-2, 10-4-7, 10-6-7, 12-0-4, 12-4-4, 12-6-6, 15-0-6, 15-5-5, 15-6-6, 30-15-15.

Information is given regarding fertilizers, and suggestions are made for the fertilization of various crops in Texas.

The explanation of terms is given.

A table is given showing the relation of the guaranteed valuation to the valuation delivered by the various manufacturers.

A table is given containing analyses of samples of fertilizers collected by inspectors.

Statistics were collected to find the average percentages of the different crops fertilized in some of the counties using fertilizer and the quantity of fertilizer applied to an acre.

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Arkansas Fertilizer Co., Little Rock, Arkansas—				
	White Diamond 9–6–3—Guarantee	9.00	6.00	3.00	$41.40
33456	Analysis	9.36	**5.17**	3.08	**38.20**
	White Diamond Bove-all Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33452	Analysis	18.68	.....	.....	22.42
33798	Analysis	**17.53**	.....	.....	**21.04**
33807	Analysis	18.72	.....	.....	22.46
	White Diamond Cottonseed Meal Fertilizer—Guarantee	.....	6.58	.....	29.61
33455	Analysis	.....	**5.93**	.....	**26.69**
	White Diamond Crop Getter—Guarantee	12.00	4.00	4.00	37.20
33447	Analysis	**10.92**	**3.89**	4.36	**35.84**
33448	Analysis	12.18	**3.70**	**3.85**	**35.89**
33454	Analysis	12.21	**3.15**	**3.78**	**33.37**
33806	Analysis	12.04	**3.64**	4.41	**36.12**
33817	Analysis	**11.66**	**3.96**	**3.89**	**36.48**
33839	Analysis	12.54	**3.34**	4.84	**35.89**
	White Diamond Early Boll—Guarantee	10.00	3.00	3.00	29.10
33453	Analysis	11.00	**2.21**	**2.40**	**26.03**
33797	Analysis	**9.59**	3.34	3.57	30.82
33811	Analysis	11.37	**2.62**	3.05	**29.09**
33815	Analysis	**9.92**	3.31	3.19	30.63
33816	Analysis	10.79	**2.55**	3.21	**28.28**
33829	Analysis	10.16	**2.70**	3.47	**28.40**
33831	Analysis	**9.36**	3.42	3.54	30.87
33832	Analysis	10.06	3.40	3.53	31.61
33837	Analysis	**8.91**	3.13	3.43	**28.90**
33867	Analysis	10.63	3.01	3.38	30.37
33869	Analysis	10.00	**2.90**	3.36	**29.08**
33871	Analysis	10.52	**2.68**	**2.81**	**28.05**
33873	Analysis	10.09	**2.50**	3.36	**27.39**
33874	Analysis	10.75	**2.83**	3.17	29.44
33876	Analysis	10.06	3.09	3.52	30.20
	White Diamond Eclipse Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33868	Analysis	20.06	.....	.....	24.07
	White Diamond Jack Rabbit—Guarantee	8.00	4.00	6.00	34.80
33361	Analysis	9.14	**3.68**	6.53	35.37
33810	Analysis	8.83	**3.86**	6.16	35.36
	White Diamond Moore's Special Mixture—Guarantee	10.00	4.00	2.00	32.40
33870	Analysis	10.49	**3.82**	2.88	33.24
33943	Analysis	10.32	**3.62**	2.04	**31.12**
33945	Analysis	10.41	**3.73**	2.61	32.45
	White Diamond Muriate of Potash—Guarantee	.....	.....	50.00	60.00
33818	Analysis	.....	.....	50.88	61.06
	White Diamond Southern King—Guarantee	12.00	2.00	2.00	25.80
33826	Analysis	12.42	2.00	2.04	26.35
	Armour Fertilizer Works, Houston, Fort Worth, Texas, and New Orleans, Louisiana—				
	Armour's Big Crop African Cotton Grower—Guarantee	10.00	3.00	3.00	29.10
33269	Analysis	11.08	4.18	3.56	36.38
33332	Analysis	10.26	3.43	**2.91**	31.24
33348	Analysis	**9.80**	3.18	3.30	30.03
33374	Analysis	10.29	3.32	**2.73**	30.57
33394	Analysis	10.03	3.26	3.03	30.35
33560	Analysis	10.30	3.43	**2.96**	31.35
33576	Analysis	11.01	3.24	**2.83**	31.19
33604	Analysis	10.91	3.07	3.06	30.58
33768	Analysis	10.95	**2.96**	3.30	30.42
33800	Analysis	**8.66**	3.17	3.15	**28.44**
33803	Analysis	10.53	**2.90**	3.08	29.39
33822	Analysis	10.31	3.18	**2.83**	30.08
33840	Analysis	**9.34**	3.14	**2.88**	**28.80**
33910	Analysis	10.55	**2.98**	3.09	29.78
33934	Analysis	11.77	3.28	3.34	32.89
33994	Analysis	11.04	3.09	3.15	30.94

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Armour Fertilizer Works, Houston, Fort Worth, Texas, and New Orleans, La.—Continued.				
	Armour's Big Crop Best Phosphate—Guarantee	18.00	.....	.....	$21.60
33349	Analysis	18.50	.....	.....	22.20
33395	Analysis	18.18	.....	.....	21.82
33607	Analysis	19.45	.....	.....	23.34
33672	Analysis	18.95	.....	.....	22.74
33761	Analysis	21.05	.....	.....	25.26
33786	Analysis	18.52	.....	.....	22.22
33879	Analysis	18.60	.....	.....	22.32
33995	Analysis	18.13	.....	.....	21.76
	Armour's Big Crop Farmers' Favorite—Guarantee	10.00	2.00	2.00	23.40
33532	Analysis	11.03	2.26	2.34	26.22
33633	Analysis	**9.70**	2.30	2.31	24.76
33746	Analysis	10.58	2.31	2.11	25.63
	Armour's Big Crop Fertilizer No. 930—Guarantee	9.00	3.00	.....	24.30
33248	Analysis	10.23	3.41	.....	27.63
33317	Analysis	9.68	**2.67**	.....	**23.64**
	Armour's Big Crop Fertilizer No. 963—Guarantee	9.00	6.00	3.00	41.40
33804	Analysis	10.55	**5.52**	3.14	**41.27**
33906	Analysis	12.86	**4.43**	4.83	**41.17**
	Armour's Big Crop Fertilizer No. 1042—Guarantee	10.00	4.00	2.00	32.40
33268	Analysis	10.74	4.22	2.30	34.64
33316	Analysis	10.63	4.08	2.23	33.80
33421	Analysis	10.18	**3.89**	2.09	**32.24**
33697	Analysis	10.81	4.16	2.26	34.40
	Armour's Big Crop Fertilizer No. 1266—Guarantee	12.00	6.00	6.00	48.60
33194	Analysis	12.40	6.00	**5.71**	48.73
33195	Analysis	12.82	6.02	6.22	49.93
33197	Analysis	12.86	6.13	6.09	50.33
33202	Analysis	12.39	6.34	6.11	50.73
33205	Analysis	12.53	6.04	6.08	49.52
33208	Analysis	12.66	**5.96**	**5.71**	48.86
33222	Analysis	12.89	**5.76**	6.09	48.64
33249	Analysis	12.16	6.22	6.03	49.82
33337	Analysis	12.57	**5.95**	**5.72**	48.72
33420	Analysis	12.59	6.11	**5.92**	49.71
33439	Analysis	12.24	6.18	6.19	49.93
33696	Analysis	12.44	6.12	6.06	49.74
33887	Analysis	12.52	**5.76**	**5.88**	**48.00**
33998	Analysis	13.34	**5.95**	6.26	50.30
	Armour's Big Crop Fertilizer No. 1555—Guarantee	15.00	5.00	5.00	46.50
33206	Analysis	**14.64**	5.21	5.02	47.04
33270	Analysis	**14.48**	**4.92**	**4.92**	**45.42**
33292	Analysis	15.11	5.13	**4.87**	47.06
33393	Analysis	**14.43**	5.40	5.32	48.00
33331	Analysis	15.21	5.03	5.08	47.06
33425	Analysis	15.02	5.24	5.43	48.12
33486	Analysis	15.04	5.31	5.41	48.44
33531	Analysis	**14.89**	5.01	5.07	46.50
33577	Analysis	15.29	5.10	5.10	47.42
33608	Analysis	15.06	5.02	**4.84**	**46.47**
33682	Analysis	**14.70**	5.16	5.05	46.92
33744	Analysis	**14.45**	5.23	5.06	46.95
33801	Analysis	15.19	5.20	5.75	48.53
33803	Analysis	15.07	5.07	5.17	47.10
33836	Analysis	15.92	5.01	5.21	47.90
33841	Analysis	**14.81**	5.14	**4.91**	46.79
33850	Analysis	15.04	**4.89**	4.77	**45.78**
33858	Analysis	15.23	5.05	5.09	47.12
33888	Analysis	15.51	5.01	5.26	47.47
33894	Analysis	15.80	**4.87**	5.23	47.16
33901	Analysis	15.03	**4.85**	4.80	**45.63**
33918	Analysis	15.32	**4.97**	5.55	47.41
33938	Analysis	15.03	**4.96**	5.12	46.50
33959	Analysis	15.44	5.13	5.41	48.11
33961	Analysis	15.33	**4.83**	5.19	**46.37**
33997	Analysis	15.48	**4.85**	5.06	**46.48**

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Armour Fertilizer Works, Houston, Fort Worth, Texas, and New Orleans, La.—Continued.				
	Armour's Big Crop General Crop Maker—Guarantee..	8.00	4.00	4.00	$32.40
33193	Analysis	8.75	4.09	**3.49**	33.10
33220	Analysis	8.02	**3.81**	**3.76**	**31.28**
33250	Analysis	9.29	4.29	**2.64**	33.63
33422	Analysis	8.88	4.01	4.22	33.77
33689	Analysis	8.88	**3.82**	**3.62**	**32.19**
33927	Analysis	10.29	4.04	4.28	35.67
	Armour's Big Crop King Cotton—Guarantee	12.00	4.00	4.00	37.20
33290	Analysis	12.61	4.16	**3.79**	38.40
33315	Analysis	13.24	4.18	4.14	39.67
33333	Analysis	12.31	**3.92**	**3.92**	**37.11**
33346	Analysis	12.49	4.16	**3.92**	38.41
33386	Analysis	12.35	4.08	4.19	38.21
33451	Analysis	12.07	4.24	**3.97**	38.32
33681	Analysis	12.46	4.00	4.19	37.98
33785	Analysis	**11.91**	4.24	**3.91**	38.06
33799	Analysis	12.53	4.06	4.06	38.18
33859	Analysis	12.66	4.00	4.09	38.10
33878	Analysis	13.27	4.02	4.36	39.24
33886	Analysis	13.15	4.12	4.27	39.44
33909	Analysis	13.09	**3.96**	4.09	38.44
33917	Analysis	12.81	4.07	4.52	39.11
33926	Analysis	13.06	4.02	4.22	38.82
33960	Analysis	12.91	4.02	4.17	38.58
	Armour's Big Crop Star Phosphate—Guarantee	16.00	.....	.....	19.20
33243	Analysis	18.08	.....	.....	21.70
	Armour's Big Crop Sunny South Special—Guarantee..	12.00	2.00	2.00	25.80
33634	Analysis	**11.79**	2.31	2.17	27.14
33745	Analysis	12.32	2.32	2.13	27.78
	Armour's Big Crop Superphosphate—Guarantee	20.00	.....	.....	24.00
33199	Analysis	22.30	.....	.....	26.76
33291	Analysis	21.08	.....	.....	25.30
33387	Analysis	20.66	.....	.....	24.79
	Armour's Big Crop Texas Trucker—Guarantee	8.00	3.00	3.00	26.70
33227	Analysis	9.63	3.29	3.25	30.27
33423	Analysis	**7.98**	**2.81**	3.04	**25.88**
33487	Analysis	8.35	3.01	3.01	27.18
33902	Analysis	9.46	3.12	3.06	29.06
	Armour's Big Crop Truck Producer—Guarantee	10.00	6.00	7.00	47.40
33221	Analysis	10.81	6.01	**6.89**	48.29
33821	Analysis	10.80	**5.74**	**6.52**	**46.61**
	Armour's Big Crop Truck Special—Guarantee	8.00	4.00	6.00	34.80
33288	Analysis	8.95	**3.86**	6.54	35.96
33314	Analysis	8.78	**3.53**	**5.65**	**33.21**
33347	Analysis	8.62	4.28	6.34	37.21
33396	Analysis	8.06	**3.83**	**5.78**	**33.85**
33698	Analysis	9.04	**3.84**	**5.79**	35.08
	Armour's Kainit—Guarantee	.....	.....	12.00	14.40
33912	Analysis	.....	.....	**11.67**	**14.00**
	Armour's Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33196	Analysis	.....	16.05	.....	72.23
33198	Analysis	.....	15.71	.....	70.70
33207	Analysis	.....	15.26	.....	68.67
33336	Analysis	.....	15.15	.....	68.18
	George L. Barber & Son, Jacksonville, Texas—				
	Barber's Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33678	Analysis	.....	15.51	.....	69.80
	The Barrett Co., 40 Rector St., New York, N. Y.—				
	Sulphate of Ammonia—Guarantee	.....	20.50	.....	92.25
33190	Analysis	.....	20.71	.....	93.20

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Bryan Cotton Oil and Fertilizer Co., Bryan, Texas—				
	Star Brand Acid Phosphate—Guarantee	18.00	.....	.....	$21.60
33638	Analysis	18.51	.....	.....	22.21
	Star Brand Cotton and Corn Fertilizer—Guarantee	10.00	2.00	2.00	23.40
33639	Analysis	10.59	2.01	**1.76**	23.87
	Star Brand Special Fertilizer—Guarantee	12.00	3.00	3.00	31.50
33640	Analysis	13.02	**2.66**	**2.62**	**30.73**
	East Texas Cotton Oil Co., Wills Point, Texas—				
	Cottonseed Fertilizer—Guarantee	.....	5.76	.....	25.92
33620	Analysis	.....	6.27	.....	28.22
	Semper-Fidelis 16% Acid Phosphate—Guarantee	16.00	.....	.....	19.20
33619	Analysis	17.44	.....	.....	20.93
	Semper-Fidelis 20% Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33621	Analysis	21.64	.....	.....	25.97
	Semper-Fidelis 10-2-2 Fertilizer—Guarantee	10.00	2.00	2.00	23.40
33971	Analysis	**9.64**	2.23	2.41	24.50
	Semper Fidelis 12-4-4 Fertilizer—Guarantee	12.00	4.00	4.00	37.20
33623	Analysis	12.28	4.00	3.97	37.50
33972	Analysis	11.35	4.06	4.54	37.34
	Semper-Fidelis Sure Crop Fertilizer—Guarantee	10.00	3.00	3.00	29.10
33622	Analysis	10.56	3.01	3.27	30.14
33970	Analysis	10.56	**2.91**	3.24	29.66
	Farmers Cotton Oil Company, Winnsboro, Texas—				
	18% Acid Phosphate	18.00	.....	.....	21.60
33375	Analysis	**17.76**	.....	.....	**21.31**
	Meal Mixture Fertilizer No. 844—Guarantee	8.00	4.00	4.00	32.40
33388	Analysis	8.33	**3.69**	4.60	**32.13**
33975	Analysis	9.43	4.23	**3.98**	35.14
	Meal Mixture Fertilizer No. 1033—Guarantee	10.00	3.00	3.00	29.10
33976	Analysis	11.91	3.44	**2.44**	32.70
	Meal Mixture Fertilizer No. 1244—Guarantee	12.00	4.00	4.00	37.20
33389	Analysis	**10.86**	4.68	5.17	40.29
33977	Analysis	12.14	4.01	4.67	38.22
	Meal Mixture Fertilizer No. 1506—Guarantee	15.00	.....	6.00	25.20
33390	Analysis	**14.65**	.....	**5.87**	**24.62**
	Fidelity Chemical Corporation, Houston, Texas—				
	Fidelity 18% Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33572	Analysis	18.41	.....	.....	22.09
33646	Analysis	18.68	.....	.....	22.42
33667	Analysis	19.54	.....	.....	23.45
	Fidelity 20% Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33213	Analysis	**19.80**	.....	.....	**23.76**
33659	Analysis	20.21	.....	.....	24.25
	Fidelity 8–4–6 Fertilizer—Guarantee	8.00	4.00	6.00	34.80
33241	Analysis	8.00	4.30	6.33	36.55
	Fidelity 10–2–2 Fertilizer—Guarantee	10.00	2.00	2.00	23.40
33464	Analysis	**9.78**	2.21	2.06	24.06
33573	Analysis	10.22	2.50	2.13	26.07
33637	Analysis	10.73	2.58	2.71	27.74
33645	Analysis	10.96	**1.95**	2.55	24.75
33666	Analysis	10.15	2.48	2.29	26.09
	Fidelity 10–3–3 Fertilizer—Guarantee	10.00	3.00	3.00	29.10
33224	Analysis	10.04	3.14	3.54	30.43
	Fidelity 10–3–8 Fertilizer—Guarantee	10.00	3.00	8.00	35.10
33225	Analysis	10.05	3.06	9.07	36.71
	Fidelity 10–6–7 Fertilizer—Guarantee	10.00	6.00	7.00	47.40
33242	Analysis	**9.53**	6.12	7.00	**47.38**
	Fidelity 12–2–2 Fertilizer—Guarantee	12.00	2.00	2.00	25.80
33635	Analysis	12.51	2.01	2.22	26.72
	Fidelity 12–4–4 Fertilizer—Guarantee	12.00	4.00	4.00	37.20
33636	Analysis	12.71	**3.88**	4.74	38.40
33644	Analysis	13.48	**3.20**	4.93	**36.50**
33652	Analysis	12.57	4.06	4.29	38.50
33665	Analysis	12.04	4.21	4.18	38.42
33668	Analysis	12.01	4.27	4.93	39.55
	Fidelity 15–5–5 Fertilizer—Guarantee	15.00	5.00	5.00	46.50
33223	Analysis	16.25	**4.35**	5.14	**45.25**

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Gate City Fertilizer Co., Little Rock, Arkansas—				
	Red Ball 20% Acid Phosphate—Guarantee	20.00	.....	.....	$24.00
33996	Analysis	**19.64**	.....	.....	**23.57**
	Red Ball 8–4–4—Guarantee	8.00	4.00	4.00	32.40
34001	Analysis	9.14	**3.43**	**3.54**	**30.66**
	Red Ball 12–4–4—Guarantee	12.00	4.00	4.00	37.20
34000	Analysis	12.03	**3.92**	**3.43**	**36.20**
	Gilmer Cotton Oil and Fertilizer Co., Gilmer, Texas—				
	G. C. O. and F. Co.'s Allen's Choice—Guarantee	9.00	6.00	3.00	41.40
33985	Analysis	9.09	**4.73**	3.84	**36.81**
	G. C. O. and F. Co.'s Corn Grower—Guarantee	8.00	3.00	3.00	26.70
33614	Analysis	10.29	**2.89**	4.15	30.34
	G. C. O. and F. Co.'s Meal Mixture—Guarantee	10.00	2.00	2.00	23.40
33616	Analysis	10.74	2.56	2.16	27.00
	G. C. O. and F. Co.'s Perfection Compound—Guarantee	12.00	4.00	4.00	37.20
33615	Analysis	12.94	**3.95**	**3.26**	37.22
33974	Analysis	13.03	**3.16**	**3.84**	**34.47**
	G. C. O. and F. Co.'s Potato Grower—Guarantee	8.00	4.00	4.00	32.40
33984	Analysis	8.27	4.06	**3.20**	**32.03**
	Hope Fertilizer Co., Hope, Arkansas—				
	Stork Brand 18% Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33411	Analysis	18.52	.....	.....	22.22
33813	Analysis	**17.30**	.....	.....	**20.76**
	Stork Brand 50%Muriate of Potash—Guarantee	.....	.....	50.00	60.00
33814	Analysis	.....	14.55	**1.51**	65.04
	Stork Brand Eight Four Four—Guarantee	8.00	4.00	4.00	32.40
33781	Analysis	8.39	**3.80**	4.29	**32.32**
	Stork Brand Eight Four Six—Guarantee	8.00	4.00	6.00	34.80
33830	Analysis	**7.69**	**3.91**	**5.89**	**33.90**
	Stork Brand Ten Two Two—Guarantee	10.00	2.00	2.00	23.40
33739	Analysis	10.22	2.14	2.26	24.60
	Stork Brand Ten Three Three—Guarantee	10.00	3.00	3.00	29.10
33409	Analysis	**9.63**	4.04	3.20	33.58
33736	Analysis	10.11	3.18	3.02	30.06
33779	Analysis	**9.09**	3.06	3.44	**28.81**
33812	Analysis	10.27	3.08	3.01	29.79
33827	Analysis	**9.21**	3.53	3.36	30.97
33851	Analysis	**9.96**	**2.80**	3.67	**28.95**
	Stork Brand Twelve Four Four—Guarantee	12.00	4.00	4.00	37.20
33410	Analysis	12.40	4.39	**3.73**	39.12
33780	Analysis	**11.77**	4.21	**3.91**	37.76
33833	Analysis	**11.70**	**3.97**	4.61	37.44
	Stork Brand Fifteen Five Five—Guarantee	15.00	5.00	5.00	46.50
33944	Analysis	15.07	**4.69**	6.53	47.03
	Kelly Weber & Co., Lake Charles, Louisiana—				
	Weber-King Brand 18% Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33787	Analysis	**17.32**	.....	.....	**20.78**
	Weber-King Brand Fertilizer Special No. 1266—Guarantee	12.00	6.00	6.00	48.60
33721	Analysis	**11.82**	**5.56**	**5.85**	**46.22**
33846	Analysis	**11.50**	**5.71**	6.06	**46.77**
	Longview Cotton Oil Co., Longview, Texas—				
	Cottonseed Meal Fertilizer—Guarantee	1.00	6.88	1.00	33.36
33557	Analysis	2.54	**6.49**	1.36	33.89
	Longview Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33558	Analysis	18.72	.....	.....	22.46
33581	Analysis	18.87	.....	.....	22.64
33596	Analysis	18.83	.....	.....	22.60
33600	Analysis	19.19	.....	.....	23.03
33728	Analysis	19.11	.....	.....	22.83

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Longview Cotton Oil Co., Longview, Texas—Continued.				
	Longview Corn and Potato Special—Guarantee	8.00	3.00	3.00	$26.70
33438	Analysis	9.14	3.18	3.64	29.65
33550	Analysis	9.48	3.06	3.54	29.40
33587	Analysis	9.83	3.00	3.53	29.54
33595	Analysis	9.28	**2.90**	3.43	28.31
33723	Analysis	9.60	3.04	3.38	29.26
	Longview Cotton & Corn—Guarantee	12.00	4.00	4.00	37.20
33435	Analysis	12.06	4.04	4.31	37.82
33574	Analysis	12.36	4.04	**3.84**	37.62
33578	Analysis	**10.97**	4.12	5.12	37.84
33601	Analysis	**11.08**	4.46	4.23	38.45
	Longview Cotton Special—Guarantee	10.00	3.00	3.00	29.10
33434	Analysis	10.33	3.07	3.36	30.25
33549	Analysis	10.52	3.06	3.41	30.48
33571	Analysis	10.68	**2.92**	3.31	29.93
33575	Analysis	10.77	**2.69**	3.52	29.25
33579	Analysis	**9.86**	3.29	3.34	30.65
33585	Analysis	10.40	3.11	3.28	30.42
33725	Analysis	11.41	**2.74**	**2.85**	29.44
33935	Analysis	11.01	**2.82**	4.16	30.89
	Longview East Texas Special—Guarantee	10.00	2.00	2.00	23.40
33586	Analysis	10.80	2.10	3.06	26.08
33594	Analysis	10.46	2.24	2.80	25.99
33724	Analysis	11.58	2.04	2.94	26.57
	Longview Gregg County Special—Guarantee	8.00	4.00	4.00	32.40
33436	Analysis	8.64	4.00	4.02	33.19
33570	Analysis	8.72	4.17	4.52	34.65
33580	Analysis	8.72	4.05	4.13	33.65
	Longview Kainit—Guarantee	.....	.....	12.00	14.40
33726	Analysis	.....	.....	12.67	15.20
	Longview Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33437	Analysis	.....	15.33	.....	68.99
	Longview Supreme Cotton Grower—Guarantee	10.00	4.00	2.00	32.40
33727	Analysis	10.20	4.04	2.16	33.01
	Longview Truck Special—Guarantee	8.00	4.00	6.00	34.80
33602	Analysis	8.04	4.20	6.08	35.85
	Louis Tobian & Co., Dallas, Texas—				
	Tobian Brand Fertilizer Cottonseed Meal—Guarantee	.....	6.88	.....	30.96
33256	Analysis	.....	6.98	.....	31.41
33260	Analysis	.....	7.12	.....	32.04
33276	Analysis	.....	6.91	.....	31.10
33302	Analysis	.....	6.94	.....	31.23
33427	Analysis	.....	7.14	.....	32.13
	Marshall Cotton Oil Co., Marshall, Texas—				
	Marshall Corn and Potato Special—Guarantee	8.00	3.00	3.00	26.70
33383	Analysis	8.25	3.21	3.01	27.96
	Marshall Eclipse Fertilizer—Guarantee	10.00	3.00	3.00	29.10
33338	Analysis	10.33	3.01	3.71	30.40
33385	Analysis	**9.64**	3.35	3.37	30.69
33748	Analysis	10.25	**2.81**	3.23	**28.83**
33750	Analysis	10.12	3.08	3.03	29.64
33759	Analysis	10.44	3.04	3.12	29.95
33855	Analysis	11.94	**2.93**	3.02	31.14
33864	Analysis	10.27	3.03	**2.70**	29.20
34004	Analysis	10.70	**2.86**	3.05	29.37
	Marshall Elite Fertilizer—Guarantee	12.00	2.00	2.00	25.80
33883	Analysis	13.24	**1.77**	2.36	26.69
	Marshall Garden Fertilizer—Guarantee	8.00	4.00	6.00	34.80
33339	Analysis	8.49	4.10	6.04	35.89
33345	Analysis	8.81	**3.89**	6.31	35.65
33357	Analysis	8.35	4.35	6.03	36.84
33419	Analysis	8.57	4.16	6.06	36.27

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Marshall Cotton Oil Company—Continued.				
	Marshall Nut Producer—Guarantee	9.00	6.00	3.00	$41.40
33747	Analysis	**8.44**	6.04	3.84	41.92
33999	Analysis	9.27	6.01	3.33	42.17
	Marshall Regal Fertilizer—Guarantee	10.00	2.00	2.00	23.40
33461	Analysis	10.51	2.08	2.04	24.42
33741	Analysis	10.94	2.02	2.14	24.79
33856	Analysis	**9.28**	2.05	3.18	24.19
	Marshall Wonder Fertilizer—Guarantee	12.00	4.00	4.00	37.20
33342	Analysis	**11.43**	**3.93**	4.85	37.23
33384	Analysis	12.07	4.23	4.04	38.37
33418	Analysis	12.02	4.24	4.26	38.61
33463	Analysis	12.27	**3.67**	**3.96**	**35.99**
33742	Analysis	13.06	**3.44**	**3.52**	**35.37**
33749	Analysis	12.30	4.13	4.01	38.16
33758	Analysis	12.19	4.24	4.11	38.64
33852	Analysis	12.21	**3.84**	4.15	**36.91**
33863	Analysis	12.09	4.00	4.49	37.79
34005	Analysis	12.70	4.03	4.36	38.61
	Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33399	Analysis	.....	15.26	.....	68.67
33343	Analysis	.....	15.18	.....	68.31
	Our Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33402	Analysis	21.18	.....	.....	25.42
	Quick Producer Fertilizer—Guarantee	10.00	4.00	2.00	32.40
33359	Analysis	10.61	4.20	**1.72**	33.69
33751	Analysis	10.26	**3.90**	3.04	33.51
33757	Analysis	10.49	4.02	2.73	33.96
	Supreme Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33344	Analysis	19.29	.....	.....	23.15
33356	Analysis	18.89	.....	.....	22.67
33382	Analysis	18.48	.....	.....	22.18
33462	Analysis	18.24	.....	.....	21.89
33865	Analysis	18.82	.....	.....	22.58
	Trucker's Delight—Guarantee	8.00	4.00	4.00	32.40
33358	Analysis	8.65	4.03	4.48	33.90
33403	Analysis	8.93	4.09	**3.58**	33.43
33756	Analysis	9.36	**3.91**	**2.99**	32.42
	Meridian Fertilizer Factory, Shreveport, Louisiana—				
	Kainit—Guarantee	.....	.....	12.00	14.40
33413	Analysis	.....	.....	14.20	17.04
33552	Analysis	.....	.....	18.14	21.77
	Meridian Blood and Bone—Guarantee	10.00	2.00	2.00	23.40
33274	Analysis	10.38	**1.85**	2.23	23.47
33323	Analysis	10.69	2.02	2.42	24.82
33752	Analysis	11.28	3.39	2.22	31.46
	Meridian Great Western—Guarantee	12.00	6.00	6.00	48.60
33686	Analysis	**11.67**	**5.88**	**5.77**	**47.38**
	Meridian Home Mixture—Guarantee	10.00	2.00	2.00	23.40
33280	Analysis	11.35	2.04	2.37	25.64
33283	Analysis	10.00	2.16	2.54	24.77
33406	Analysis	**9.66**	2.23	2.31	24.40
33518	Analysis	**9.67**	2.28	2.70	25.10
33589	Analysis	10.19	2.02	2.01	23.73
33722	Analysis	10.79	2.03	2.29	24.84
33732	Analysis	10.29	2.01	2.09	23.91
33795	Analysis	11.89	2.06	2.45	26.48
33862	Analysis	11.27	2.27	2.18	26.36
34007	Analysis	**9.72**	2.48	2.68	26.04
	Meridian Improved Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33278	Analysis	20.47	.....	.....	24.56
33407	Analysis	**19.35**	.....	.....	**23.22**
33849	Analysis	**18.82**	.....	.....	**22.58**
33775	Analysis	20.30	.....	.....	24.36

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Meridian Fertilizer Factory, Shreveport, La.—Continued.				
	Meridian Magnolia State Formula—Guarantee	8.00	4.00	4.00	$32.40
33300	Analysis	**7.71**	4.03	4.83	33.19
33718	Analysis	8.01	4.85	5.53	38.08
33774	Analysis	**7.58**	**3.89**	4.22	**31.67**
33890	Analysis	8.25	4.45	4.70	35.57
33915	Analysis	8.24	**3.95**	4.28	32.81
33924	Analysis	10.48	4.10	5.04	37.08
	Meridian Perfect Guano—Guarantee	10.00	3.00	3.00	29.10
33257	Analysis	10.69	3.15	**2.56**	30.08
33263	Analysis	10.06	3.19	3.40	30.51
33405	Analysis	**9.83**	3.42	3.01	30.80
33588	Analysis	**9.46**	3.12	3.10	29.11
33539	Analysis	**9.77**	3.37	3.43	31.01
33554	Analysis	**9.55**	3.17	**1.97**	**28.09**
33562	Analysis	**9.90**	3.31	3.40	30.86
33611	Analysis	**9.64**	3.43	**2.75**	30.31
33670	Analysis	**9.63**	3.33	3.43	30.67
33717	Analysis	**9.83**	4.02	3.06	33.56
33735	Analysis	10.57	3.15	**2.62**	30.00
33789	Analysis	**9.68**	3.13	**2.78**	**29.05**
33794	Analysis	12.01	**2.48**	3.14	29.34
33925	Analysis	10.06	3.25	3.10	30.42
33953	Analysis	**9.38**	3.43	3.46	30.85
33983	Analysis	**9.24**	3.43	3.28	30.47
	Meridian Perfection Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33563	Analysis	19.74	.....	.....	23.69
33649	Analysis	19.64	.....	.....	23.57
33809	Analysis	19.08	.....	.....	22.90
33877	Analysis	20.32	.....	.....	24.38
33911	Analysis	20.40	.....	.....	24.48
	Meridian Perfection Compound—Guarantee	12.00	4.00	4.00	37.20
33262	Analysis	12.53	4.32	4.27	39.60
33281	Analysis	12.01	4.07	4.41	38.02
33282	Analysis	12.07	4.01	4.29	37.68
33322	Analysis	12.08	**3.87**	4.24	**37.01**
33404	Analysis	12.03	**3.95**	4.40	37.50
33414	Analysis	**11.48**	4.33	4.31	38.44
33428	Analysis	**11.14**	4.26	5.30	38.90
33506	Analysis	12.35	**3.68**	4.43	**36.70**
33525	Analysis	12.60	**3.72**	**3.27**	**35.78**
33551	Analysis	12.63	4.00	5.01	39.17
33553	Analysis	12.22	4.11	4.24	38.25
33626	Analysis	**11.73**	4.12	4.64	38.19
33650	Analysis	**10.61**	4.02	4.08	**35.72**
33687	Analysis	12.04	4.07	4.41	38.06
33770	Analysis	12.22	4.21	4.02	38.43
33805	Analysis	**11.76**	4.10	**3.54**	**36.81**
33916	Analysis	12.07	**3.95**	4.32	37.44
33952	Analysis	12.38	4.41	4 28	39.85
	Meridian Southern Standard—Guarantee	10.00	4.00	2.00	32.40
33267	Analysis	11.73	4.14	**1.78**	34.85
33277	Analysis	10.63	**3.45**	2.88	**31.75**
33430	Analysis	10.24	4.10	2.46	33.69
33857	Analysis	10.54	4.08	2.03	33.45
33993	Analysis	10.22	4.25	2.67	34.59
	Meridian Special Formula—Guarantee	9.00	5.00	.....	33.30
33255	Analysis	9.43	**4.68**	.....	**32.38**
33429	Analysis	9.31	**4.65**	.....	**32.10**
	Meridian Truck Grower	8.00	3.00	3.00	26.70
33493	Analysis	9.88	3.38	3.25	30.97
	Meridian Truckers Special—Guarantee	8.00	4.00	6.00	34.80
33299	Analysis	8.29	4.07	**5.28**	**34.61**
33365	Analysis	**7.53**	4.19	6.43	35.62
33415	Analysis	8.19	4.01	6.56	35.75
33788	Analysis	8.03	**3.82**	6.17	**34.23**
33808	Analysis	11.42	4.28	**4.16**	37.95

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Meridian Fertilizer Factory, Shreveport, La.—Continued.				
	Meridian Union Special Acid Phosphate—Guarantee	16.00	.....	.....	$19.20
33279	Analysis	19.30	.....	.....	23.16
33408	Analysis	18.62	.....	.....	22.34
33671	Analysis	20.07	.....	.....	24.08
	Muriate of Potash—Guarantee	.....	.....	50.00	60.00
33556	Analysis	.....	.....	50.33	60.40
	Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33412	Analysis	.....	15.52	.....	69.84
33538	Analysis	.....	15.76	.....	70.92
33848	Analysis	.....	15.53	.....	69.89
	Sulphate of Ammonia—Guarantee	.....	20.00	.....	90.00
33716	Analysis	.....	20.33	.....	91.49
33875	Analysis	.....	20.30	.....	91.35
	Mixson Bros., Kirbyville, Texas—				
	Mixson's 18% Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33494	Analysis	18.33	.....	.....	22.00
	Mixson's 8–4–4—Guarantee	8.00	4.00	4.00	32.40
33897	Analysis	10.25	4.03	**3.71**	34.89
	Mixson's 10–2–2—Guarantee	10.00	2.00	2.00	23.40
33501	Analysis	11.71	2.09	2.56	26.53
	Mixson's 10–3–3—Guarantee	10.00	3.00	3.00	29.10
33502	Analysis	11.00	**2.52**	3.37	29.66
33898	Analysis	10.97	3.57	**2.69**	32.46
	Mixson's 10–3–8—Guarantee	10.00	3.00	8.00	35.10
33496	Analysis	10.41	**2.44**	**7.76**	**32.78**
33503	Analysis	10.05	**2.95**	**7.42**	**34.24**
33896	Analysis	10.41	3.18	**7.07**	35.28
	Mixson's 12–4–4—Guarantee	12.00	4.00	4.00	37.20
33495	Analysis	**10.77**	4.33	**3.57**	**36.69**
33504	Analysis	**10.79**	4.48	4.28	38.25
33895	Analysis	**10.51**	4.49	4.04	37.67
	Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33505	Analysis	.....	15.59	.....	70.16
	Nitrate Agencies Co., New Orleans, Louisiana—				
	Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33529	Analysis	.....	15.65	.....	70.43
33542	Analysis	.....	15.48	.....	69.66
33561	Analysis	.....	15.62	.....	70.29
33707	Analysis	.....	15.29	.....	68.81
33708	Analysis	.....	15.26	.....	68.67
33769	Analysis	.....	15.50	.....	69.75
33905	Analysis	.....	15.38	.....	69.21
	Oil Mill and Fertilizer Works, Henderson, Texas—				
	Henderson Best Phosphate—Guarantee	20.00	.....	.....	24.00
33711	Analysis	20.12	.....	.....	24.14
	Henderson Corn Grower—Guarantee	10.00	4.00	2.00	32.40
33318	Analysis	10.57	4.02	2.92	34.27
	Henderson Eclipse—Guarantee	10.00	5.00	5.00	40.50
33713	Analysis	10.98	**4.42**	**4.94**	**39.00**
	Henderson Favorite Phosphate—Guarantee	18.00	.....	.....	21.60
33310	Analysis	**17.65**	.....	.....	**21.18**
	Henderson Potato Grower—Guarantee	8.00	4.00	6.00	34.80
33329	Analysis	8.26	4.08	6.77	36.39
	Henderson Sandy Land	12.00	4.00	4.00	37.20
33308	Analysis	12.37	4.04	4.28	38.16
33320	Analysis	12.86	4.11	**3.66**	38.32
33330	Analysis	12.40	4.19	4.38	39.00
33715	Analysis	12.55	4.06	4.44	38.66
	Henderson Special—Guarantee	10.00	3.00	3.00	29.10
33319	Analysis	10.05	3.38	4.18	32.29
33325	Analysis	11.72	**2.81**	3.40	30.79
33709	Analysis	11.80	3.26	3.16	32.62

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Oil Mill and Fertilizer Works, Henderson, Texas—Cont.				
	Henderson Special—Continued.				
33712	Analysis	10.46	**2.94**	3.40	$29.86
33928	Analysis	**9.63**	**2.85**	3.62	**28.73**
33929	Analysis	**9.66**	**2.97**	**2.86**	**28.39**
33932	Analysis	10.46	3.10	3.24	30.39
33931	Analysis	**9.68**	**2.93**	3.21	**28.66**
	Henderson Standard—Guarantee	10.00	2.00	2.00	23.40
33309	Analysis	10.27	2.05	2.48	24.53
33327	Analysis	10.16	2.01	2.62	24.38
	Henderson Superlative—Guarantee	18.00	6.00	6.00	55.80
33714	Analysis	**17.99**	6.04	6.00	55.97
	Henderson Tomato Grower—Guarantee	10.00	6.00	7.00	47.40
33328	Analysis	11.16	**5.85**	7.58	48.82
	Henderson Truck—Guarantee	8.00	4.00	4.00	32.40
33326	Analysis	**7.83**	4.23	4.28	33.58
33930	Analysis	9.35	**3.98**	4.37	34.37
	Palestine Oil Mill and Fertilizer Co., Palestine, Texas—				
	Cottonseed Meal Fertilizer—Guarantee	1.00	6.88	1.00	33.36
33258	Analysis	2.69	7.00	1.69	36.76
33271	Analysis	2.55	**6.79**	2.13	36.18
33284	Analysis	2.67	**6.77**	1.28	35.21
33293	Analysis	2.77	7.22	1.73	37.89
33324	Analysis	2.64	7.33	1.55	38.02
33537	Analysis	2.64	**6.94**	1.70	36.44
	Palestine Sixteen Per Cent Acid Phosphate—Guarantee	16.00	.....	.....	19.20
33246	Analysis	17.04	.....	.....	20.45
	Palestine Eighteen Per Cent Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33245	Analysis	18.64	.....	.....	22.37
33674	Analysis	19.45	.....	.....	23.34
	Palestine Twenty Per Cent Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33259	Analysis	20.32	.....	.....	24.38
33286	Analysis	20.37	.....	.....	25.54
33460	Analysis	20.79	.....	.....	24.95
33603	Analysis	**19.84**	.....	.....	**23.89**
	Palestine Blood and Bone—Guarantee	10.00	2.00	2.00	23.40
33237	Analysis	10.34	2.15	2.24	24.78
33273	Analysis	10.61	2.32	2.70	26.41
33533	Analysis	10.18	2.25	2.33	25.15
33690	Analysis	10.04	2.11	2.91	25.04
	Palestine Blue Star 950—Guarantee	9.00	5.00	.....	33.30
33239	Analysis	10.33	5.02	.....	34.99
	Palestine Blue Star 1022—Guarantee	10.00	2.00	2.00	23.40
33442	Analysis	10.49	2.25	2.40	25.60
33443	Analysis	11.06	2.15	2.06	25.42
33656	Analysis	**9.61**	2.19	2.41	24.28
33695	Analysis	**9.90**	2.33	2.22	25.03
	Palestine Blue Star 12–4–4—Guarantee	12.00	4.00	4.00	37.20
33232	Analysis	12.50	4.20	**3.67**	38.30
33236	Analysis	12.04	4.24	**3.55**	37.79
33261	Analysis	**11.68**	**3.98**	**3.65**	**36.31**
33272	Analysis	**11.47**	4.14	4.29	37.54
33285	Analysis	**11.52**	**3.54**	**3.69**	**34.18**
33289	Analysis	**11.88**	**3.57**	**3.32**	**34.31**
33441	Analysis	12.53	4.05	**3.88**	37.93
33465	Analysis	13.17	4.10	**3.58**	38.55
33536	Analysis	**11.23**	**5.84**	**2.89**	43.23
33546	Analysis	12.53	**3.93**	4.43	38.05
33655	Analysis	13.14	**3.67**	4.02	**37.11**
33693	Analysis	**8.38**	**3.66**	6.34	**34.14**
33767	Analysis	12.27	4.02	**3.72**	37.27
33937	Analysis	**11.70**	4.27	4.05	38.12
33964	Analysis	**11.26**	4.53	**3.42**	38.00
	Palestine Blue Star Jumbo—Guarantee	18.00	6.00	6.00	55.80
33534	Analysis	18.44	6.01	**4.00**	**53.98**

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Palestine Oil Mill and Fertilizer Co., Palestine Texas—Continued.—				
	Palestine Corn and Cotton—Guarantee	10.00	4.00	2.00	$32.40
33234	Analysis	**9.88**	4.89	2.59	36.98
33266	Analysis	10.91	4.43	2.75	36.13
33548	Analysis	10.79	4.00	2.61	34.08
	Palestine Cotton Producer—Guarantee	10.00	3.00	3.00	29.10
33233	Analysis	10.47	3.29	3.54	31.62
33264	Analysis	10.21	3.22	4.00	31.54
33294	Analysis	10.91	**2.90**	3.42	30.24
33466	Analysis	**9.90**	3.37	3.40	31.13
33535	Analysis	11.21	3.38	**2.66**	31.85
33654	Analysis	10.24	3.01	3.13	29.60
33675	Analysis	10.29	**2.32**	3.61	**27.12**
33766	Analysis	10.05	3.12	3.13	29.86
33963	Analysis	**9.74**	3.01	3.36	29.27
	Palestine Muriate of Potash—Guarantee	.....	.....	50.00	60.00
33440	Analysis	.....	.....	**45.28**	**54.34**
33676	Analysis	.....	.....	**49.28**	**59.14**
	Palestine Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33235	Analysis	.....	15.04	.....	67.68
	Palestine Tomato Special—Guarantee	8.00	4.00	6.00	34.80
33238	Analysis	8.86	4.01	**5.75**	35.58
33265	Analysis	8.69	4.22	**5.41**	35.91
33287	Analysis	9.17	**3.72**	**5.77**	34.66
33432	Analysis	8.35	4.08	6.13	35.74
	Palestine Upland Cotton—Guarantee	8.00	4.00	4.00	32.40
33244	Analysis	9.72	**3.88**	**3.10**	32.84
33295	Analysis	8.36	4.04	4.30	33.37
33433	Analysis	8.80	**3.96**	4.02	33.20
33673	Analysis	8.22	**3.72**	4.14	**31.57**
33692	Analysis	8.96	**3.53**	4.74	**32.33**
	Palestine Vegetable Fertilizer—Guarantee	8.00	3.00	3.00	26.70
33240	Analysis	8.38	**2.76**	3.80	27.04
33981	Analysis	**7.77**	**2.32**	3.66	**24.15**
	Palestine Vegetable Leader—Guarantee	10.00	6.00	7.00	47.40
33691	Analysis	10.10	**3.68**	**4.14**	**33.65**
	Pate Bros., Sulphur Springs, Texas—				
	Pate's 20% Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33366	Analysis	20.28	.....	.....	24.34
	Pate's 8–3–3—Guarantee	8.00	3.00	3.00	26.70
33792	Analysis	9.83	3.75	**2.73**	31.96
	Pate's 8–4–4—Guarantee	8.00	4.00	4.00	32.40
33369	Analysis	9.39	**3.96**	4.24	34.18
33679	Analysis	8.40	**3.77**	4.67	32.65
33400	Analysis	8.50	**3.82**	4.53	32.83
	Pate's 8–4–6—Guarantee	8.00	4.00	6.00	34.80
33370	Analysis	10.70	**3.77**	6.32	37.39
	Pate's 10–2–2—Guarantee	10.00	2.00	2.00	23.40
33372	Analysis	11.19	2.34	2.30	26.72
33793	Analysis	11.13	2.00	2.47	25.32
	Pate's 10–3–3—Guarantee	10.00	3.00	3.00	29.10
33373	Analysis	10.23	3.09	3.19	30.02
33398	Analysis	10.10	3.23	3.64	31.03
33618	Analysis	10.49	3.08	3.46	30.60
33791	Analysis	11.32	3.16	3.02	31.42
34008	Analysis	11.26	3.21	**2.70**	31.20
	Pate's 12–4–4—Guarantee	12.00	4.00	4.00	37.20
33371	Analysis	13.33	**3.85**	4.12	38.27
33397	Analysis	13.14	**3.91**	4.41	38.66
33617	Analysis	**11.70**	4.18	4.51	38.26
33685	Analysis	12.25	**3.97**	4.37	37.81
33790	Analysis	12.04	4.13	4.06	37.91
34009	Analysis	**11.65**	**3.95**	6.16	39.15
	Pate's Muriate of Potash—Guarantee	.....	.....	50.00	60.00
33368	Analysis	.....	.....	50.06	60.07
	Pate's Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33367	Analysis	.....	15.82	.....	71.19

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Pelican Fertilizer Works, Shreveport, Louisiana—				
	Pelican Improved Guano—Guarantee	8.00	4.00	4.00	$32.40
33657	Analysis	8.21	**3.99**	4.73	33.49
33658	Analysis	8.35	**3.86**	4.26	32.50
	Pittsburg Cotton Oil Co. and Fertilizer Works, Pittsburg, Texas—				
	18% Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33391	Analysis	19.26	.....	.....	23.11
	20% Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33392	Analysis	20.03	.....	.....	24.04
	Meal and Phosphate Fertilizer No. 844—Guarantee	8.00	4.00	4.00	32.40
33381	Analysis	**7.58**	**3.85**	4.58	**31.93**
33860	Analysis	9.91	4.31	4.28	36.43
33861	Analysis	11.18	4.02	4.01	36.32
33988	Analysis	**7.83**	4.16	4.75	33.82
	Meal and Phosphate Fertilizer No. 963—Guarantee	9.00	6.00	3.00	41.40
33784	Analysis	9.18	**5.74**	3.25	**40.75**
	Meal and Phosphate Fertilizer No. 1033—Guarantee	10.00	3.00	3.00	29.10
33380	Analysis	11.17	3.03	**2.97**	30.60
33610	Analysis	10.07	**2.93**	3.33	29.27
33772	Analysis	11.96	3.26	3.23	32.90
33773	Analysis	11.32	3.03	3.24	31.11
33823	Analysis	10.57	**2.80**	3.08	**28.98**
33872	Analysis	10.59	3.02	3.13	30.06
33987	Analysis	10.00	3.09	3.71	30.36
33986	Analysis	**9.76**	3.20	3.30	30.07
33991	Analysis	10.06	3.07	3.32	29.87
	Meal and Phosphate Fertilizer No. 1244—Guarantee	12.00	4.00	4.00	37.20
33378	Analysis	**11.71**	4.22	4.21	38.09
33609	Analysis	**11.67**	**3.67**	4.04	**35.37**
33771	Analysis	12.55	**3.52**	4.28	**36.04**
33782	Analysis	12.21	**3.85**	**3.33**	**35.98**
33989	Analysis	**11.54**	**3.94**	4.77	37.30
	Planters Fertilizer and Chemical Co., Houston, Fort Worth, Texas, and New Orleans, La.—				
	Planter's Plow Brand Best Phosphate—Guarantee	18.00	.....	.....	21.60
33231	Analysis	18.85	.....	.....	22.62
	Planter's Plow Brand Fertilizer No. 1555—Guarantee	15.00	5.00	5.00	46.50
33568	Analysis	**14.79**	5.24	5.18	47.55
	Planter's Plow Brand General Crop Maker—Guarantee	8.00	4.00	4.00	32.40
33226	Analysis	11.22	4.50	4.36	38.94
33889	Analysis	8.88	**3.97**	4.16	33.52
	Planter's Plow Brand King Cotton—Guarantee	12.00	4.00	4.00	37.20
33731	Analysis	12.09	4.02	4.11	37.53
	Planter's Plow Brand Lower Valley Special—Guarantee	10.00	3.00	8.00	35.10
33489	Analysis	**9.44**	3.64	**6.92**	36.01
	Planter's Plow Brand Truck Special—Guarantee	8.00	4.00	6.00	34.80
33230	Analysis	9.26	4.09	**4.93**	35.44
	Shreveport Fertilizer Works, Shreveport, Louisiana—				
	Lion Blood & Bone—Guarantee	10.00	2.00	2.00	23.40
33507	Analysis	11.03	2.16	2.13	25.52
33512	Analysis	10.40	2.16	2.10	24.72
	Lion Corn Food—Guarantee	8.00	3.00	3.00	26.70
33582	Analysis	9.13	3.03	**2.16**	27.19
33627	Analysis	9.22	3.06	3.40	28.91
33684	Analysis	10.67	**2.83**	**2.66**	28.73
	Lion Potato Producer—Guarantee	8.00	4.00	4.00	32.40
33301	Analysis	8.78	**3.53**	4.81	**32.20**
33683	Analysis	8.19	**3.79**	4.03	**31.73**
	Lion Special Cotton—Guarantee	15.00	5.00	5.00	46.50
33920	Analysis	**13.42**	5.11	6.49	46.89
33979	Analysis	15.04	**4.15**	5.62	**43.47**

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Shreveport Fertilizer Works, Shreveport, Louisiana—Continued.				
	Lion Superfine Acid Phosphate—Guarantee	18.00	.....	.....	$21.60
33564	Analysis	18.45	.....	.....	22.14
33765	Analysis	18.49	.....	.....	22.19
	Lion Superior Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33508	Analysis	20.35	.....	.....	24.42
33669	Analysis	20.57	.....	.....	24.68
	Lion Cottonseed Meal Mixture—Guarantee	10.00	2.00	2.00	23.40
33510	Analysis	10.42	2.19	**1.84**	24.57
33738	Analysis	10.83	2.06	3.46	26.42
	Lion Superior Blood & Bone—Guarantee	10.00	3.00	3.00	29.10
33629	Analysis	10.71	2.34	3.19	27.21
	Lion Superior Cotton Grower—Guarantee	12.00	4.00	4.00	37.20
33519	Analysis	12.98	4.37	4.04	40.10
33522	Analysis	12.56	4.19	4.12	38.87
33566	Analysis	12.45	4.15	4.55	39.03
33583	Analysis	13.21	**3.63**	4.17	**37.19**
33612	Analysis	12.52	**3.78**	4.19	**37.06**
33628	Analysis	12.57	4.02	4.25	38.27
33919	Analysis	**11.76**	4.00	4.75	37.81
33962	Analysis	12.31	4.00	4.09	37.68
33966	Analysis	12.22	4.26	4.48	39.21
33973	Analysis	12.27	**3.93**	4.34	37.62
	Lion Superior Meal Formula—Guarantee	10.00	3.00	3.00	29.10
33334	Analysis	10.31	3.01	**2.95**	29.46
33511	Analysis	10.50	3.06	**2.90**	29.85
33565	Analysis	10.49	3.28	3.33	31.35
33584	Analysis	10.36	3.54	**2.91**	31.85
33605	Analysis	10.74	3.09	**2.74**	30.09
33613	Analysis	10.12	3.00	3.20	29.48
33737	Analysis	10.31	**2.90**	3.15	29.20
	Swift & Co., Fertilizer Works, Harvey and Shreveport, La., and Houston, Texas—				
	Pioneer 10–2–2—Guarantee	10.00	2.00	2.00	23.40
33513	Analysis	10.26	2.10	2.08	24.26
	Pioneer 12–6–6—Guarantee	12.00	6.00	6.00	48.60
33651	Analysis	13.01	**5.87**	**5.67**	48.83
	Swift's Blood, Bone and Potash—Guarantee	10.00	4.00	7.00	38.40
33183	Analysis	10.08	4.09	7.27	39.23
33204	Analysis	10.40	4.50	**6.26**	40.24
33210	Analysis	10.50	4.46	**6.22**	40.13
	Swift's High Grade Acid Phosphate Fertilizer 16%—Guarantee	16.00	.....	.....	19.20
33491	Analysis	16.82	.....	.....	20.18
33521	Analysis	18.74	.....	.....	22.49
33516	Analysis	18.23	.....	.....	21.88
33648	Analysis	17.77	.....	.....	21.32
	Swift's Kainit—Guarantee	.....	.....	12.00	14.40
33352	Analysis	.....	.....	12.16	14.59
	Swift's Muriate of Potash—Guarantee	.....	.....	50.00	60.00
33353	Analysis	.....	.....	50.07	60.08
33477	Analysis	.....	.....	50.41	60.49
	Swift's Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33186	Analysis	.....	15.81	.....	71.15
33188	Analysis	.....	15.73	.....	70.79
33210	Analysis	.....	15.64	.....	70.38
33351	Analysis	.....	15.40	.....	69.30
33688	Analysis	.....	15.45	.....	69.53
33978	Analysis	.....	15.89	.....	71.51
	Swift's Red Steer 18% Acid Phosphate Fertilizer—Guarantee	18.00	.....	.....	21.60
33312	Analysis	**17.38**	.....	.....	**20.86**
33350	Analysis	19.10	.....	.....	22.92
33457	Analysis	18.25	.....	.....	21.90
33500	Analysis	19.77	.....	.....	23.72
33641	Analysis	18.59	.....	.....	22.31
33968	Analysis	18.47	.....	.....	22.16

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Swift & Co., Fertilizer Works, Harvey and Shreveport, La., and Houston, Texas—Continued.				
	Swift's Red Steer 20% Acid Phosphate Fertilizer—Guarantee	20.00	.....	.....	$24.00
33217	Analysis	21.23	.....	.....	25.32
33354	Analysis	**19.26**	.....	.....	**23.11**
33474	Analysis	22.33	.....	.....	24.40
33478	Analysis	20.77	.....	.....	24.92
33661	Analysis	21.41	.....	.....	25.69
	Swift's Red Steer 8–3–3—Guarantee	8.00	3.00	3.00	26.70
33253	Analysis	8.50	3.03	**2.76**	27.15
	Swift's Red Steer 8–4–4—Guarantee	8.00	4.00	4.00	32.40
33192	Analysis	8.17	4.20	4.08	33.60
33209	Analysis	8.44	4.20	4.24	34.12
33212	Analysis	8.52	4.65	**3.76**	35.66
33251	Analysis	**7.83**	**3.95**	**3.64**	**31.55**
33298	Analysis	8.19	4.10	**3.73**	32.76
33311	Analysis	8.51	4.01	4.02	33.08
33335	Analysis	8.31	4.01	**3.91**	32.71
33362	Analysis	8.43	**3.95**	**3.96**	32.65
33379	Analysis	8.34	4.14	4.01	33.45
33597	Analysis	8.70	4.01	4.02	33.36
33680	Analysis	8.33	**3.87**	4.17	32.42
33783	Analysis	9.71	**2.63**	**2.72**	**26.75**
33914	Analysis	8.55	4.10	**3.79**	33.26
	Swift's Red Steer 8–4–6—Guarantee	8.00	4.00	6.00	34.80
33182	Analysis	8.15	4.10	6.50	36.03
33219	Analysis	8.52	4.52	**5.33**	36.96
33376	Analysis	8.60	**3.79**	6.13	**34.74**
33776	Analysis	8.76	**3.94**	6.10	35.56
33990	Analysis	9.18	4.16	**5.32**	36.12
33955	Analysis	11.02	**2.72**	**3.90**	**30.14**
	Swift's Red Steer 9–3–0—Guarantee	9.00	3.00	.....	24.30
33252	Analysis	9.07	3.06	.....	24.65
33275	Analysis	9.04	3.20	.....	25.25
33940	Analysis	9.45	**2.94**	.....	24.57
	Swift's Red Steer 9–5–0—Guarantee	9.00	5.00	.....	33.30
33296	Analysis	9.09	5.18	.....	34.22
	Swift's Red Steer 9–6–3—Guarantee	9.00	6.00	3.00	41.40
33459	Analysis	9.49	**5.75**	3.12	**41.01**
33704	Analysis	17.64	**4.17**	3.71	44.39
33954	Analysis	**8.48**	6.02	3.38	**41.33**
	Swift's Red Steer 10–2–2—Guarantee	10.00	2.00	2.00	23.40
33498	Analysis	10.52	2.28	2.36	25.71
33509	Analysis	10.53	2.10	2.12	24.63
33526	Analysis	10.49	2.22	2.28	25.32
33598	Analysis	10.38	2.01	2.14	24.08
33625	Analysis	10.03	2.02	2.22	23.79
33630	Analysis	**9.77**	2.39	2.29	25.23
33647	Analysis	10.05	2.32	2.29	25.25
33663	Analysis	10.11	2.09	2.09	24.05
33734	Analysis	10.44	2.24	2.40	25.49
33820	Analysis	11.37	2.00	2.12	25.18
33900	Analysis	12.30	2.53	2.38	29.01
33969	Analysis	10.56	2.07	2.62	25.13
	Swift's Red Steer 10–3–3—Guarantee	10.00	3.00	3.00	29.10
33297	Analysis	10.12	3.19	3.02	30.12
33341	Analysis	10.65	3.02	3.18	30.19
33364	Analysis	10.78	3.11	3.17	30.74
33555	Analysis	10.41	3.01	**2.95**	29.58
33567	Analysis	10.36	3.08	3.20	30.13
33624	Analysis	10.44	3.05	3.34	30.27
33643	Analysis	10.41	3.27	3.28	31.15
33694	Analysis	10.32	3.18	3.02	30.31
33720	Analysis	10.47	3.10	3.09	30.22
33819	Analysis	10.20	**2.95**	3.26	29.43

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Swift & Co., Fertilizer Works, Harvey and Shreveport, La., and Houston, Texas—Continued.				
	Swift's Red Steer 10–3–3—Guarantee—Continued.				
33824	Analysis	10.45	3.15	3.10	$30.44
33853	Analysis	10.18	3.22	3.35	30.73
33866	Analysis	10.14	**2.95**	3.18	29.27
33923	Analysis	10.33	3.20	3.46	30.95
33933	Analysis	10.04	**2.80**	**2.78**	**27.99**
33941	Analysis	10.19	**2.94**	3.42	29.56
33942	Analysis	**9.78**	**2.99**	3.11	**28.93**
33946	Analysis	10.30	3.49	**2.20**	30.71
33956	Analysis	**9.48**	**2.95**	3.10	**28.38**
33982	Analysis	10.33	**2.63**	3.31	**28.21**
33903	Analysis	11.40	3.48	3.89	34.01
	Swift's Red Steer 10–4–2—Guarantee	10.00	4.00	2.00	32.40
33355	Analysis	10.58	**3.83**	2.01	**32.35**
33703	Analysis	10.65	4.02	2.45	33.81
33939	Analysis	**9.83**	**3.81**	**1.95**	**31.29**
	Swift's Red Steer 10–6–7—Guarantee	10.00	6.00	7.00	47.40
33185	Analysis	**9.78**	6.14	**6.92**	47.67
33189	Analysis	10.19	6.02	7.51	48.33
33191	Analysis	**9.94**	6.00	7.17	47.53
33203	Analysis	**9.86**	6.08	**6.65**	**47.17**
33211	Analysis	10.30	**5.65**	**6.62**	**45.73**
33214	Analysis	**9.97**	6.14	7.02	48.01
33913	Analysis	11.20	6.23	7.22	50.14
33216	Analysis	10.26	6.20	7.14	48.78
33340	Analysis	11.23	**5.68**	**5.90**	46.12
	Swift's Red Steer 12–2–2—Guarantee	12.00	2.00	2.00	25.80
33631	Analysis	12.43	2.07	2.18	26.86
	Vigoro—Guarantee	12.00	4.00	4.00	37.20
33247	Analysis	12.93	4.06	4.33	38.99
33490	Analysis	12.61	4.03	4.47	38.63
33488	Analysis	12.62	4.08	4.22	38.56
	Swift's Red Steer 12–4–4—Guarantee	12.00	4.00	4.00	37.20
33215	Analysis	12.13	4.23	4.20	38.64
33313	Analysis	12.93	4.02	4.08	38.51
33360	Analysis	12.48	4.47	4.53	40.54
33363	Analysis	12.84	4.20	4.02	39.13
33377	Analysis	12.62	4.23	4.20	39.22
33417	Analysis	12.56	4.24	4.53	39.59
33431	Analysis	12.11	4.11	4.42	38.33
33458	Analysis	12.35	4.14	4.19	38.48
33469	Analysis	12.20	4.09	4.26	38.16
33475	Analysis	12.04	4.16	4.23	38.25
33492	Analysis	12.30	4.12	4.42	38.60
33499	Analysis	12.43	4.06	4.41	38.48
33515	Analysis	12.73	4.23	4.22	39.38
33520	Analysis	12.78	4.16	4.04	38.91
33527	Analysis	12.53	4.02	4.29	38.28
33528	Analysis	12.67	4.12	4.29	38.89
33547	Analysis	12.46	4.09	4.20	38.40
33569	Analysis	12.49	4.16	4.25	38.81
33599	Analysis	12.63	4.08	4.23	38.60
33642	Analysis	12.28	4.08	4.05	37.96
33660	Analysis	12.98	4.06	**2.48**	**36.83**
33662	Analysis	12.05	4.02	4.55	38.01
33677	Analysis	12.05	4.04	4.19	37.67
33710	Analysis	12.78	**3.29**	5.33	**36.55**
33719	Analysis	12.10	4.36	**3.88**	38.80
33760	Analysis	**11.54**	4.64	5.03	40.77
33828	Analysis	12.67	4.01	4.61	38.78
33835	Analysis	12.01	**3.92**	4.31	37.22
33838	Analysis	12.77	**3.93**	**3.73**	37.49
33854	Analysis	**11.72**	4.08	4.05	37.28

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Swift & Co. Fertilizer Works, Harvey and Shreveport, La., and Houston, Texas—Continued.				
	Swift's Red Steer 12–4–4—Guarantee—Continued.				
33899	Analysis	**11.78**	4.16	**3.78**	$37.40
33904	Analysis	12.56	**3.88**	4.43	37.85
33921	Analysis	13.87	**2.90**	**3.60**	**34.01**
33957	Analysis	12.56	**3.90**	4.32	37.80
33967	Analysis	13.40	4.10	4.48	39.91
34006	Analysis	13.58	4.40	4.24	41.19
	Swift's Red Steer 12–6–6—Guarantee	12.00	6.00	6.00	48.60
33476	Analysis	13.62	**5.40**	6.08	**48.24**
33892	Analysis	12.53	**5.43**	**4.93**	**45.40**
	Swift's Red Steer 15–5–5—Guarantee	15.00	5.00	5.00	46.50
33187	Analysis	**14.47**	**4.98**	**4.75**	**45.47**
33218	Analysis	15.45	5.01	5.02	47.11
33416	Analysis	15.45	**4.52**	**4.32**	**44.06**
33468	Analysis	15.10	**4.96**	5.02	**46.46**
33632	Analysis	15.31	**4.60**	5.86	**46.10**
33497	Analysis	15.19	**4.78**	**4.61**	**45.27**
33514	Analysis	15.07	5.17	5.03	47.39
33891	Analysis	**13.53**	5.32	5.00	**46.18**
33922	Analysis	**14.21**	**4.74**	5.28	**44.72**
33980	Analysis	**14.03**	5.01	6.17	46.79
	Swift's Sulphate of Ammonia—Guarantee	.....	20.56	.....	92.52
33184	Analysis	.....	20.68	.....	93.06
33200	Analysis	.....	20.90	.....	94.05
33254	Analysis	.....	20.64	.....	92.88
	Texas Chemical Co., Houston, Texas—				
	T. C. C. Raw Bone Meal—Guarantee	*19.00	3.25	.....	29.83
33229	Analysis	***14.88**	3.86	.....	**29.27**
	T. C. C. Special Raw Bone Meal—Guarantee	*22.00	4.00	.....	35.60
33228	Analysis	*23.88	4.71	.....	40.30
	Texas Farm Bureau Service Corporation, Dallas, Texas—				
	No. 1033 Farm Bureau Fertilizer—Guarantee	10.00	3.00	3.00	29.10
33834	Analysis	**9.75**	3.16	3.29	29.87
33908	Analysis	10.00	**2.84**	3.03	**28.42**
	No. 1244 Farm Bureau Fertilizer—Guarantee	12.00	4.00	4.00	37.20
33467	Analysis	12.12	**3.74**	4.03	**36.21**
33517	Analysis	**11.54**	4.08	4.20	37.25
33740	Analysis	**11.53**	**3.91**	4.11	**36.37**
33847	Analysis	**11.68**	**3.88**	**3.32**	**35.46**
33907	Analysis	**11.51**	**3.84**	**3.43**	**35.21**
	No. 1555 Farm Bureau Fertilizer—Guarantee	15.00	5.00	5.00	46.50
33524	Analysis	15.35	**4.86**	5.14	**46.46**
	Farm Bureau Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33523	Analysis	.....	15.56	.....	70.02
	Texas Fertilizer Works, San Antonio, Texas—				
	Lone Star Bat Guano—Guarantee	3.00	10.00	1.00	49.80
33180	Analysis	5.23	**9.96**	1.36	52.73
	Lone Star Phosphate and Potash—Guarantee	18.00	.....	4.00	26.40
33181	Analysis	**15.30**	.....	9.60	29.38
	Thomas Self, Crockett, Texas—				
	Crockett 18% Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33449	Analysis	**17.21**	.....	.....	**20.65**
	Crockett High Grade Fertilizer—Guarantee	12.00	4.00	4.00	37.20
33450	Analysis	**10.60**	**3.94**	4.50	**35.85**
	Tri-State Fertilizer Co., Shreveport, Louisiana—				
	Red Diamond 8–4–4 Fertilizer—Guarantee	8.00	4.00	4.00	32.40
33880	Analysis	9.21	**3.74**	**3.95**	32.62
33881	Analysis	8.41	**3.71**	**3.28**	**30.73**
33893	Analysis	**7.05**	**3.46**	**3.10**	**27.75**

*Total phosphoric acid.

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Tri-State Fertilizer Co., Shreveport, Louisiana—Cont.				
	Red Diamond 10–2–2 Fertilizer—Guarantee	10.00	2.00	2.00	$23.40
33730	Analysis	**8.92**	2.05	2.41	**22.82**
33733	Analysis	**8.94**	2.05	2.35	**22.78**
	Red Diamond 12–4–4—Guarantee	12.00	4.00	4.00	37.20
33743	Analysis	**11.16**	**3.69**	**3.21**	**33.85**
33882	Analysis	**9.42**	5.61	**1.95**	38.89
	Tyler Fertilizer Co., Tyler, Texas—				
	Sixteen Per Cent Acid Phosphate—Guarantee	16.00	.....	.....	19.20
33307	Analysis	17.35	.....	.....	20.82
	Heart Brand Fertilizer No. 844—Guarantee	8.00	4.00	4.00	32.40
33304	Analysis	8.31	**3.82**	4.55	32.62
33699	Analysis	9.90	4.01	**1.84**	**32.14**
33706	Analysis	10.14	4.07	**1.86**	32.72
33950	Analysis	8.33	4.20	4.30	34.06
33965	Analysis	8.59	**3.82**	4.64	33.07
	Heart Brand Fertilizer No. 9–5–0—Guarantee	9.00	5.00	.....	33.30
33306	Analysis	10.28	**4.88**	.....	34.30
	Heart Brand Fertilizer No. 963—Guarantee	9.00	6.00	3.00	41.40
33321	Analysis	9.49	**5.77**	3.18	**41.18**
33700	Analysis	9.65	**5.43**	**2.74**	**39.31**
	Heart Brand Fertilizer No. 1033—Guarantee	10.00	3.00	3.00	29.10
33701	Analysis	10.63	**2.77**	**2.65**	**28.31**
	Heart Brand Fertilizer No. 1042—Guarantee	10.00	4.00	2.00	32.40
33303	Analysis	10.50	**3.67**	2.67	**32.32**
33949	Analysis	**9.49**	4.32	2.42	33.73
	Heart Brand Fertilizer No. 1244—Guarantee	12.00	4.00	4.00	37.20
33305	Analysis	12.03	**3.93**	4.20	37.17
33702	Analysis	12.02	**3.58**	4.37	**35.77**
33936	Analysis	12.61	**3.91**	4.67	38.33
33948	Analysis	12.43	**3.87**	4.08	37.24
	Virginia-Carolina Chemical Corp., Shreveport, La.—				
	Nitrate of Soda—Guarantee	.....	15.00	.....	67.50
33426	Analysis	.....	15.04	.....	67.68
33755	Analysis	.....	15.42	.....	69.39
	V. C. 18% Acid Phosphate—Guarantee	18.00	.....	.....	21.60
33446	Analysis	19.98	.....	.....	23.98
33481	Analysis	19.08	.....	.....	22.90
33470	Analysis	19.29	.....	.....	23.15
33530	Analysis	18.68	.....	.....	22.42
33545	Analysis	18.52	.....	.....	22.22
	V. C. 20% Acid Phosphate—Guarantee	20.00	.....	.....	24.00
33471	Analysis	**19.75**	.....	.....	**23.70**
33844	Analysis	**17.47**	.....	.....	**20.96**
	V. C. Beef, Blood & Bone—Guarantee	8.00	3.00	3.00	26.70
33559	Analysis	8.10	4.57	5.25	36.59
33590	Analysis	8.64	3.26	3.50	29.15
33754	Analysis	8.85	**2.97**	3.67	28.39
	V. C. Georgia State Grange—Guarantee	10.00	2.00	2.00	23.40
33592	Analysis	**9.65**	2.20	2.12	24.02
33729	Analysis	10.03	2.08	2.11	23.93
33958	Analysis	10.03	2.06	2.40	24.19
	V. C. Good Luck Fertilizer—Guarantee	8.00	4.00	4.00	32.40
33777	Analysis	8.28	**3.76**	4.13	**31.82**
33951	Analysis	8.92	**3.75**	4.41	32.87
33591	Analysis	8.70	4.00	4.27	33.56
33485	Analysis	9.11	**3.57**	4.26	**32.11**
33445	Analysis	8.66	4.16	4.01	33.92
	V. C. Early Trucker—Guarantee	8.00	4.00	4.00	32.40
33472	Analysis	8.66	4.13	4.33	34.18
	V. C. High Grade Vegetable Compound—Guarantee	9.00	6.00	3.00	41.40
33483	Analysis	10.47	**4.59**	**2.65**	**36.40**

Table 10.—Analysis of Commercial Fertilizer, Season 1927-28—(continued)

Laboratory Number	Manufacturer, Place of Business and Brand	Phosphoric Acid—Available Per Cent	Nitrogen—Per Cent	Potash—Per Cent	Valuation—Per Ton
	Virginia-Carolina Chemical Corporation, Shreveport, La.—Continued.				
	V. C. Indian Brand Fertilizer—Guarantee	12.00	4.00	4.00	$37.20
33424	Analysis	12.19	**3.80**	**3.78**	**36.27**
33444	Analysis	12.99	**3.71**	**3.45**	**36.43**
33473	Analysis	13.10	**3.33**	**3.64**	**35.08**
33479	Analysis	**11.72**	4.41	4.72	39.57
33484	Analysis	**11.75**	4.49	5.10	40.43
33540	Analysis	12.35	4.25	4.44	39.28
33544	Analysis	**11.91**	4.53	4.69	40.31
33593	Analysis	12.53	4.14	4.15	38.65
33664	Analysis	13.45	**3.44**	**3.74**	**36.11**
33763	Analysis	12.67	**3.57**	**3.77**	**35.79**
33796	Analysis	**10.65**	4.46	4.30	38.01
33842	Analysis	**11.66**	4.25	4.31	38.29
33845	Analysis	**11.73**	4.16	**2.86**	**36.23**
33884	Analysis	**11 82**	**3.78**	**3.49**	**35.38**
34003	Analysis	**11.70**	4.08	4.09	37.31
	V. C. Mobile Double Eagle Guano—Guarantee	8.00	3.00	3.00	26.70
33541	Analysis	9.60	3.14	4.21	30.70
	V. C. Premium Fertilizer for Cotton—Guarantee	10.00	4.00	2.00	32.40
33482	Analysis	10.04	4.01	2.52	33.12
33762	Analysis	11.10	**3.31**	2.05	**30.68**
	V. C. Prolific Cotton Grower—Guarantee	10.00	3.00	3.00	29.10
33480	Analysis	**9.26**	3.37	3.21	30.13
33606	Analysis	10.15	**2.94**	3.11	29.14
33653	Analysis	9.39	3.33	3.53	30.50
33753	Analysis	11.66	**2.90**	3.08	30.74
33764	Analysis	11.30	**2.91**	**2.46**	29.61
33778	Analysis	11.88	**2.70**	**2.68**	29.63
33825	Analysis	10.97	**2.87**	3.01	29.69
33843	Analysis	10.34	3.10	**2.41**	29.25
33885	Analysis	**9.87**	3.04	**2.43**	**28.44**
34002	Analysis	11.39	**2.63**	**2.35**	**28.33**
	V. C. Super 30 Fertilizer—Guarantee	18.00	6.00	6.00	55.80
33543	Analysis	**16.91**	6.32	6.38	56.39
	V. C. Truckers Special—Guarantee	8.00	4.00	6.00	34.80
33401	Analysis	8.32	4.11	**5.91**	35.57
33705	Analysis	8.64	**3.65**	**4.88**	**32.66**