

# South Carolina

Annual Fertilizer Report

2016-2017

**The mission of Regulatory and Public Service Programs is to protect and enhance South Carolina's citizens, agriculture, industry and environment through regulation utilizing the collaboration of research, education, and inspection.**

Clemson University~ Plant Industry~ 511 Westinghouse Road~ Pendleton~ SC ~29670

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Scott Bell	Investigator IV
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Chris Wall	Chemist
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Jennifer Cooley	Administrative Assistant
Sandra Williams	Administrative Assistant

### INSPECTION AND ANALYSIS OF COMMERCIAL FERTILIZERS AND AGRICULTURAL LIMING MATERIALS

Included in the responsibilities of the Department of Plant Industry is the enforcement of the South Carolina Fertilizer Law, the South Carolina Soil Amendment Regulation and the South Carolina Agricultural Liming Materials Act.

This publication published annually includes information pertaining to each of the above listed laws and regulations and statistical data pertaining to official fertilizer and lime samples taken and analyzed by the Department of Plant Industry.

Statistical data relating to fertilizer and lime tonnage is compiled by Sarah Adams and included in the publication each year.

### THE SOUTH CAROLINA FERTILIZER LAW

The present South Carolina Fertilizer Law was enacted in 1954, amended in 1970, 1978, 1988 and 2002. The last revisions included: (1) Establishment of a registration fee for bulk fertilizer based on amount of tonnage sold in South Carolina rather than individual product registrations (2) Provisions for deficiency penalties to be distributed through the department (3) Civil penalty authority (4) Provision to assess liability to a distributor (5) Establishment of restricted and general fertilizer

permitting system to increase security of certain fertilizer materials.

### THE SOUTH CAROLINA SOIL AMENDMENT REGULATION

This regulation was promulgated in 1979 and controls the distribution, labeling and sale of "Soil Amendments." Before being offered for sale, all materials classified as "Soil Amendments" must be registered. The major prerequisite for registration approval is recognized research data to substantiate claims made for the product.

### THE SOUTH CAROLINA AGRICULTURE LIMING MATERIALS AND LANDPLASTER ACT

The South Carolina Agricultural Liming Material and Landplaster Act was enacted in June 14, 2011. The major provisions of the law are: (1) all liming and landplaster materials offered for sale for agricultural use must be registered; (2) all liming materials must be labeled as to guarantees in percent (a) calcium carbonate equivalent (neutralizing value), (b) calcium (Ca) and magnesium (Mg) in the elemental expression, and (c) particle size distribution; (3) all landplaster material must be labeled as to guarantee minimum percentages of calcium and sulfur; (4) labels must indicate registrant, weight and type of material and (5) tonnage reports filed quarterly by types of material by county.

## REGISTRATION

A registrant may sell as many grades and brands of fertilizer with the payment of one license fee based on the amount of tonnage sold in accordance with the following schedule:

FEE CATEGORY	AMOUNT
Category 1 Fertilizer Registration (0-5,000 tons)	\$100
Category 2 Fertilizer Registration (5,000-25,000 tons)	\$200
Category 3 Fertilizer Registration (25,000 tons or greater)	\$400
Restricted Fertilizer Permit	\$250
Specialty Fertilizers (10 lbs. or less)	\$60/ product
Fertilizer Inspection Fees (excluding specialty fertilizers)	\$1.50/ ton
Soil Amendment Registration	\$100/ product
Soil Amendment Tonnage	\$1/ ton
Lime and Landplaster Registration	\$20/ product
Lime and Landplaster Permit	\$20
Lime and Landplaster Tonnage	\$0.50/ton

Fertilizer sold in quantities of greater than 10 pounds are subject to an inspection tax of \$1.50 per ton due quarterly for periods ending September 30th, December 31st, March 31st, and June 30th. The inspection tax is due within thirty days following the end of each quarter covering tonnage of commercial fertilizer sold during the preceding quarter by the registrant or

guarantor transacting, distributing, or selling to a non-registrant. For individual packages of commercial fertilizer containing 10 pounds or less a combined registration fee and inspection tax of \$60.00 per product is required.

Registrants must furnish a list of sources of ingredients for all grades and brands sold upon registration and must insure that it be kept current to reflect any changes in sources should they occur during the year of registration.

Before being sold or offered for sale, each brand of "Soil Amendment" must be registered with the Department of Plant Industry. Registration is \$100.00 per product and expires on June 30. Claims and research data must accompany registration request forms.

Before being sold or offered for sale, each brand of agricultural liming material and/or landplaster must be registered with the Department of Plant Industry on provided forms. Registration is \$20.00 per product and expires on June 30. All Liming Materials and Landplaster are subject to an inspection fee of \$0.50 per ton due quarterly for periods ending September 30th, December 31st, March 31st, and June 30th. The inspection tax is due within thirty days following the end of each quarter.

## LABELING

All fertilizers, soil amendments and agricultural liming materials offered for sale, sold or otherwise supplied in South Carolina, are required to be labeled in such a manner that the entire label is easily readable and in compliance with the form as set forth under Section 46-25-410 of the South Carolina Fertilizer Law and Section 46-25-40 of the South Carolina Agricultural Liming Materials Act. Where sold in bags or other containers, the required information may be placed on the container itself or on a tag attached to the container. For fertilizer in bulk, non-containers, the same information is required as to brand name and guaranteed analysis. This must appear on the invoice or delivery ticket and be supplied the purchaser. If secondary or micro-nutrients are mentioned or claimed in any manner whatsoever a guarantee must appear on the container or invoice and be guaranteed in the elemental form.

Guarantees are shown in percent of individual nutrients by weight compared to the total weight. Net weights must be shown on the label or on the invoice. Volume alone for fluid fertilizers is not permissible. The guarantee and the weight must appear on the label so that a consumer can multiply the guarantee by the weight and determine how many pounds of actual plant nutrients are being purchased.

Every purchaser is encouraged to read and understand thoroughly the label and know the claims made for the product he is purchasing.

The Fertilizer-Seed Inspectors of the Department of Plant Industry inspect for proper bag printing, labeling and weight to ensure that label requirements are met.

## SOIL AMENDMENTS

Soil amendments are products advertised to increase yields or quality of crops or plants but do not contain recognized plant nutrients. A regulation passed by the General Assembly in 1979 requires such products to be registered. This regulation has prevented consumers from buying some products of very questionable value.

### Soil Amendment Numbers



### SUMMARY OF FERTILIZER ACTIVITIES

JULY 1, 2016- JUNE 30, 2017

Licenses/ Products:

Total Number of Registrants	459
Total Number of Restricted Use Permits	95
Total Number of General Use Permits	450
Total Number of Products Registered	6601

Fertilizer Lab Report:

Total Tons of Reported Fertilizer	411,118
Number of total fertilizer samples analyzed	2402
Average overall index value	108.164%

Number of deficiencies:

Nitrogen	23
Water insoluble nitrogen	1
Phosphoric acid	12
Potash	30
Secondary and micro-nutrients	108
Excessive/ Deficient Boron	32
Excessive in chlorine	1
Total samples not meeting guarantee	150

Percent of fertilizer samples deficient	6.24%
Penalties assessed for deficient analysis	\$17,326.38

### SUMMARY OF LIMING ACTIVITIES

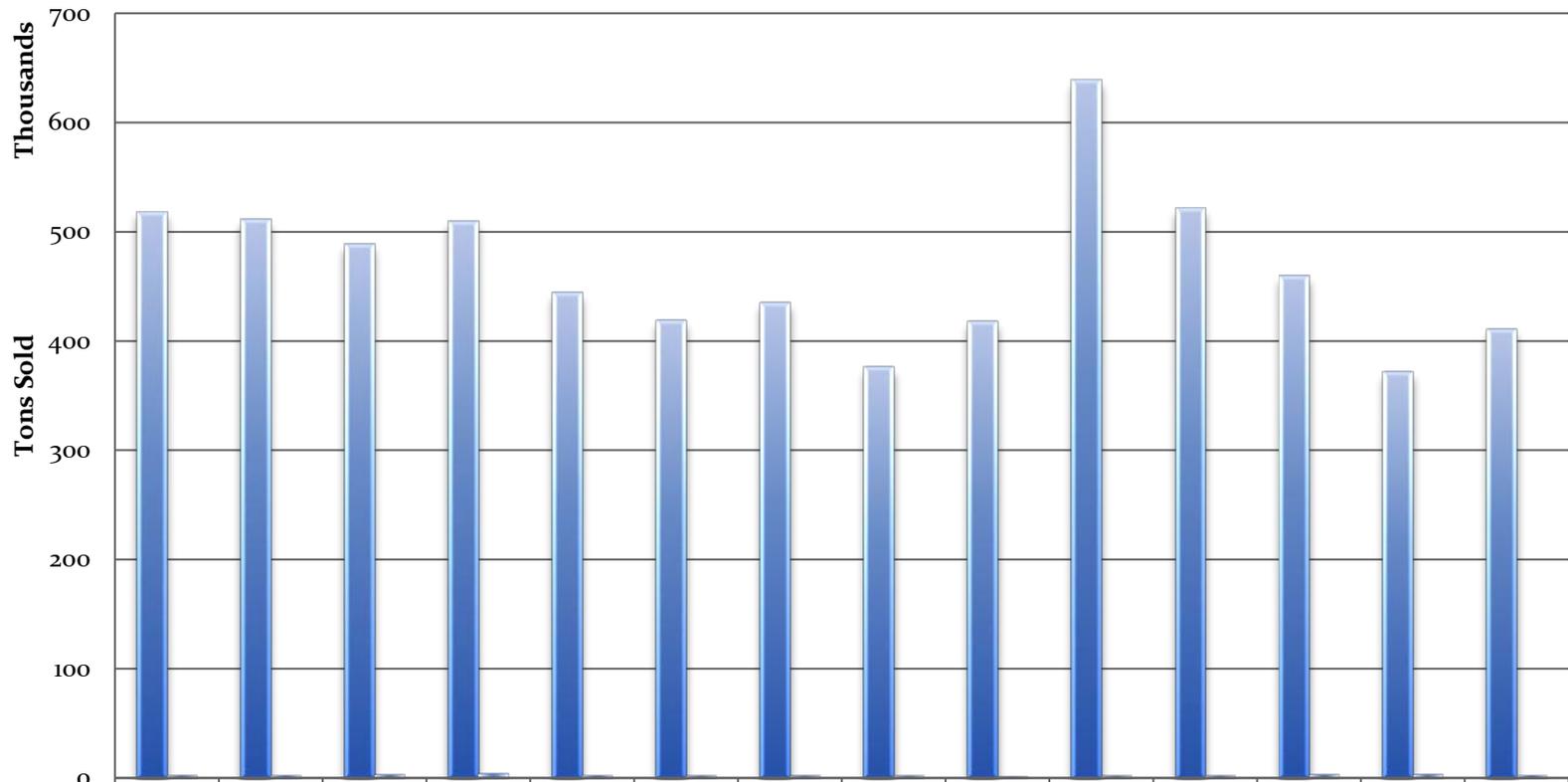
JULY 1, 2016- JUNE 30, 2017

Lime Tonnage	305,024
Lime Samples Analyzed	8
Number of Lime Samples Deficient	3
Lime Registrants for 2016-2017	83
Lime Products Registered in 2016-2017	108

### SUMMARY OF LANDPLASTER ACTIVITIES

Landplaster Samples Analyzed	87
Number of Samples Deficient	0
Percent of Landplaster	0%

## COMPARISON OF TOTAL TONS SOLD & FERTILIZER SAMPLES



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Tons	518628	511128	489160	509670	444190	419166	435366	376135	418143	639043	522121	459,704	371904	411118
Samples	2006	2323	2954	3928	2393	1782	1951	1886	1501	1855	1898	2801	3300	2402

## Fertilizer Lab and Field Turnaround Time

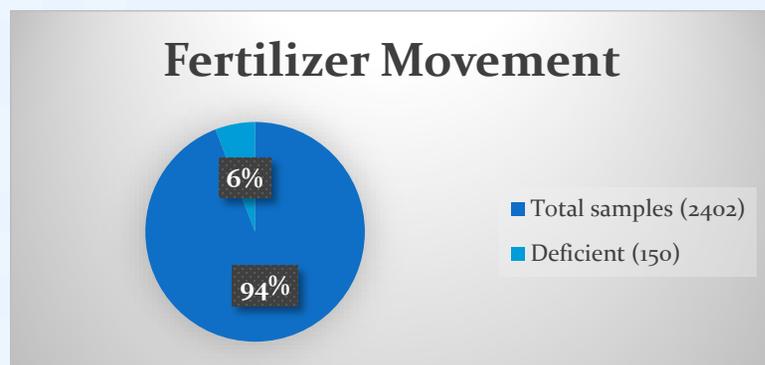


## FERTILIZER MOVEMENT AND QUALITY CONTROL IN 2016-2017

The 2016-2017 fertilizer year has yet again proven to be successful. The trends for fertilizer sales have risen this year; selling 411,118 tons of fertilizer in the state. This is an increase of 39,214 tons from the previous year. This increase was welcomed and expected as luckily South Carolina was not hit with devastating natural disaster this year.

The Fertilizer program procured 2,402 samples this year. This is a decrease in sampling numbers from the previous year. Of those samples procured, there were only 150 deficient samples indicating an overall deficiency rate of 6%.

The fertilizer lab's turnaround time continues to be one of the lowest in the country and has maintained a record of 10 business days from the time the sample is taken. At the conclusion of the 2016-2017 fertilizer year no fertilizer registrants will be placed on probation as all companies sampled passed the minimum requirements in state statute.



## PENALTIES FOR DEFICIENCIES IN GUARANTEED ANALYSIS

When a fertilizer is found to be deficient beyond the limits allowed under the law and/or regulations, the farmer is entitled to a penalty from the registrant of three times the commercial value of the entire deficiency in the case of nitrogen, phosphoric acid and potash. When the chlorine content of any lot branded for tobacco exceeds the maximum amount guaranteed by more than one-half of one percent, there is a penalty of ten percent of the value of the fertilizer for each additional one-half of one percent of excess or fraction thereof. The analytical tolerances allowed by regulations are:

### Plant Nutrients, Guarantees, Tolerances and Penalties.

- A. **Nitrogen, phosphorus, potassium.** A fertilizer guaranteed to contain one or more of the elements, nitrogen, phosphorus, and potassium shall be deemed deficient if the analysis of the nutrient is below the guarantee by an amount exceeding the values in the following schedule. The schedule is the investigational allowances shown in the Association of American Plant Food Control Officials Uniform State Fertilizer Bill (official 1982) plus three (3) percent of the guarantee. The fertilizer is also deemed deficient if the overall index value of the fertilizer is below 98 percent.

A fertilizer shall not be deemed deficient when the overall index value equals or exceeds 100 percent and no more than one primary nutrient is below the guarantee and if the deficiency does not exceed two units or ten percent of the guarantee.

**B. Additional Plant Nutrients.**

Guarantee %	Nitrogen %	Available Phosphoric Acid %	Potash %
4 or less	0.50	0.79	0.53
5	0.66	0.82	0.58
6	0.70	0.85	0.65
7	0.75	0.89	0.74
8	0.79	0.92	0.84
9	0.84	0.95	0.92
10	0.88	0.99	1.00
12	0.97	1.05	1.15
14	1.05	1.12	1.29
16	1.15	1.18	1.42
18	1.24	1.25	1.55
20	1.33	1.32	1.68
22	1.41	1.39	1.81
24	1.50	1.45	1.93
26	1.59	1.51	2.05
28	1.67	1.58	2.17
30	1.76	1.65	2.29
32 or more	1.84	1.72	2.40

(1) Registration and Guarantees. When mentioned in any form or manner, said additional plant nutrients, besides nitrogen, phosphorus and potassium shall be registered and guaranteed. The sources of the elements guaranteed shall be shown on the application for registration.

(2) Deficiencies in Plant Nutrients Besides Nitrogen, Phosphorus and Potash.

A deficiency tolerance amounting to 25% of the guarantee shall be allowed for elements not otherwise specified by law or regulation; provided that in no case shall the tolerance exceed 0.50%. (1/2 unit). For each deficiency in secondary or micro-nutrient element, a penalty of \$1.00 per ton, plus four times the commercial value of the shortage shall be paid to the ultimate user of their fertilizer.

Boron (B) When Found Excessive. The following penalties will be assessed when the analysis found exceeds the guarantee by more than .1% boron (B).

- (a) Up to and including .028% boron \$3.00 per ton
- (b) Exceeding .028% boron and including .057% boron \$5.00 per ton
- (c) Exceeding .057% boron \$10.00 per ton

When the number of fertilizer samples taken from fertilizer sold by a registrant or a particular plant operated by a registrant is found to be deficient by more than 20 percent of the total samples taken during a fiscal year, the registrant will be considered for probation. If unusual circumstances contribute to the high incidence of deficiencies, probation may be deferred and a warning will be given. In the year following probation, the registrant will notify the Department of Plant Industry when the plant will be in operation to give inspectors an opportunity to sample no less than 30 lots. If the ownership of a plant where 20 percent or more of the samples has been found to be deficient has been transferred, the plant is still considered to be under probation.

In this trial year, if more than 20 percent of samples taken are found to be deficient beyond the investigational allowance, the registrant will be given a hearing. If the registrant cannot show

cause as to why registration should not be revoked or refused the registrant or plant will not be granted registration or license.

A registrant who has had registration revoked for conditions described in this rule may apply for reinstatement of registration after a period of not less than 90 days by presenting in writing to the Board documentary evidence of corrective action which will reduce the number of deficiencies.

#### RELATIVE COMMERCIAL VALUES

Listed below are the commercial values used in calculating the payment to the farmer when the analysis indicated a shortage of plant nutrients. These values represent the average of cash values at the ports, as reported by the manufacturers on July 2017. They do not include the price of bagging, handling, and freight. These values are not intended to represent the selling price of fertilizers. They are used only to calculate the payments to farmers when a deficiency is found in analysis.

<b>Water Soluble Nitrogen</b>	<b>2.90</b>
<b>Water Insoluble Nitrogen</b>	1.03
<b>SCU N</b>	7.21
<b>Nitrate Solutions 19-35%</b>	2.17
<b>Urea 46%</b>	2.69
<b>Ammonium Nitrate</b>	4.39
<b>Nitrate of Soda</b>	10.05
<b>Calcium Nitrate</b>	2.55
<b>Sulfate of Ammonia</b>	2.66
<b>Ordinary Superphosphate</b>	4.75
<b>Conc Superphosphate</b>	3.98
<b>Muriate of Potash</b>	2.84
<b>Sulfate of Potash</b>	2.66
<b>Sulfate of Potash Magnesia</b>	3.66
<b>Available phosphoric acid</b>	3.92
<b>Soluble Potash</b>	2.65
<b>Calcium</b>	.20
<b>Magnesium</b>	.34
<b>Sulfur</b>	.21
<b>Boron</b>	.32
<b>Copper</b>	1.55
<b>Iron</b>	.23
<b>Manganese</b>	.44
<b>Zinc</b>	.49
<b>Molybdenum</b>	32.30

2004-2017 Fertilizer Tonnage Number of Samples Procured and Analyzed, Number of Samples Found Deficient

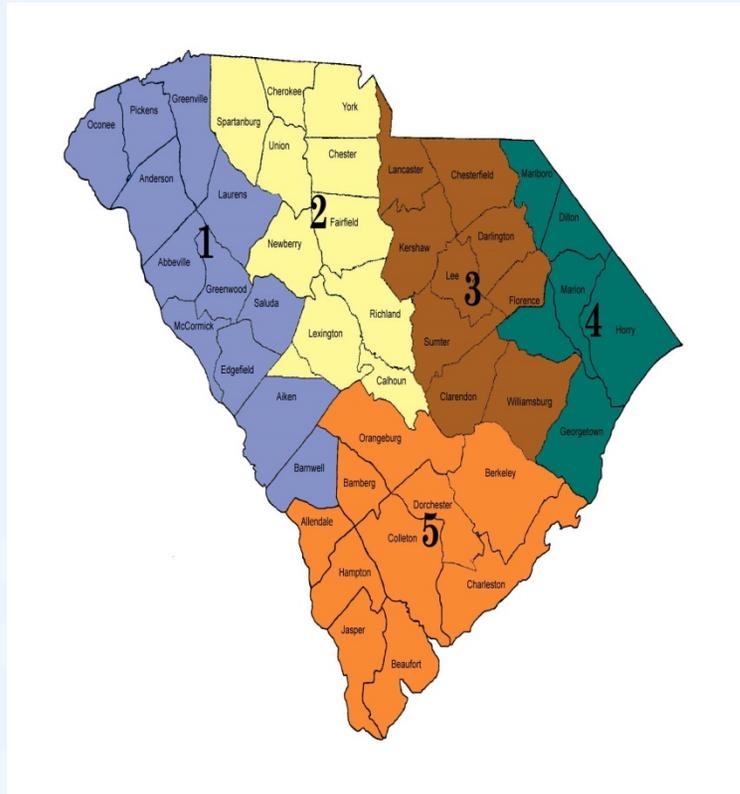
Year	No. Tons Fertilizer Sold	No. Samples Reported	Def. in one or more nutrients	% Deficient	# of Samples Deficient or Excessive		
					N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
2004	518,628	2006	336	16.75	82	117	51
2005	511,128	2323	370	15.92	177	114	73
2006	489,160	2954	427	14.45	160	130	50
2007	509,670	3928	578	14.71	160	130	50
2008	444,190	2393	378	15.79	81	73	89
2009	419,166	1782	344	19.30	60	98	82
2010	435,366	1951	395	20.24	70	105	54
2011	376,135	1886	302	16.01	79	64	73
2012	418,143	1501	221	14.70	69	24	34
2013	639,043	1855	219	12.50	48	25	44
2014	522,121	1898	231	12.17	51	11	34
2015	459,704	2801	268	9.57	56	8	40
2016	371,904	3300	338	9.76	32	46	83
2017	411,118	2402	150	6.24	23	12	30

FERTILIZER AND LIME BY COUNTY

County	Fertilizer Tons	Lime Tons
Abbeville	480.92	336.05
Aiken	3988.56	10366.42
Allendale	4667.44	120
Anderson	8002.83	1717.6427
Bamburg	1686.45	122.4
Barnwell	944.01	1083
Beaufort	3353.45	1830.23
Berkeley	933.34	5.7395
Calhoun	2627.24	5998.39
Charleston	4708.16	489.2
Cherokee	660.14	457.89
Chester	904.2	2453.082
Chesterfield	3092.32	19.7
Clarendon	14075.16	11444.4
Colleton	3348.1	1484.35
Darlington	6132.29	19359.92
Dillon	8406.86	10295.18
Dorchester	1129.55	426.06
Edgefield	7088.43	7810.366
Fairfield	151.43	0.02
Florence	8831.75	6323.36
Georgetown	1803.44	0.05
Greenwood	743.43	1202.68
Greenville	7792.59	2737.56
Hampton	10376.55	4713.25
Horry	9815.11	9662.665
Jasper	922.68	1594.54
Kershaw	410.88	47.07
Lancaster	4055.99	119.405
Laurens	622.32	899.835
Lee	4950.16	11094.09
Lexington	9704.03	6445.406
Marion	1399.79	1375.36
Marlboro	2414.12	4522.54
McCormick	257.74	269.115
Newberry	6228.2	7011.874
Oconee	384.94	32.97
Orangeburg	26245.85	15255.8

Pickens	771.73	719.4854
Richland	2973.25	606.82
Saluda	2378.48	3758.59
Spartanburg	3108.45	4811.517
Sumter	7235.26	4215.48
Union	303.69	8030.24
Williamburg	8234.72	35779.06
York	2165	4091.145
No code	210606.18	93885
<b>Total</b>	<b>411117.21</b>	<b>305024.9476</b>

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