Georgia Coastal Plain Experiment Station

S. H. STARR, DIRECTOR

Tifton, Georgia

SEVENTH ANNUAL REPORT

1926

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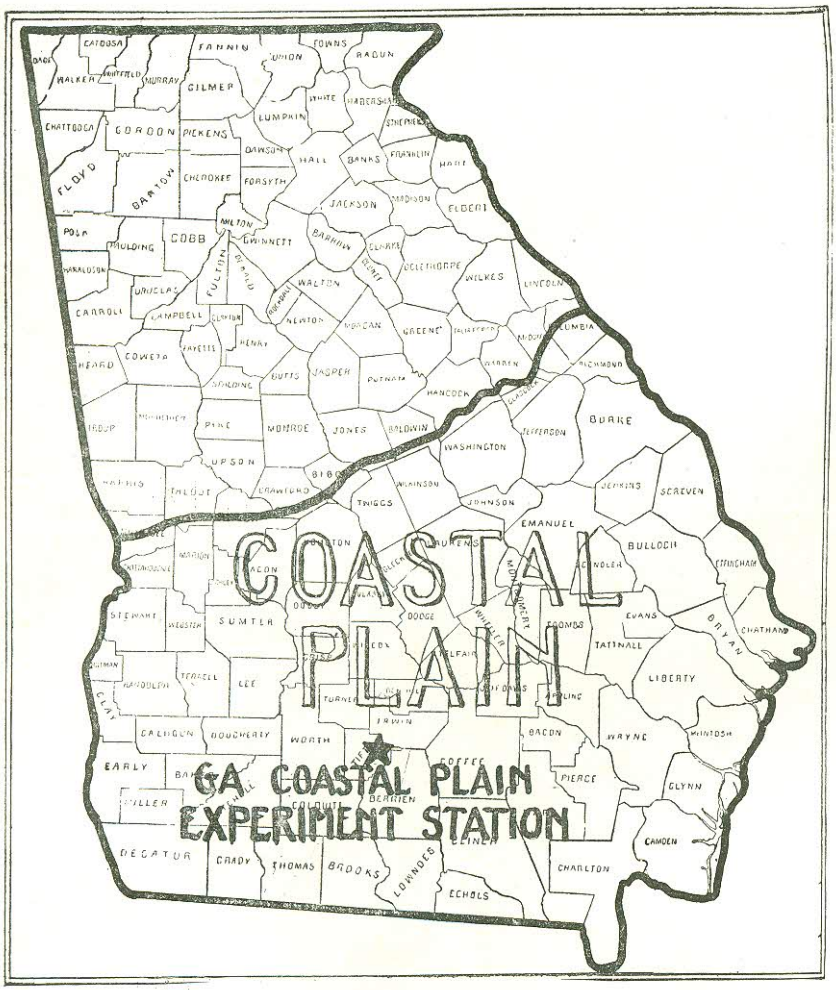

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Tifton, Georgia, June 1, 1927.

To His Excellency, Clifford Walker,
Governor of Georgia.

Sir:

In accordance with the regulations of the Board of Trustees, I have the honor to transmit to you herewith the Seventh Annual Report of the Georgia Coastal Plain Experiment Station for the year 1926.

Very respectfully,

R. W. GOODMAN, Chairman.

Tifton, Georgia, June 1, 1927.

To the Honorable Board of Trustees of the
Georgia Coastal Plain Experiment Station.

Gentlemen:

I have the honor to submit to you herewith the Seventh Annual Report of the Georgia Coastal Plain Experiment Station covering operations for the year 1926.

Respectfully submitted,

S. H. STARR, Director.

CONTENTS.

INTRODUCTION

The activities of the Coastal Plain Experiment Station, as summarized in the following report, are largely a continuation of work on projects previously reported. The service the Experiment Station is performing is becoming more valuable each year and the institution is being recognized as a distinct asset to the State. The farmers throughout the coastal plain area are looking to the Experiment Station to work on the problems confronting them and it is very gratifying to be able to report that the results of the experiments are widely used.

All of the members of the staff have assisted in preparing the data for this publication. The work in the Agronomy Department which was enlarged last year by the purchase of additional land, has been continued as outlined in the previous report. The Horticultural work has been enlarged to include melon disease studies made possible by the co-operation of the Georgia Experiment Station. The tobacco work includes a very comprehensive study of fertilizer requirements, varieties, rotations, cropping effects and disease studies under a co-operative arrangement with the U. S. Department of Agriculture and the Georgia State College of Agriculture. A very limited amount of live stock work has been in progress which consists of hog grazing tests, forage and pasture studies. The very urgent need of live stock development as a prominent part of farm operations in the coastal plain and the strong demand from the farmers for information along the line of live stock production makes it very desirable that this work be enlarged.

Through the co-operation of the U. S. Department of Agriculture a laboratory for the study of tobacco diseases has been installed and the Georgia Experiment Station has assisted in equipping a laboratory for the study of melon diseases. Plans are now being made for the construction of a greenhouse to be used in experimental work.

AGRONOMY

Small Grains

The small grains experiments are being continued as during previous years. The experimental work with these crops consists of variety trials with wheats, oats and ryes, rates and dates of seeding tests with wheat and oats, dates of application tests of quickly available nitrogen fertilizers to oats, triangle fertilizer tests with oats, tests to determine the effects of varying amounts of acid phosphate in combination with covercrops and lime on the yields of oats, breeding and selection work with Fulghum oats, and the maintenance of a nursery for the study of the distribution of physiologic forms of stem rust.

Although fertilizer tests with small grains indicate an acute need for potash the variety trials were fertilized with 400 pounds of acid phosphate, which was applied at planting and 100 pounds of nitrate of soda, or its equivalent in other quickly available nitrogen fertilizers, applied as a top dressing in the spring, but no potash was used. When the variety trials were begun no data on the fertilizer requirements of the crop were available. In order to obtain comparable data over a reasonable period of time potash will also be included in the fertilizer used in connection with future variety trials.

WHEATS: During the seven years the wheat variety test has been in operation the Georgia Red Variety has led in yield over the other varieties that have been in the test for this period. During 1926, however, Coker's Redhart, which has been included in the test only three years, led in yield. Since the Redhart variety ranked second in yield in 1925 and seventh in 1924, it would seem that Georgia Red, an early maturing variety, should continue to be the leading wheat until more complete data and comparative tests are obtained.

Although the yields from wheat are low in the coastal plain section as compared to yields in the northern wheat growing sec-

tions this crop can be profitably used on a small scale for home consumption. Earliness of maturity is an important factor influencing yields because the early maturing varieties escape in some measure the heaviest of the rust attacks which usually occur in the spring.

The experimental data obtained to date indicate that wheat should be sown in the coastal plain area on or about November 1st at the rate of six pecks per acre.

The following tables No. I and II show the results of the 1926 wheat variety tests, and the yields for the six and seven year period over which these trials have been in progress.

TABLE I.—WHEAT VARIETY TEST FOR 1926.

VARIETY	Yield in Bushels per Acre
1. Redhart	26.1
2. Alabama Bluestem	24.9
3. Velvet Chaff	24.7
4. Georgia Red	23.6
5. Dietz Mediterranean	22.7
6. Fulcaster	20.0
7. Leap's Prolific	19.2
8. C. I. 4159-4	18.9
9. Purple Straw	18.4
10. Mammoth Red	18.4
11. Fultz	17.3

TABLE II.—WHEAT VARIETY TESTS FOR SEVEN YEARS

Variety	Yield in Bushels Per Acre							
	1920	1921	1922	1923	1924	1925	1926	Average 7 Years
1. Georgia Red	14.6	31.8	13.6	13.7	17.6	19.8	23.6	**19.2**
2. C. I. No. 4159	------	26.3	7.6	7.5	14.5	15.1	18.9	**15.0***
3. Velvet Chaff	------	------	7.9	10.7	16.9	14.8	24.7	**15.0†**
4. Bluestem	10.3	17.3	12.6	9.4	14.7	11.8	24.9	**14.4**
5. Dietz Mediterranean	6.7	10.9	11.0	15.9	18.0	14.4	22.7	**14.2**
6. Fulcaster	5.9	12.0	8.8	11.2	18.1	13.5	20.0	**12.8**
7. Mammoth Red	4.4	12.9	10.8	12.2	------	------	18.4	**11.7†**
8. Leap's Prolific	5.4	9.5	6.8	7.3	16.0	8.4	19.2	**10.4**
9. Fultz	------	------	4.9	4.6	13.7	9.3	17.3	**10.0†**

*Six year average

†Five year average.

OATS: The same group of tests with oats were continued, as outlined in previous reports. They consist of variety tests, dates of seeding tests, rates of seeding tests, dates of top dressing tests, triangle fertilizer tests, tests to determine the effects of varying amounts of acid phosphate in various combinations with a cover-crop and limestone, oat selection and breeding, and the maintenance of a small grain nursery for the study of the distribution of physiologic forms of stem rust.

Kanota led the 1926 variety trials with a yield of 47.0 bushels per acre. Fulghum, Coker's Appler, Ferguson Navarro, Hundred Bushel, Appler, Bancroft, Burt, Early Ripe, Texas Rustproof and Patterson ranked in yield in the order named. Poor stands were responsible for the low yields obtained on some of the better varieties.

The oat variety trials have been conducted over a period of sufficient length to justify some general conclusions and recommendations as to varieties. The results show that the rustproof varieties are consistently heavier yielders than the non-rustproof group. The Hundred Bushel variety has proven to be the best yielder among the rustproof group; Fulghum has been the best of the non-rustproof group.

The following Tables No. III and IV show the yields for 1926 and for the seven year period 1920-1926.

TABLE III.—OAT VARIETY TEST FOR 1926.

VARIETY	Yield in Bushels per Acre
1. Kanota	47.0
2. Fulghum	45.9
3. Coker's Appler	45.2
4. Ferguson Navarro	44.5
5. Hundred Bushel	42.2
6. Patterson	40.0
7. Appler	37.1
8. Texas Rustproof	36.3
9. Bancroft	36.1
10. Burt	32.4
11. Early Ripe	23.0

TABLE IV.—OAT VARIETY TESTS FOR SEVEN YEARS.

Variety	1920	1921	1922	1923	1924	1925	1926	Average 7 Years
1. Hundred Bushel	44.3	62.5	31.1	27.3	50.0	36.2	42.2	41.9
2. Coker's Appler	47.6	54.3	26.4	12.4	47.9	38.4	45.2	38.9
3. Appler	47.6	55.3	24.1	22.4	43.7	32.4	37.1	37.5
4. Patterson	------	59.7	32.8	16.0	42.9	29.9	40.0	36.9*
5. Bancroft	45.1	50.1	27.6	12.3	49.2	38.1	36.1	36.8
6. Fulghum	34.7	55.1	42.1	16.1	30.7	29.9	45.9	36.4
7. Texas Rustproof	22.1	36.8	26.5	23.1	48.0	31.7	36.3	32.1
8. Burt	------	43.4	24.1	7.5	38.6	19.1	32.4	27.5*
9. Early Ripe	27.0	36.3	25.1	8.3	37.6	15.6	23.0	24.7

*Six year average.

OATS—LIME, COVER-CROP AND VARYING AMOUNTS OF PHOSPHORIC ACID TESTS: These tests are being continued to determine the effects of limestone applied at the rate of 3000 pounds once in three years, a summer cover-crop turned under once in three years, and varying amounts of acid phosphate in combination with lime and a cover-crop. The acid phosphate is applied directly to the oat crop at planting at 200, 300 and 400 pound rates. The results indicate no increases in yields from the use of lime. Though the oat crop is two seasons removed from the summer cover crop in the three year rotation of cotton, corn and oats, there was an appreciable increase in yield in 1926.

OATS—DATES OF SEEDING: The data obtained from the dates of seeding tests further indicate the advisability of early seedings. In 1926 Fulghum oats yielded 57.6 bushels per acre when seeded on October 15th and 49.1 bushels per acre when seeded November 1st. The yields of Appler were 45.3 and 52.8 bushels per acre respectively for the corresponding dates. Late seedings of wheat and oats have yielded poorly. The results indicate that October 15th to November 1st is the optimum date for small grain seedings.

TABLE V.—OATS, DATES OF SEEDING TESTS.

Variety	Date of Seeding	Yield in Bushels Per Acre					
		1922	1923	1924	1925	1926	Average 5 Years
Fulghum	Oct. 15th	27.0	9.1	27.4	27.1	57.6	29.6
Fulghum	Nov. 1st	22.3	15.8	24.0	27.1	49.1	27.7
Fulghum	Nov. 15th	22.9	11.9	18.7	22.0	38.1	22.7
Fulghum	Dec. 1st	13.9	5.9	14.8	18.9	31.5	17.0
Appler	Oct. 15th	36.9	20.4	36.3	41.3	45.3	36.0
Appler	Nov. 1st	29.3	26.3	21.4	36.9	52.8	33.3
Appler	Nov. 15th	25.9	19.5	7.5	23.4	46.9	24.6
Appler	Dec. 1st	14.7	18.7	4.7	16.7	30.4	17.0

OATS, FERTILIZER TESTS: The triangle fertilizer tests are being continued to determine the proportions of phosphoric acid, ammonia and potash required by oats. The data further indicates that a complete fertilizer is required by the crop.

Phosphoric acid is the most essential of the three fertilizing elements to the oat crop, although as the work progresses results are obtained which indicate that oats are heavy users of potash.

The results of the top dressing tests indicate that ammonia applied as a top dressing at the proper time in the spring will give better results than ammonia applied at planting. One hundred pounds of nitrate of soda or its equivalent of sulphate of ammonia or other quickly available nitrogen fertilizers has given good results.

Potash in liberal amounts prevents lodging and increases yields. Fifty pounds per acre of muriate of potash or its equivalent should furnish the amount of this material required by the oat crop on average Tifton Sandy Loam or heavy Norfolk soils. On lighter soils more potash could probably be used profitably.

Oats fertilized with 400 pounds of a 10-0-4 at the time of planting, the latter part of October or the first of November, and top dressed February 1st with nitrate of soda or some quickly available nitrogenous fertilizer have made very satisfactory yields.

TABLE VI.—OATS, DATES OF APPLYING TOP DRESSING

Date of Application	Yield in Bushels Per Acre							
	1920	1921	1922	1923	1924	1925	1926	Average 7 Years
Jan. 15th	------	60.2	39.9	12.6	27.3	21.9	43.8	34.3
Feb. 1st	54.2	69.7	42.1	12.1	28.9	24.2	52.6	40.5
Feb. 15th	37.7	59.7	37.9	13.2	28.1	32.8	54.2	37.7
March 1st	37.8	48.8	42.7	11.9	26.9	30.4	47.8	35.2
March 15th	43.9	31.6	39.0	11.4	16.6	22.9	46.4	30.3
Check (No top dressing	32.3	53.0	37.8	12.4	17.2	21.9	38.7	30.5

RYE: Abruzzes rye led the 1926 variety trials with a yield of 26.8 bushels per acre. The results thus far indicate that Abruzzes and South Georgia rye are well adapted to soil and climate of the coastal plain. As will be noted in Table No. VII Abruzzes is slightly leading in grain yields.

Rye is being used extensively throughout the coastal plain as a cover, green-manure and grazing crop. Abruzzes has been found to be admirably suited to such uses. It produces more grain, as well as more abundant leaf and stem surface than the other varieties being grown.

TABLE VII.—RYE VARIETY TESTS

	Yield in Bushels Per Acre						
	1921	1922	1923	1924	1925	1926	Average 6 Years
Abruzzes	37.6	22.2	20.4	33.1	12.9	26.8	25.5
South Georgia	35.0	26.5	14.4	31.7	13.7	19.0	23.4
Rosen	6.0	1.9	4.6	6.7	------	------	4.8*
French	------	------	------	------	------	16.9	------

*Four-year average.

Cotton.

The experimental work with cotton embraces variety tests, fertilizer tests, effect of cover crops, spacing tests, selection and breeding work, and methods of boll weevil control. The fertilizer studies include tests to determine the proper formula or proportion of phosphoric acid, ammonia and potash to use for cotton, varying amounts of fertilizer, different sources of ammonia, different sources of potash, top dressing tests, effects of lime and cover crops in combination with varying amounts of fertilizer, tests of high analyses fertilizers and a comparison of the efficiency of mineral and synthetic nitrogenous fertilizer.

COTTON VARIETY TESTS: Forty-four varieties of cotton were included in the 1926 tests. The varieties are grown on Tifton sandy loam soil with 500 pounds of fertilizer per acre. The boll weevil was controlled on these plots by the use of a calcium arsenate, molasses and water mixture, applied just preceding squaring and during the time of the appearance of the first squares. Later poisonings were made with calcium arsenate dust.

Wilt resistance is an important characteristic of a cotton variety which is to be grown in the coastal plain. Wilt resistant varieties have led in yield at this station during the six years the tests have been in operation. Extremely early small boll and very late maturing large boll varieties have yielded poorly. On areas not infected with wilt or "black root" excellent results may be obtained from big boll cottons. Among the wilt resistant varieties which are growing in popularity in the coastal plain are Petty's Toole, Lewis 63, Covington Toole, Council Toole, Perry's Toole, Mathis Toole and others of similar type. On lands not infected with wilt, Cook's Improved, the Cleveland Big Boll varieties, and others are giving excellent results. Table No. VIII shows the yields for 1926. The average yields of varieties which have been included in the tests for 1923, 1924, 1925 and 1926 are shown in Table No. IX. Table No. X shows the yields of varieties which have been grown for six years.

TABLE VIII.—COTTON VARIETY TEST FOR 1926.

	VARIETY	Yield in Pounds Seed Cotton Per Acre		
		First Picking	Second Picking	Total Yield
1.	Petty's Toole	587	994	1581
2.	Lewis 63	761	773	1534
3.	Bullard	691	750	1441
4.	Council Toole	637	800	1437
5.	Coker's Cleveland 6 B	453	940	1393
6.	Piedmont Cleveland	665	722	1387
7.	Perry's Toole	553	828	1381
8.	Mathis Toole	521	841	1362
9.	D. P. L. No. 8	534	825	1359
10.	Culpepper	606	725	1331
11.	Coker's Super Seven	640	675	1315
12.	Wannamaker's Cleveland	443	872	1315
13.	Kelly's Big Boll	410	897	1307
14.	Cook's Improved	631	674	1305
15.	Deltatype Webber 5	425	878	1303
16.	Delfos 6102-0556	533	737	1270
17.	Coker's Cleveland 5	434	831	1265
18.	D. P. L. No 4	537	725	1262
18.	Salsbury	568	684	1252
20.	Covington Toole	381	862	1243
21.	Dixie Triumph	380	860	1240
22.	Sikes' Cleveland	362	847	1209
23.	Rhyne's Cook	531	775	1206
24.	Trice	773	409	1182
25.	Half and Half	409	769	1178
26.	Bank Account	413	762	1175
27.	Delfos 631-1374	565	584	1149
28.	Okra	662	450	1112
29.	Money Maker	405	707	1112
30.	Hooper's Big Boll	641	462	1103
31.	Hawkins Prolific	353	732	1085
32.	Lightning Express	628	440	1068
33.	Over-The-Top	593	466	1059
34.	Steinheimer's Cleveland	396	647	1043
35.	Foster Str. 2	400	640	1040
36.	Acala	600	381	981
37.	Three in One	353	587	940
38.	Simpkins Prolific	340	594	934
39.	Addison's Prolific	390	531	921
40.	Coker's Cleveland 6 A	393	466	859
41.	Meade	197	615	812
42.	Lone Star	225	587	812
43.	College No. 1, 23-13	353	544	807
44.	College No. 1, 23-16	363	409	772

TABLE IX.—COTTON VARIETY TESTS FOR FOUR YEARS.

VARIETY	Yield in Pounds Seed Cotton Per Acre				
	1923	1924	1925	1926	Average 4 Years
1. Petty's Toole	812	1262	878	1581	**1133**
2. Council Toole	606	1487	856	1437	**1096**
3. Coker's Cleveland Big Boll	630	1281	806	1393	**1027**
4. Dixie Triumph	800	1212	731	1240	**996**
5. Cook's Improved	569	1182	887	1305	**986**
6. Piedmont Cleveland Big Boll	638	1218	700	1387	**986**
7. Delfos 6102	800	1134	640	1270	**961**
8. Lightning Express	768	1128	869	1068	**958**
9. Wannamaker's Cleveland Big Boll	593	1040	856	1315	**951**
10. Covington Toole	688	1275	572	1243	**944**
11. Salsbury	755	1034	716	1252	**939**
12. Mathis Toole	568	1081	712	1362	**931**
13. Bullard	588	975	622	1441	**906**
14. Half and Half	750	1175	459	1178	**890**
15. Steinheimer's Cleveland Big Boll	721	1046	684	1043	**873**
16. Hawkins Prolific	637	1069	618	1085	**852**
17. Delfos (631)	518	1065	659	1149	**848**
18. Money Maker	556	1012	691	1112	**843**
19. Lone Star	605	1193	706	812	**829**
20. Acala	618	980	700	981	**820**
21. Okra	612	1021	512	1112	**814**
22. Trice	543	940	565	1182	**807**
23. Meade	525	1109	722	812	**792**
24. Deltatype Webber	425	737	437	1303	**725**
25. Simpkins Prolific	462	931	531	934	**714**
26. Hoopers Big Boll	343	872	515	1103	**708**
27. Over-The-Top	499	775	428	1059	**690**
28. College No. 1 (5-5-1-3-2-2-1)	487	959	462	807	**679**
29. Addison's Prolific	493	747	325	921	**621**

TABLE X.—COTTON VARIETY TESTS FOR SIX YEARS.

VARIETY	Yield in Pounds Seed Cotton Per Acre						
	1921	1922	1923	1924	1925	1926	Average 6 Years
1. Petty's Toole	885	682	812	1262	878	1581	1017
2. Cook's Improved	625	661	569	1182	887	1305	871
3. Covington Toole	585	664	688	1275	572	1243	838
4. Wannamaker's Cleveland	620	593	593	1040	856	1315	836
5. Steinheimer's Cleveland	680	657	721	1046	684	1043	805
6. Half and Half	405	576	750	1175	459	1178	757
7. Poulnot	835	524	593	1154	640	------	749*
8. Coker's Hartsville	605	591	592	1010	875	------	735*
9. Okra Leaf	540	500	612	1022	512	1112	716
10. Hoopers Big Boll	645	385	343	872	515	1103	644
11. Deltatype Webber	470	426	425	738	437	1303	633

*Five year average.

COTTON FERTILIZER TESTS including the triangle test and a group of twenty-five combinations are being continued to determine the most efficient combination for cotton. This work is located on an area of typical Tifton sandy loam soil. The results of the 1926 work again indicates that 9% phosphoric acid, 3% ammonia and 5% potash is most efficient on the Tifton sandy loam soils. This combination is being recommended with slight modification on the lighter soils. An increase of one per cent of ammonia and one to two per cent of potash should probably improve yields on lighter and poorer soils.

COTTON, AMOUNTS OF FERTILIZER TESTS: Amounts of fertilizer varying from 200 pounds through 1200 pounds per acre are being applied to determine the most economical rate at which a 9-3-5 combination may be applied to cotton. The results indicate that on good soils 800 to 1000 pounds per acre may be profitably applied. These tests have been conducted for only three years. Further experimental data will be necessary before more specific recommendations may be made.

COTTON, AMMONIA TESTS: Ammonia derived from various organic and mineral sources is being applied in a complete fertilizer at the time of planting. Nitrate of soda, sulphate of

ammonia, dried blood, tankage and cotton seed meal are the sources used in this group. The results of five years work show considerably heavier yields from the quickly available inorganic sources such as nitrate of soda and sulphate of ammonia, while the use of slowly available organic ammonia as the sole source has not resulted in as heavy yields. Since seasonal conditions seem to affect the results it appears to be good practice to use some ammonia from an organic source and some from an inorganic source under cotton when the price of these materials compare favorably. From 50 to 60 per cent of the ammonia should come from inorganic sources and the remainder from organic sources; for example, 50 to 60 per cent of the ammonia in the 9-3-5 cotton fertilizer most largely used on the Experiment Station farm is derived from quickly available inorganic material such as nitrate of soda or sulphate of ammonia etc., and the remainder from such organic sources as dried blood or cotton seed meal or fish scrap etc.

A co-operative project is in progress to determine the relative value of different nitrogenous fertilizers and their influence on soil reaction. Comparisons are being made of the crop yields obtained from the use of equivalent amounts of nitrogen derived from nitrate of soda, sulphate of ammonia, a 60-40 mixture of nitrate of soda and sulphate of ammonia, Leunasalpeter, basic slag with sulphate of ammonia, ammonium phosphate, and urea. Comparisons will be made of the effects on the acidity of the soil as shown by lime requirement methods and hydrogen-ion concentration. Determinations will be made of the lime necessary to use with these fertilizers to prevent development of an acid condition of the soil. Crop yields will be compared on areas where acidity is allowed to develop with areas where acidity is corrected by the use of limestone.

COTTON, POTASH TESTS: Little differences have resulted from the use of potash from different sources. Thirty pounds of potash per acre is applied in a 500 pound application of complete fertilizer. During previous seasons cotton fertilized with potash derived from kainit has yielded slightly more than when

the potash was obtained from other sources. An abundance of potash is very essential in cotton fertilization though the source from which it is derived seems to be less important. On the sandy soils of the coastal plain which are deficient in potash, liberal applications of this element stimulates and increases the vigor of the plant, reduces rust, and greatly increases the yields.

COTTON, TOP DRESSING TESTS: Top dressings of quickly available nitrogen fertilizers are being applied in amounts varying from 75 pounds to 200 pounds per acre at various stages of the cotton plants development. The applications are made at chopping, squaring, blooming, and upon the appearance of the first bolls.

The area on which these tests are made is fertilized uniformly with 500 pounds of complete fertilizer analyzing 9% phosphoric acid, 3% ammonia and 5% potash. The most economical returns in 1926 were obtained on plots receiving 100 pounds of nitrate of soda per acre, or its equivalent, applied at squaring. Seasonal influences are important as affecting results obtained from applications made at various stages of the plants growth. It appears that 100 to 125 pounds of quickly available nitrogenous fertilizer may be profitably applied during the early stages of the growth of the cotton plant.

COTTON — LIME, COVER CROP AND VARYING AMOUNTS OF FERTILIZER TESTS: The effects of lime, green-manure, green-manure and lime, combined with varying amounts of complete fertilizer on the yield of cotton are being studied in a series of tests. Ground limestone is applied at the rate of one and one-half tons per acre once in three years. The green manure consists of a crop of soy beans following small grains, in the three year rotation of cotton, corn and oats. No increases have resulted from the use of lime on cotton. Substantial increases are resulting from the use of a green-manure or cover crop.

COTTON, HIGH ANALYSES TESTS: A group of high analyses fertilizers are being applied to cotton at rates equivalent to 500 and 1000 pounds of 9-3-5 per acre. These formulae

include 9-3-5, 12-4-6.6, 15-5-8.3, 18-6-10, 24-8-13.3, and 30-10-16.6. Only small differences resulted from the use of the very concentrated mixtures as compared with less concentrated fertilizers.

COTTON, COVER CROP TESTS: Comparisons are being made of Austrian Winter peas, Monanthos vetch, Hairy vetch and Abbruzzes rye planted in the fall and turned under in the early spring, usually March 15th, as a cover crop preceding cotton. Studies are being made to determine the increase in yield which results from turning under these crops; to what extent the organic ammonia supplied by the cover crop will take the place of ammonia applied in commercial forms; and the frequency of turning under cover crops necessary or desirable to maintain a consistent and worth-while soil improvement schedule.

The 1926 results indicate that substantial increases in yields may be expected from turning under a cover crop of winter legumes for green manure. This practice seems especially desirable where it is practicable to graze the winter cover crops for a sufficient length of time to pay for the cost of seeding. For instance, under normal conditions Austrian Winter Peas seeded alone, or mixed with a light seeding of oats, should furnish grazing for one cow per acre for January and February without materially reducing the tonnage of green-manure to be turned under if the cattle are taken off some three weeks previous to the time the cover crop is turned under. It is well to bear in mind, however, that for cotton the cover crop should be turned under full two weeks before the cotton is planted in order that trouble may be avoided in getting a stand of cotton.

COTTON, SPACING TESTS: Spacings to determine the distance in the drill and the number of plants per hill which results in the best yields are being continued. The results indicate that the highest yields may be expected from two stalks per hill spaced twelve to fifteen inches in the drill.

BOLL WEEVIL CONTROL TESTS: Tests to determine the most effective method of using calcium arsenate to control boll weevil are being continued as follows:

1. Pre-square poisoning with a home-made mixture made

up of 1 gallon of molasses, 3 pounds of calcium arsenate and 3 gallons of water. This is followed by calcium arsenate dust applied with a dusting machine.

2. Pre-square poisoning with calcium arsenate dust. This treatment is followed by calcium arsenate dust applied with a dusting machine.

3. No pre-square poisoning. Four applications of calcium arsenate are applied with a dusting machine at five day intervals after the weevil infestation reaches ten per cent.

4. Pre-square poisoning with the home-made molasses, calcium arsenate and water mixture. This treatment is followed by mopping throughout the growing season with the same mixture.

5. Beginning just after the appearance of first squares three applications of dust are applied at six to seven day intervals.

6. Florida Method.

7. Check areas receiving no poison.

Of the various treatments used in 1926 early poisoning with home-made molasses, calcium arsenate and water mixture followed by calcium arsenate dust as needed produced 1122 pounds of seed cotton per acre. Areas receiving no poison yielded 669 pounds of seed cotton per acre. All forms of poisoning showed appreciable increases in yield. From the Florida method an increase of 77 pounds of seed cotton per acre was obtained.

The results of these tests show conclusively the benefits of early poisoning. The form in which the calcium arsenate is applied will be determined to a large extent by the equipment available on the individual farm. Growers of small acreages not equipped with dusting machinery may make these early applications most economically in the form of the home-made liquid mixture. The early applications should be begun a week to ten days before squaring. Two to three applications should be made at weekly intervals. Later poisoning can be made most effectively with calcium arsenate dust.

Corn.

CORN VARIETY TESTS: Twenty-seven varieties of corn including several local varieties were grown in the 1926 variety trials. The results for seven years show Whatley's Prolific leading in yield with an average of 44.8 bushels per acre. Hastings Prolific has yielded 41.7 bushels for the same period. The prolific types have resulted in the best yields. However, there are a number of the big ear group which have made excellent yields. Among these are Puckett's Improved, Piedmont Two Ear, Garrick and Ellis.

Further observations indicate that the type of shuck is a more important characteristic influencing weevil damage than hardness of grain. Few of the corns grown in these tests show any resistance to weevil damage. Those having shucks of fine texture, extending well over the tips of the ears and lying closely to the ear show less weevil damage than those having coarse open shucks which do not cover the ear closely and completely.

The following Table No. XI shows the 1926 yields. Table No. XII shows the yields of varieties which have been grown for seven years.

TABLE XI.—CORN VARIETY TEST FOR 1926.

	VARIETY	Yield Shelled Corn in Bushels Per Acre
1.	Whatley's Prolific	44.0
2.	Templeton	43.6
3.	Garrick	43.2
4.	Hastings Prolific	42.9
5.	Ellis	42.6
6.	White Dent	39.7
7.	Paymaster	39.2
8.	Davis Prolific	39.1
9.	Pee Dee No. 5.	39.1
10.	Daniel's Prolific	38.8
11.	Piedmont Two Ear	38.8
12.	Williamson	38.2
13.	Gregory	38.1
14.	Mosby's Prolific	38.0
15.	McClelland	37.2
16.	Puckett's Improved	36.9
17.	Calhoun Red Cob	36.6
18.	Giant Red Cob	36.0
19.	Golden Dent	34.8
20.	Mexican June	34.2
21.	Biggs Seven Ear	34.2
22.	Rockdale	32.7
23.	Cocke's Prolific	30.7
24.	Hickory King	29.5
25.	Reuter's Surecropper	28.3
26.	Boone County	26.2
27.	Reids Yellow Dent	18.7

TABLE XII.—CORN VARIETY TESTS FOR SEVEN YEARS.

Variety	Yield in Bushels Per Acre							
	1920	1921	1922	1923	1924	1925	1926	Average 7 Years
1. Whatley's Prolific	33.7	56.4	33.1	50.9	41.9	53.3	44.0	44.8
2. Hastings Prolific	28.1	53.4	36.1	44.1	40.8	46.6	42.9	41.7
3. Ellis	27.8	46.3	39.9	39.8	40.9	45.9	42.6	40.5
4. Garrick	31.2	46.0	34.7	43.5	36.3	47.6	43.2	40.4
5. Piedmont Two Ear	25.2	43.1	41.0	46.1	37.5	49.6	38.8	40.2
6. Puckett's Improved	22.5	55.4	40.5	36.4	37.3	44.7	36.9	39.1
7. Williamson	27.3	40.1	36.7	42.6	34.6	43.9	38.2	37.6
8. White Dent	25.9	35.9	30.7	33.7	27.3	46.1	39.7	34.2
9. Cocke's Prolific	23.6	27.7	32.3	33.0	35.2	40.0	30.7	31.8
10. Golden Dent		32.7	19.1	31.8	24.9	34.6	34.8	29.6*
11. Hickory King	18.6	25.5	28.5	24.9	24.8	37.7	29.5	27.1
12. Reid's Yellow Dent	16.0	18.0	21.0	18.7	19.0	30.9	18.7	20.3

*Six year average.

CORN, FERTILIZER TESTS: The work with fertilizer has been in progress six years. The triangle method is being used to determine the proportions of phosphoric acid, ammonia and potash from which the best yields of corn may be obtained. The data obtained during the six years these tests have been under way show a 10-2-4 (10% phosphoric acid, 2% ammonia, and 4% potash) to be an excellent corn fertilizer on Tifton sandy loam or "red pebble" soils. On lighter soils an increase of one to two per cent of both ammonia and potash might be advisable.

Another group of corn fertilizer tests are being carried on to determine the stage of growth of the corn crop at which fertilizer may be most profitably applied as a side dressing. Comparisons are being made within this group of nitrate of soda, dried blood, and cotton seed meal applied as top dressings alone and in a complete fertilizer. These treatments include complete fertilizer applied at planting, the ammonia being derived from soda, blood, or meal; complete fertilizer applied at different stages of the plants growth, the ammonia being derived from each of the above sources; and soda, blood, and meal (without complete fer-

tilizer) applied as top dressings at various stages of the growth of the corn plant.

The data further indicates the advisibility of applying fertilizer as a side dressing on good soils. On poorer soils the fertilizer should probably be applied at planting.

CORN—LIME, COVER CROP AND AMOUNTS OF FERTILIZER TESTS: These tests are being continued to determine the effects of lime, green-manure, and complete fertilizer in varying amounts on the corn crop. Thus far negligible increases have resulted from the use of lime. Appreciable increases have been obtained from the use of a green-manure crop in combination with complete fertilizer.

CORN, COVER CROP TESTS: Comparisons are being made of Austrian winter peas, Monanthos vetch, Hairy vetch and Abruzzes rye planted in the fall and turned under in the early spring, usually March 15th, as a cover crop preceding corn. Studies are being made to determine the increase in yield which results from turning under these crops; to what extent the organic ammonia supplied by the cover crop will take the place of ammonia applied in commercial forms; and the frequency of turning under cover crops necessary or desirable to maintain a consistent and worth-while soil improvement schedule.

As was the case with cotton, the 1926 results indicate that substantial increases of corn may be expected from turning under a cover crop of winter legumes for green manure.

Peanuts

PEANUT, VARIETY TESTS: Variety tests are being continued with peanuts. Comparisons are being made of seven of the most used varieties. Each variety is grown without fertilizer, and with acid phosphate at the rate of 250 pounds per acre. Appreciable increases in yields have resulted from the use of acid phosphate.

The following Table No. XIII shows the average yields for a six year period.

TABLE XIII.—PEANUT VARIETY TESTS.

Average for 1921, 1922, 1923, 1924, 1925 and 1926.

Variety	Average Yield of Unhulled Nuts in Pounds Per Acre	
	No Fertilizer	250 Lbs. 16% Acid Phosphate Per Acre
1. North Carolina	1471	1650
2. Improved Spanish	1224	1461
3. McGovern	1329	1459
4. Spanish	1080	1444
5. Virginia Bunch	1207	1357
6. Chapmans Pride	931	1208*
7. Valencia	821	977
8. Tennessee Red	569	688

*Three-year average.

PEANUT, FERTILIZER TESTS: The peanut fertilizer tests are being continued. The treatments used include various combinations of phosphoric acid, potash, ammonia, lime and sulphur. The results in 1926 further indicate that peanuts should be fertilized with a complete fertilizer. The experimental evidence so far indicates little or no benefit from the use of lime under peanuts on the well drained ridge soil, but on lower lying soil that is sour and poorly drained beneficial results may be expected from lime. On all soils a complete fertilizer analyzing 10% phosphoric acid, 2% ammonia and 4% potash should give good results. On light poor soils an increase of one to two per cent of ammonia and potash may prove advisable.

PEANUT, SPACING TESTS: The 1926 spacing tests further support the conclusion that best yields may be obtained from the closer spacings. Six inches has resulted in the highest yields for three years.

Soy Beans.

SOY BEAN, VARIETY TESTS: Thirteen varieties of soy beans were grown in the variety trials in 1926, (some of which were new varieties) for grain and forage. Special attention is being given to the selection of varieties well adapted to hay production. O-Too-Tan and Laredo continue to be the best hay varieties grown in the trials. The late maturing habit of O-Too-Tan soy bean has made it a very valuable variety for hay particularly for late seedings following small grains. The Laredo is more adapted to earlier seedings. Sown after grain, Laredo has resulted in low hay yields, while the earlier seedings compare favorably with yields obtained from O-Too-Tan. The following Table No. XIV shows the average grain and hay yields of those soy bean varieties which have been grown for six years.

TABLE XIV.—SOY BEAN VARIETY TESTS

Average for 1921, 1922, 1923, 1924, 1925 and 1926.

Variety	Yield of Beans in Bushels Per Acre	Yield Cured Hay in Pounds Per Acre
1. O-Too-Tan	3.0	3,534
2. Laredo	11.8	3,331
3. Black	9.9	2,639
4. Mammoth Yellow	7.8	2,598
5. Biloxi	2.0	2,583
6. Brown	6.4	2,577
7. Virginia	10.2	1,243
8. Southern Prolific	9.8	

Millets.

Among the varieties of millets being grown, Barnyard millet has produced the best grain yields. Pearl or Cattail has been the most desirable grazing and forage variety.

Velvet Beans.

Tracy's Early Black has produced the best yields of beans during the four years it has been grown. Early Arlington, 120 Day, Osceola, 90 Day and Bunch are the other varieties included in the tests.

Winter Field Peas.

WINTER FIELD PEAS, VARIETY TESTS: The variety and adaptation tests with winter peas are being continued. Though several new varieties were grown none showed special promise.

Austrian Winter or Grey Winter has proven to be well adapted to conditions of the coastal plain. It is particularly well suited to green-manure and cover crop uses. During the six seasons it has been grown excellent growths have resulted. Low grain yields indicate little possibilities as a grain crop.

Tangier peas have been included in these tests for the past six seasons. This crop offers unusual promise as a hay, cover or green-manure crop but unfortunately no satisfactory source of seed supply seems to be available. Further experiments will be necessary to determine its value as compared to the better field pea varieties.

Vetches.

VETCH, VARIETY TESTS: The vetches showing the most promise are Monanthos, Hairy, Wooly Podded and Purple. Monanthos and Hairy are included in the green-manure tests begun in 1926 with cotton and corn. Monanthos is better adapted to green manure uses than the other vetches being grown for the reason that it makes an excellent growth by mid March at which time it may be turned under preceding cotton or corn. The green weights of Monanthos vetch and Austrian Winter Peas have been practically the same at that time. The green weights of Hairy vetch have been much lighter than those obtained from Austrian Winter Peas and Monanthos vetch on March 15th. Later cuttings, however, show very satisfactory yields of Hairy vetch.

Bur Clovers.

BUR CLOVER, VARIETY TESTS: The bur clover tests are being continued. No new worthwhile varieties appeared in 1926. Tifton Bur Clover continues the most promising of the bur clovers being grown.

Other Legumes.

Further tests are being conducted with Serredella, Subterranean Clover, Black Medic, Annual Yellow Blooming Sweet Clover, Hubam Clover, Medicago ruthenica, Ladino Clover, Hop Clover, Crimson Clover and Lotus uligonosis. The results of these tests indicate the necessity for lime with the sweet clovers and in most cases the benefits from stable manure in starting new crops. Serredella only, among all the crops mentioned, made excellent growths on unfertilized plots. More extensive work will be undertaken with this promising crop in 1927.

Grasses.

A grass garden is maintained for the purpose of introducing new plants which may be worthwhile for grazing or forage. A group of new grasses are added each season.

Lowland Pasture Tests.

A permanent lowland pasture is maintained for comparisons of Carpet grass, Dallis grass, Lespedeza and combination seedings. The combination of Carpet grass, Dallis grass and Lespedeza has proven to be superior to either sown alone.

The weights obtained during the past three seasons indicate that, on mixed seedings on moist lowland, sods may be obtained which will carry one to one and one-half mature animals per acre. Carpet grass has proven invaluable in establishing sods on moist lowland where native vegetation grows profusely. Lespedeza and Dallis, though very valuable additions to any pasture are poorer sod makers, when sown alone are often crowded out in two to three seasons on such land.

HORTICULTURE

Sweet Potatoes.

The experiments with sweet potatoes consist of variety trials for early and late maturity, dates of planting, dates of harvesting, spacing tests in the drill, spacing tests in row widths, methods of breeding and selection to improve sweet potato strains, fertilizer formula tests, rates of applying fertilizer, tests of sources of ammonia, storage tests, methods of cultivation, tests to determine the residual effects of fertilizer on sweet potato yields and the effects of heavy application of fertilizer on early maturity.

SWEET POTATO, VARIETY TESTS: The rainfall during the sweet potato growing period was only about one-half inch more in 1926 than in 1925. Yields were considerably higher, however, due to its more uniform distribution. The commercial varieties still show less tendency to fluctuate in production and are gradually climbing to higher places in the average yields of the various varieties. Golden Beauty (a strain of the Porto Rico), Triumph, Porto Rico, Nancy Hall and Big Stem Jersey are the leading commercial varieties. The respective average yields of these varieties, over a five year period, are shown in Table No. XV "Sweet Potato Variety Tests."

TABLE XV.—SWEET POTATO VARIETY TESTS.
Average Yields for 1922, 1923, 1924, 1925 and 1926.

Variety	Total Yield in Bushels Per Acre	Yield of No. 1's in Bushels Per Acre
1. McMillan Cluster	226	147
2. Southern Queen	220	144
3. Golden Beauty	204	136
4. Hardshell	198	126
5. Triumph	198	139
6. Jerusalem	195	131
7. York Yam	192	128
8. Porto Rico	188	123
9. Nancy Hall	173	111
10. Pumpkin Yam	159	92
11. Big Stem Jersey	156	65
12. Dooly Yam	146	88
13. Shoer's Early	142	94
14. Purple Yam*	137	70
15. Yellow Yam	122	66
16. Norton Yam	107	60

*Four-year average.

SWEET POTATO, EARLINESS OF MATURITY OF VARIETIES: The tests to determine the varieties best adapted to the requirements of the early market has been in progress three years. The average planting date has been April 5th and the average date of harvesting August 2nd. This has given an average growing period of 119 days. The results obtained in these tests show Porto Rico leading the commercial varieties in No. 1 potatoes with a yield of 83 bushels per acre, Nancy Hall second with 66 bushels and Big Stem Jersey third with 46 bushels.

SWEET POTATO, PLANTING DATES: The practice of delaying the planting of sweet potatoes until late in the season is responsible, more than any other factor, for the low yields realized from this crop in South Georgia. In the following table it will be noted that the high yields resulting from early plantings rapidly decrease as the planting season advances. Over a five-year period plantings made in April have averaged 140 bushels

of No. 1 potatoes per acre and those made in June, 72 bushels, or a yield of 68 bushels of No. 1 potatoes per acre in favor of the April plantings.

TABLE XVI.—INFLUENCE OF DATES OF PLANTING ON YIELDS OF SWEET POTATOES.

Average Yields of Porto Ricos, 1922 to 1926 Inclusive.

Average Date Planted	Total Yield in Bushels Per Acre	Yield of No. 1's in Bushels Per Acre	Average Growing Days
April 1st	300	140	220
April 15th	275	140	205
May 1st	216	120	190
May 15th	207	119	175
June 1st	151	83	159
June 15th	119	62	144
July 1st	78	38	129
July 15th	63	23	114
August 1st*	34	8	98

*Four-year average.

SWEET POTATO, HARVESTING DATES: A series of harvesting dates extending from July 1st to November 1st show that the sweet potato makes a gradual growth throughout its entire growing period and that with favorable seasonal conditions the root development continues as long as the vines remain green and healthy. Data obtained from different harvesting dates over a five-year period are shown in table No. XVII.

TABLE XVII.—INFLUENCE OF DATES OF HARVESTING ON YIELDS OF SWEET POTATOES.

Average Yields of Porto Ricos, 1922 to 1926 Inclusive.

Average Date Harvested	Total Yield in Bushels Per Acre	Yield of No. 1's in Bushels Per Acre	Average Growing Days
July 1st	19	4	77
July 15th	41	18	92
August 1st	88	47	108
August 15th	105	52	123
September 1st	141	80	139
September 15th	173	109	154
October 1st	190	112	169
October 15th	206	129	184
November 1st	231	125	200

SWEET POTATO, SPACING TESTS: In spacing trials in which the rows are three and a half feet wide, plants were set at distances varying from four to twenty eight inches in the drill. The more liberal moisture supply of the 1926 season gave the closer spacings considerable advantage. While in the five year average there is only a slight increase in yield in the closer spacings and the cost of plants is considerably more. There still remains very little difference in the yield of marketable potatoes in spacings varying from four to twenty inches in the drill. There are, however, decided increases in total yields resulting from the closer spacings. Note results in table No. XVIII. Spacing tests in row widths are showing three-foot rows to best advantage.

TABLE XVIII.—SWEET POTATO SPACING TESTS.

Average Yields of Porto Ricos for 1922, 1923, 1924, 1925 and 1926.

Distance in Drill	Yield in Bushels Per Acre				
	Total	No. 1's	No. 2's	Strings	Jumbos
4 inches	273	131	74	60	8
8 inches	232	126	55	44	7
12 inches	223	125	48	40	10
16 inches	203	124	39	31	9
20 inches	196	122	41	23	10
24 inches	191	115	40	23	13
28 inches	192	103	45	23	21

SWEET POTATO, SELECTION WORK: The hill selection work begun in 1921 is being continued. Other methods of selection are also in progress which have as their object the development of a potato that will be more desirable for home consumption and commercial uses.

SWEET POTATO, TRIANGULAR FERTILIZER TESTS: Fertilizer tests embracing 15 formulas of the triangular fertilizer system have been in progress five years. The data at hand seem to indicate that in seasons of liberal rainfall formulas carrying a high percent of ammonia produce the heaviest yields while in dry seasons potash seems to be an important factor. The three formulas producing the highest yields over a five-year period are given below. The yields are expressed in bushels per acre.

Fertilizer Formula	Total Yield Per Acre	No. 1 Potatoes	No. 2 Potatoes	Strings	Jumbos
8-6-2*	243	133	51	30	29
8-4-4	226	132	50	29	15
8-2-6	225	124	49	32	20

*8% phosphoric acid, 6% ammonia and 2% potash.

SWEET POTATO, TESTS WITH RATES OF APPLYING FERTILIZER: A set of tests are being conducted in which fertilizer is applied in amounts varying from 200 to 1200 pounds per acre. As will be noted in the accompanying table, 800 pounds seems to be the most profitable rate of application.

TABLE XIX.—INFLUENCE OF VARYING AMOUNTS OF FERTILIZER ON THE YIELD OF SWEET POTATOES.

Average Yields of Porto Ricos for 1922, 1923, 1924, 1925 and 1926.

Amount	Total Yield in Bushels Per Acre	Yield of No. 1's in Bushels Per Acre
Check (no fertilizer)	121	66
200 Lbs	148	79
400 Lbs	178	103
600 Lbs	199	113
800 Lbs	216	127
1000 Lbs	209	119
1200 Lbs	250	141

SWEET POTATO, AMMONIA TESTS: In order to determine the source or sources from which the ammonia in sweet potato fertilizer should be derived, tests are in progress which include six different carriers. Combinations of organic or inorganic sources are also being used. Indications at present are that part of the ammonia should come from quickly available and part from slowly available sources.

SWEET POTATO, TESTS TO DETERMINE THE INFLUENCE OF VARYING AMOUNTS OF FERTILIZER ON EARLY MATURITY have been in progress two years. In these tests both Porto Rico and Big Stem Jersey are included. In table No. XX it may be observed that there are constant increases in yield in both varieties, resulting from the use of increased rates of application of fertilizer.

TABLE XX.—INFLUENCE OF INCREASED AMOUNTS OF FERTILIZER ON EARLY MATURITY OF SWEET POTATOES.
Average Yields for 1925 and 1926.
Planted April 1st.—Harvested August 1st.

Amount Fertilizer	Yield in Bushels per Acre				
	Total	No. 1's	No. 2's	Strings	Jumbos
Big Stem Jersey:					
300 Lbs	118	48	29	41	
500 Lbs	128	61	30	37	
700 Lbs	146	82	27	37	
Porto Rico:					
300 Lbs	131	76	31	22	2
500 Lbs	156	96	33	20	7
700 Lbs	170	112	39	15	4

SWEET POTATO, TESTS WITH VINES, DRAWS AND WHOLE POTATOES have been under way five years. In this project one area was planted to vine cuttings, one to draws, and one to whole potatoes. The resulting total yield from whole potatoes has been considerably more than from vines or draws while the yield of No. 1 potatoes has been less. In the accompanying table it will be observed that 101 bushels of the yield from whole potatoes are jumbos. This is due to the fact that the whole potato, when planted, resumes its growth and develops into rough, irregular, over-sized potatoes, with a result that very few new potatoes are formed.

TABLE XXI.—COMPARATIVE YIELDS OF VINES, DRAWS AND WHOLE POTATOES.
Average Yields of Porto Ricos for 1922, 1923, 1924, 1925 and 1926.

Sources of Plant	Yield in Bushels per Acre				
	Total	No. 1's	No. 2's	Strings	Jumbos
Whole Potato	147	27	11	8	101
Draws	113	61	30	22	
Vines	108	60	29	19	

STORAGE TESTS WITH SWEET POTATOES: All of the varieties included in the variety trials are placed in storage and in the spring when the potatoes are taken from the curing house, the per cent rot in each variety is determined. In the following table is shown the average per cent of rot from each variety, over a five-year period.

TABLE XXII.—SWEET POTATO STORAGE TESTS.
Varieties
Grown From Draws
Average for Years 1922, 1923, 1924, 1925 and 1926.

VARIETY	Per Cent Rot in Storage
1. Southern Queen	8%
2. Triumph	10%
3. Nancy Hall	14%
4. Dooly Yam	17%
5. Shoers Early	19%
6. Norton Yam*	19%
7. Pumpkin Yam	24%
8. Porto Rico	24%
9. Yellow Yam	25%
10. York Yam	25%
11. Golden Beauty	27%
12. Jerusalem Yam	38%
13. McMillan Cluster	40%
14. Purple Yam*	43%
15. Hardshell	44%
16. Big Stem Jersey	47%

*Four-year average.

Tomatoes.

TOMATO, VARIETY TESTS: Of the fourteen varieties of tomatoes that have been included in the variety trials over a five-year period it seems that New Stone and Livingston Globe are the outstanding commercial varieties for South Georgia. Spark's Earliana and Chalk's Early Jewel are excellent early varieties for home use. Brimmer and Ponderosa are among the poorest from the standpoint of yield. Of the wilt resistant varieties, Norton and Norduke seem to be the superior tomatoes.

TABLE XXIII.—TOMATO VARIETY TESTS
Average Yields for 1922, 1923, 1924, 1925 and 1926.

Variety	Total Yield in Pounds Per Acre	Pounds Marketable Tomatoes Per Acre
1. New Stone	16101	10036
2. Spark's Earliana	13848	6389
3. Chalks Early Jewel	13732	7525
4. Livingston Globe	12902	7610
5. Cooper's Special*	12395	7521
6. Redfield Beauty	12176	7532
7. Norton†	11960	7627
8. Matchless	11497	7463
9. Norduke†	10526	6699
10. Ponderosa	10441	4584
11. Marvel*†	10335	7005
12. Greater Baltimore*	10206	5837
13. Dwarf Champion*	9463	5798
14. Brimmer*	7810	3080

*Four-year average.
†Wilt resistant variety.

TOMATO, PLANTING DATES: Tomatoes are planted at fifteen-day intervals throughout the growing season to determine the date at which this crop should be planted to obtain the maximum yield. As shown in table No. XXIV the highest yields are realized from the earliest plantings. The yield of each successive planting gradually decreases.

TABLE XXIV.—TOMATO PLANTING DATES
Average Yields of New Stone for 1922, 1923, 1924, 1925 and 1926.

Date Planted	Total Yield in Pounds Per Acre	Pounds Marketable Tomatoes Per Acre
April 1st	13212	8354
April 15th*	10190	6519
May 1st	8477	5717
May 15th	5765	3944
June 1st*	4131	2680
June 15th*	4327	2637
July 1st*	9557	5554

*Four-year average.

TOMATO, FERTILIZER TESTS: A tomato fertilizer test is being continued to determine the combination of phosphoric acid, ammonia and potash that will best satisfy the nutrient requirements of this crop. Over a five year period a 9-5-7 formula (9% phosphoric acid, 5% ammonia and 7% potash) is leading in total yield and in marketable fruit.

Another set of tests are in progress to determine the most profitable rate at which fertilizer may be applied to tomatoes. Results obtained over a five year period indicate that 800 pounds of fertilizer per acre is the most profitable rate of application.

TABLE XXV.—RATES OF APPLYING FERTILIZER.
Average Yields of New Stone for 1922, 1923, 1924, 1925 and 1926.

Amounts	Total Yield in Pounds Per Acre	Pounds Marketable Tomatoes Per Acre
Check (no fertilizer)	3664	2479
200 Lbs	12241	7826
400 Lbs	14445	8716
600 Lbs	17826	11114
800 Lbs	17094	11893
1000 Lbs	18020	11531
1200 Lbs	16237	10481

TOMATO, AMMONIA TESTS indicate that the ammonia in tomato fertilizer should be derived from a quick acting source such as nitrate of soda or sulphate of ammonia.

TOMATO, IRRIGATION TESTS: To determine the advisability of irrigating tomatoes and the type of irrigation suited to conditions in the coastal plain, small areas of upland (Tifton Sandy Loam) were equipped with overhead and sub-irrigation systems, and these areas compared with an unirrigated area. In a five year average the over-head has produced a higher yield with less water requirement than the sub-irrigation system. The increase in yields in the irrigated over the unirrigated area is so slight that it is doubtful if the practice of irrigating would be profitable under conditions represented in these tests.

TOMATO, SPACING TESTS: In spacing trials in which the rows were three and a half feet wide, plants were set at distances of two, three and four feet in the drill. Data at hand show the three-foot spacing producing the highest total yield and also the greatest amount of marketable fruit.

Watermelons.

WATERMELON, VARIETY TRIALS: Variety trials with watermelons were continued as in previous years. The order of yield of the eight varieties, as obtained from a five year average is the same as that shown in the 1925 Report. Data secured from these trials are shown in table No. XXVI.

TABLE XXVI.—WATERMELON VARIETY TESTS.
Average Yields for 1922, 1923, 1924, 1925 and 1926.

Variety	No. Marketable Melons Per Acre	Average Weight of Marketable Melons	Days Required to Mature
Thurmond Grey*	520	33.27	109
Rattlesnake	488	24.23	108
Watson	480	25.70	111
Florida Favorite **	465	23.19	111
Kleckley Sweet	440	22.13	105
Irish Grey	376	23.31	112
Halbert Honey**	380	22.82	109
Alabama Sweet**	240	23.50	114

*Three-year average.
**Four-year average.

WATERMELON, PLANTING DATES: As shown in table No. XXVII the size of the melon and the number of melons set per acre may be increased by early planting.

TABLE XXVII.—WATERMELON PLANTING DATES.
Average Yields of Watsons for 1922, 1923, 1924, 1925 and 1926.

Date Planted	No. Marketable Melons Per Acre	Average Weight of Marketable Melons	Days Required to Mature
March 1st*	653	33.29	132
March 15th	592	28.43	117
April 1st	560	26.90	104
April 15th	496	24.15	98
May 1st*	120	23.10	90

*Three-year average.

WATERMELON, FERTILIZER TESTS: The triangular test with watermelons, including fifteen formulas, has been in progress five years. In these tests an 8-4-4 formula (8% phosphoric acid, 4% ammonia and 4% potash) is leading in yield.

WATERMELON, TESTS OF RATES OF APPLYING FERTILIZER: The data resulting from these tests indicate that 800 pounds per acre is the most profitable rate of application. The results are shown in table No. XXVIII.

TABLE XXVIII.—INFLUENCE OF VARYING AMOUNTS OF FERTILIZER ON THE YIELD OF WATERMELONS.
Average Yields of Watsons for 1922, 1923, 1924, 1925 and 1926.

Amount	No. Marketable Melons Per Acre	Average Weight of Marketable Melons	Days Required to Mature
Check (no fertilizer)	204	22.45	120
200 Lbs	592	24.12	89
400 Lbs	568	23.72	89
600 Lbs	664	26.38	89
800 Lbs	768	26.49	89
1000 Lbs	664	27.44	89
1200 Lbs	656	25.29	91

WATERMELON, AMMONIA TESTS: Tests in which the ammonia is derived from organic and mineral sources are being conducted with watermelons. The highest yields have resulted where half the ammonia was derived from an organic and half from a mineral source.

WATERMELON, PRUNING TESTS: In these tests different areas were pruned to one, two, three and four melons to the hill and another area was left unpruned. Data procured over a five-year period show the area pruned to one melon to the vine producing the largest fruit, while of the pruned areas, the one pruned to three melons to the vine is producing the highest yield of marketable melons per acre. These data are incomplete and further studies are being made. It is evident, however, that at least all ill-shaped melons should be pruned.

Melon Diseases.

A study of the control of downy mildew of the cantaloupe was begun in the spring of 1926. This work embraces studies of the life history of the disease and of its control under practical field conditions with both liquid sprays and dusts. The melon disease experiments are being conducted co-operatively with the Georgia Experiment Station.

Irish Potatoes.

IRISH POTATO, VARIETY TESTS: Red Bliss is the most popular variety of potatoes in South Georgia with Irish Cobbler as a second choice. Data from five years results indicate no appreciable difference in yield or date of maturity with these two varieties. However, there does seem to be a slight difference in favor of second-crop seed potatoes over the Maine grown crop.

TABLE XXIX.—IRISH POTATO VARIETY TESTS.
Average Yields for 1922, 1923, 1924, 1925 and 1926.

Variety	Total Yield in Bushels Per Acre	Yield of No. 1's and 2's in Bushels Per Acre
1 Red Bliss (second crop)**	68	64
2. Red Bliss (Maine grown)	57	51
3. Green Mountain	56	49
4. Irish Cobbler	56	51
5. Spalding Rose*	45	37
6. Rural New Yorker No. 2**	44	34
7. McCormick*	33	26
8. Lookout Mountain**	31	24
9. Improved Peach Blow*	24	17

*Four-year average.
**Three-year average.

IRISH POTATO, PLANTING DATES: Planting dates with Irish potatoes begin March 1st and continue at fifteen day intervals until May 1st. Data resulting from these trials indicate that the highest yields may be expected from plantings made between March 15th and April 1st. This is probably due to the fact that the late March plantings are benefited by the usual June rains whereas the earlier plantings mature during May when it is usually dry.

TABLE XXX.—INFLUENCE OF DATES OF PLANTING ON YIELDS OF IRISH POTATOES
Average Yields of Red Bliss for 1922, 1923, 1924, 1925 and 1926.

Date Planted	Total Yield in Bushels Per Acre	Yield of No. 1's and 2's in Bushels Per Acre
March 1st*	59	44
March 15th	52	53
April 1st	62	54
April 15th*	43	38
May 1st**	21	16

*Four-year average.
**Three-year average.

IRISH POTATO, FERTILIZER TESTS: The work with fertilizers for Irish potatoes is not conclusive although a formula carrying 8% phosphoric acid, 4% ammonia and 4% potash continues to lead in a five year average.

Tests with varying amounts of fertilizer show an increase in yields up to 1200 pounds per acre although 800 pounds is probably the most profitable rate of application on Tifton sandy loam soils.

IRISH POTATO, IRRIGATION TESTS: Comparative tests with irrigated and un-irrigated areas have been in progress with Irish potatoes for four years. In this project both over-head and sub-irrigation systems are being used. In table No. XXXI it will be noted that substantial increases in yields have resulted from the irrigated areas while of the two systems, the over-head has an advantage in that it requires less water and seems better adapted to the conditions under test.

TABLE XXXI.—IRISH POTATO IRRIGATION TESTS.

Average Yields of Spring Plantings for 1923, 1924, 1925 and 1926.

System	Total Yield in Bushels Per Acre	Yield of No. 1's and 2's in Bushels Per Acre
Over-head irrigation	60	55
Sub-irrigation	60	55
Field (not irrigated)	50	45

IRISH POTATO, TESTS TO DETERMINE THE INFLUENCE OF THE SIZE OF THE SEED-PIECE ON YIELD have been in progress five years. The manner in which the seed pieces are cut is indicated in table No. XXXII. Although the larger seed-pieces produce higher yields, the resulting increased cost of seed potatoes renders this practice unprofitable.

Yields from "tip-ends" and "stem-ends" of potatoes are also included in this table. There seems to be no appreciable difference in the yields resulting from the two parts of the potato.

TABLE XXXII.—INFLUENCE OF SIZE OF SEED-PIECE ON YIELD OF IRISH POTATOES.

Average Yields for 1922, 1923, 1924, 1925 and 1926.

Seed Piece	Total Yield in Bushels Per Acre	Yield of No. 1's and 2's in Bushels Per Acre
Whole Potato	81	74
Half Potato	70	65
Quarter Potato	59	54
Tip End	64	57
Stem End	66	59

Beans.

BEAN, VARIETY TESTS: The variety trials with both snap and lima beans include spring and fall plantings. Data secured from these tests show much smaller yields resulting from fall plantings. Apparently the fall growing season is too dry to satisfy the moisture requirements of this crop. It has also been observed that the fall plantings are more susceptible to bean diseases which attack the young plants, resulting in serious damage to the crop. Data secured from spring plantings are shown in Table No. XXXIII.

TABLE XXXIII.—BEAN VARIETY TESTS.
Spring Plantings.
Average Yields for 1922, 1923, 1924, 1925 and 1926.

Variety	Total Yield in Pounds Per Acre	Days Required to Mature	Bearing Period (Days)
Snap Beans:			
McCaslan Pole	2962	62	38
Cornfield (Pole)	2727	69	32
Stringless Green Pod (Bunch)	2586	53	44
Old Homestead (Pole)	2567	67	33
Black Valentine (Bunch)	2447	53	43
Davis White Wax (Bunch)	2343	53	40
Red Valentine (Bunch)	2172	59	39
Wardwell's Kidney Wax (Bunch)	1932	53	40
Improved Round Pod Refugee (Bunch)	1810	61	31
Excelsior Refugee (Bunch)	1766	57	36
Hodson Wax (Bunch)	1727	60	31
White Mexican (Bunch)	1674	60	33
Lima Beans:			
Florida Butter (Pole)	4260	86	77
Jackson Wonder (Bunch)	3458	79	62
Henderson Bush	2790	79	60
Small White Lima (Pole)*	2409	81	56
Ford Hook (Bunch)	1297	83	49
Large White Lima (Pole)*	1113	80	29

*Four-year average.

English Peas.

ENGLISH PEA, VARIETY TESTS: Variety trials with English peas indicate that of the early-maturing varieties Thomas Laxton is most dependable. Notts Excelsior is showing to good advantage as a medium maturing variety and of those that mature late, Improved Telephone and Bliss Everbearing are outstanding.

TABLE XXXIV.—ENGLISH PEA VARIETY TESTS.
Spring Plantings.
Average Yields for 1922, 1924 and 1926.

Variety	Total Yield	Days Required to Mature	Bearing Period (Days)
1. Improved Telephone	1615	77	20
2. Notts Excelsior	1515	62	28
3. Bliss Everbearing	1391	76	20
4. Thomas Laxton*	1058	57	26
5. Alaska Extra Early	1034	57	22
6. Black Eyed Marrowfat*	773	93	21

*Two-year average.

PEPPER, VARIETY TESTS: Work with pepper varieties has been in progress five years. Comparative yields of the various varieties included in these tests may be observed in table No. XXXV.

TABLE XXXV.—PEPPER VARIETY TEST.
Average Yields for 1922, 1923, 1924, 1925 and 1926.

Variety	Total Yield in Pounds Per Acre	Days Required to Mature	Bearing Period (Days)
1. Ruby Giant	18955	79	112
2. Large Bell	16199	77	105
3. Long Cayenne	13504	84	115
4. Pimento*	10300	106	102
5. Royal King*	9709	57	93
6. Golden Prize*	9524	80	119

*Four-year average.

Work with other truck and vegetable crops was carried forward as in previous years. This includes variety trials and adaptation studies with asparagus, beets, cabbage, carrots, celery, corn (sweet), cucumbers, egg plants, lettuce, okra, onions, spinach, squash, and turnips.

A study of the behavior of truck crops on reclaimed swamp lands was begun in the fall of 1926.

Fruits.

PEACH, VARIETY TESTS: Of the 46 varieties of peaches planted in 1921 and 1922, 21 varieties fruited in 1924, 18 in 1925 and 39 in 1926. Table No. XXXVI shows dates of maturity and yields obtained from the various varieties in 1926. Table No. XXXVII shows the average yields of the first, second and third crops of as many varieties as have produced fruit over a three-year period.

TABLE XXXVI.—YIELDS OF PEACH VARIETIES IN 1926.

VARIETY	Date Ripe	Free or Cling	Number Crates Per Tree
1. Arp. Beauty	6-11	Semi cling	3.92
2. Late Crawford	8-11	Free	3.92
3. Late Elberta	8-2	Free	3.74
4. Imperial	7-12	Free	3.57
5. Taber	7-9	Cling	3.50
6. Florida Gem	7-12	Free	3.35
7. Salway	7-19	Free	3.28
8. Georgia Bell	7-9	Free	3.17
9. Carmen	6-28	Semi cling	3.01
10. Gibson's October	8-11		2.94
11. Early Elberta	7-9	Free	2.93
12. Hiley	7-2	Free	2.86
13. Elberta	7-19	Free	2.82
14. Gordon	9-6		2.79
15. Honey	6-28	Free	2.71
16. Bilyeu's Late	7-22	Free	2.71
17. Mamie Ross	6-25	Semi cling	2.62
18. Uneeda	6-4	Semi cling	2.51
19. Lemon Cling	7-26	Cling	2.29
20. Champion	6-30	Free	1.87
21. J. H. Hale	7-12	Free	1.65
22. Wonderful	8-9		1.65
23. Heath Cling	8-13	Cling	1.60
24. Victoria	7-22	Free	1.53
25. Greensboro	6-9	Semi cling	1.30
26. Stinson's October	9-13	Cling	1.22
27. Mayflower	5-24	Semi cling	1.21
28. Chinese Cling	7-14	Cling	1.21
29. Waldo	6-3	Free	1.15
30. Early Crawford	7-9	Free	.95
31. Jewel (on Plum)	6-28	Free	.91
32. Eatons Golden	8-23		.88
33. Beer's Smock	8-2		.65
34. Henrietta	8-11	Cling	.60
35. Alexander	6-7	Semi cling	.52
36. Angel	7-20	Free	.45
37. Jewel	6-25	Free	.32
38. Red Bird Cling	6-4	Cling	.22
39. Early Rose	6-16	Cling	.05

TABLE XXXVII.—PEACH VARIETY TESTS.
Average Yields for 1924, 1925 and 1926.
(First, Second and Third Crops)

VARIETY	Free or Cling	(Average) Date Mature	Yield in Crates Per Tree
1. Imperial	Free	7-9	1.72
2. Taber	Cling	7-4	1.53
3. Florida Gem	Free	7-9	1.50
4. Late Elberta	Free	8-11	1.34
5. Georgia Bell	Free	7-12	1.19
6. Hiley	Free	7-1	1.18
7. Mamie Ross	Semi-cling	7-10	1.13
8. Salway	Free	7-27	1.12
9. Carmen	Semi-cling	7-9	1.08
10. Early Elberta	Free	7-1	1.01
11. Honey	Free	6-26	.97
12. Mayflower	Semi-cling	5-31	.63
13. J. H. Hale	Free	7-22	.57
14. Greensboro	Semi-cling	6-13	.48
15. Waldo	Free	6-15	.47
16. Elberta	Free	7-20	.35
17. Angel	Free	7-14	.17

PEACHES, ON PLUM STOCKS: In the light sandy soils of South Georgia the life of the average peach orchard is considerably shorter than in sections having heavier soils and colder winters. There is a possibility that the shorter life of the orchard is due to nematode injury. With the idea of avoiding this difficulty peaches on plum stocks were included in the general variety planting. These trees showed remarkable vigor for three years. At the beginning of the fourth year some trees bloomed and came into full foliage but died immediately after. The remaining trees on plum stocks fruited lightly in 1926 but died in late summer. Upon examining the dead trees it was found that the peach scions had grown faster than the plum stocks or roots and as a result the cambium layers had been torn apart thus resulting in death to the trees.

GRAPE, VARIETY TESTS: Twenty-eight varieties of grapes produced fruit in 1926. Tables No. XXXVIII and No. XXXIX

show the average yields of the first, second and third crops of as many varieties as have produced fruit over a three year period. There are indications that a large number of bunch grapes will be short lived, consequently further study must be made before varietal recommendations can be made. All varieties of muscadine grapes are showing remarkable vigor and adaptability. Present observations indicate that Thomas is the superior grape among the black varieties.

TABLE XXXVIII.—GRAPE VARIETY TESTS (Bunch Type)
Average Yields for 1924, 1925 and 1926 (First 3 Crops)

VARIETY	Color	Average Date Mature	Yield Per Vine in Pounds
1. Moor's Diamond	Creamy White	7-9	15.86
2. Morrell	Purple	7-8	14.61
3. Delaware	Red	7-7	9.12
4. Niagara	Greenish White	7-8	8.77
5. Concord	Blue Black	7-10	7.59
6. Ives	Black	7-5	7.42
7. Worden	Black	7-9	6.19
8. Lutie	Red	7-4	4.57
9. Brilliant	Red	7-10	4.36
10. Agawan	Redish Brown	7-5	4.26

TABLE XXXIX.—GRAPE VARIETY TESTS (Muscadine Type)
Average Yields for 1924, 1925 and 1926 (First 3 Crops)

VARIETY	Color	Average Date Mature	Yield Per Vine in Pounds
1. Thomas	Redish Purple	8-10	33.68
2. Flowers	Purplish Black	8-9	27.79
3. James	Black	8-9	20.43
4. Eden	Black	8-1	18.72
5. Scoupernong	Bronze	8-11	15.71

DEWBERRY, VARIETY TESTS: The dewberry variety trials were continued as in previous years. "Young" continues to show more vigor, resistance to disease and productiveness. It is also a superior berry in quality and should prove very popu-

lar for home use and local markets. The commercial value of this berry has not been determined although storage tests indicate that it will ship if picked when red. Data secured from dewberry variety trials may be observed in Table No. XL.

TABLE XL.—DEWBERRY VARIETY TRIALS.
Average Yields for 1924, 1925 and 1926 (First 3 Crops)

Variety	Average Date Mature	Yield in Quarts Per Plant
1. Young	5-19	3.83
2. Austin	5-16	3.27
3. Lucretia	5-20	1.80

STRAWBERRY, VARIETY TESTS: Strawberry variety trials in the 1925 Report show Klondike and Missionary as superior berries from the standpoint of yield.

Another planting of strawberries was made in 1925 to which several new varieties were added. Results from this planting, over a two year period, show "Seedling" and Greensboro producing higher yields in the comparative tests than the two above named varieties, and also a greater degree of resistance to summer heat and drought. Note results in Table No. XLI.

TABLE XLI.—STRAWBERRY VARIETY TRIALS.
Average Yields for 1925 and 1926.

VARIETY	Average Date Ripe	Yield in Quarts Per Acre	Bearing Period (Days)
1. Seedling	4-12	2621	71
2. Greensboro	4-13	2218	76
3. Missionary	4-12	1876	77
4. Klondike (No. 1)	4-15	1744	74
5. Giant Spring Bearing	4-19	1195	70
6. Glen Saint Mary	4-10	1168	79
7. Gandy	4-20	1034	69
8. No. 6313	4-21	915	60
9. Lady Thompson	4-12	855	77
10. Brandy Wine	4-16	819	73
11. Klondike (No. 2)	4-15	717	74
12. Lady Corneille	4-15	614	74
13. Excelsior	4-13	403	76
14. Aroma	4-18	386	68
15. Haverland	4-23	342	65
16. Senator Dunlap	4-18	247	71
17. Never Stop	4-18	247	69

OTHER FRUITS: Among other fruits that have reached bearing ages are apples, blackberries, blueberries, citrus fruits, figs, Jujubes, pears, pecans, quince, raspberries and walnuts.

TOBACCO

The tobacco experiments are being continued as outlined in previous reports with the exception of a few minor changes. The U. S. Department of Agriculture and Georgia State College of Agriculture are co-operating with this station in conducting these tests. Due to the demand for information on tobacco culture it was thought advisable to publish the results on the variety and fertilizer work. This was done in February in station bulletin No. 7 "Bright Tobacco in Georgia."

TOBACCO, FERTILIZER TESTS:

Formula Tests: The tests to determine the proper ratio that should exist between the essential plant food elements to produce

tobacco of maximum yield and quality are being continued. These tests indicate that the ratio should be approximately 8% phosphoric acid, 3% ammonia and 5% potash. However, there might be some advantage in increasing the phosphorous to 10% and the potash to 6 or 7% on some soils.

Potash Tests. Due to the increase in net returns from the use of muriate forms of potash, although it decreases the leaf's ability to hold fire, it was decided to substitute a mixture of one-half muriate and one-half sulphate of potash for one of the sulphate plots in the potash series. This was done with the view of combining the good qualities of both sources. Otherwise these tests are being conducted as previously reported.

Ammonia Sources: The tests with the various sources of ammonia have indicated that probably it is best to derive one-half the ammonia from nitrate of soda, or one-fourth from nitrate of soda and one-fourth from sulphate of ammonia, and the remaining half from some high grade organic source or sources. These tests are being continued with stable manure still leading in net returns per acre.

The special sources of ammonia are being continued with favorable results from several from synthetic sources. On these tests the sources used are principally those that have not come into extensive use in commercial fertilizers.

TOBACCO, VARIETY TESTS: Tests with various varieties have indicated that probably the lighter typed varieties such as Jamaica, Yellow Pryor and Cash are better suited to the soils on the experimental plots (Tifton Sandy Loam grading into Norfolk Sandy Loam) than the heavier types such as Warne, Adcock and some of the Orinocos. Due to this indication the variety used on the fertilizer and nutrition work has been changed from Warne to Yellow Pryor.

TOBACCO, CROP RELATION WORK: This work has been under way five years and is being continued as in previous reports. The effect of various crops on the infestation of the succeeding crop of tobacco with nematode has furnished interesting study.

The depletion of the soil of its different elements by different crops has also become evident. Lime has proved of practically no value on any of the crops in this series of tests.

Tobacco Disease Work.

The disease that has been found to be causing greater losses than all others combined during recent years in this section is root-knot. The damage done ranges from a slight loss in some fields to practically a total loss in other fields. For this reason investigations, to date, have been confined largely to a study of this disease. The work has been divided into two general phases: Crop Rotation and Selection for Resistance.

CROP ROTATION: Crop rotation is the most effective control measure for root-knot that has been found. In order to intelligently plan the rotation it is, of course, necessary to know which crops are susceptible to the disease. This information, with a description of the causal organism and recommendations for the control of root-knot has been published in U. S. Department of Agriculture, Farmers Bulletin No. 1345.

An experiment to determine the best rotation for tobacco in this section was begun in 1925. For this work we are running a three-year rotation with tobacco following at one-year and two-year intervals the following crops: resistant cowpeas (Brabham), susceptible cowpeas (Clay), corn, velvet beans, tobacco, beggarweed, sweet potatoes, peanuts, fallow and cotton. This test, which covers three acres and contains sixty plats, has been in progress only two years and sufficient data have not been taken to warrant recommendations.

SELECTION FOR RESISTANCE: The work on resistance includes the growing of as large a number of species and varieties of tobacco as possible on soil that is infested with the root-knot nematode with the view of finding a resistant strain. It also includes examinations of as many diseased tobacco fields as possible for resistant plants of a given variety. This work also has been in progress only two years and no conclusions have been reached.

Live Stock.

Work is being continued with hog grazing crops as heretofore with a view to determining the grazing crops, and their carrying capacity, that may be used advantageously in a year round grazing system. Rape and a mixture of rye and oats are used for the first grazing period; cattail millet and early amber sorghum for the second; early corn interplanted with Spanish peanuts for the third; and sweet potatoes, North Carolina peanuts and velvet beans for the fourth period.

A lowland pasture of Carpet grass, Dallis grass and Lespedeza is being maintained to study pasture management. The herd of cattle is being enlarged from time to time with a view to making more complete grazing and feeding tests. This line of experimentation is very much needed and should be developed.

REPORT OF THE TREASURER FOR THE YEAR
Ending December 31, 1926.

RECEIPTS

January 1st, Balance, Treasurer	$ 932.69	
Balance, Director (Revolving fund)	1,500.00	$ 2,432.69
1926 State Appropriations		26,500.00
Sales of Farm Products		5,330.20
Total Receipts		$34,262.89

DISBURSEMENTS

Salaries	$12,213.34	
Labor	7,214.20	
Publications	554.04	
Stationery and office supplies	292.65	
Heat, light, power and water	176.84	
Laboratory supplies	15.90	
Seeds, plants and trees	646.62	
General supplies	3,076.14	
Fertilizer	1,018.96	
Feeding stuffs	113.87	
Library	122.35	
Tools, implements and machinery	767.51	
Furniture and fixtures	759.36	
Laboratory equipment	310.38	
Live stock	811.00	
Traveling expenses	351.90	
Insurance and miscellaneous	350.04	
New buildings	4,282.27	
Repairs buildings	62.41	
Fences	118.30	
Additions and alterations buildings	510.99	
Extensions and improvements	92.82	
Rents	401.00	
Total Disbursements		$34,262.89