

AGRONOMY

COTTON

Experiments with cotton are as follows:

Varieties

Fertilizers

Breeding

Insect Investigations

Sea Island Cotton

Cotton Variety Test: In selecting a variety for South Georgia conditions, several factors, such as yield, disease resistance, and quality of lint, should be considered. The general prevalence of wilt throughout the Coastal Plain area makes the wilt-resistance of a variety an important consideration. While this disease is not present in all soils, and losses vary with seasonal conditions, the most reliable varieties are those that show resistance to wilt. To meet present day market requirements a variety should produce a staple of 15/16 inch or longer. Of varieties included in tests at Tifton the most promising wilt resistant cottons are Coker's Cleve-wilt 7, Wannamaker's Cleveland Wilt Resistant, and Coker's 4 in 1. Coker's 100 Wilt Resistant and Tifton Station 21 are new varieties that show promise of being well adapted to South Georgia conditions. All of these varieties are productive and have good lint qualities.

For land that is known to be free of wilt, Stoneville 2B and Deltapine 14 should give good yields. Deltapine 14 is the most recent strain of this type and has given good yields except when planted on land infested with wilt.

Table 4 gives yield of lint, weight of 100 bolls, per cent lint, and length of lint of varieties included in this test since 1937.

Cotton Fertilizers: In the Coastal Plain area of Georgia, cotton is grown on a wide variety of soil types that vary considerably in natural fertility. There is also a variation in cropping practices that affect soil fertility. Under these conditions it is not possible to recommend fertilizers that will give most economical yields under all conditions. However by using formula tests as a guide it is possible to make fairly accurate recommendations in regard to cotton fertilization. This crop is relatively sensitive to fertilizers and responds well to all three primary plant food elements—nitrogen, phosphoric acid, and potash.

NITROGEN: The amount of nitrogen to be applied for good cotton production will depend on several factors such as natural fertility of the land, previous fertilization, and green manuring. When cotton is grown on soils lacking sufficient nitrogen the plants are small, foliage is always yellow, and yields are poor. On the other hand, too much nitrogen produces a large weedy plant and delays maturity. When planted on land that produces a large weedy plant or where manure or cover crops have been turned into the land, nitrogen applications can be reduced. Most South Georgia soils require applications of 20 to 30 pounds of nitrogen per acre for good cotton production. As this element is subject to leaching, especially from lighter soils, it is considered desirable to split the application. It is a common practice to apply fertilizers

TABLE 4
YIELD OF COTTON VARIETIES IN TEST SINCE 1937

VARIETY	YIELD IN POUNDS LINT PER ACRE						Wt. 100 Bolls in Lbs.	Per Cent Lint	Length Staple in 32nd Inches
	1937	1938	1939	1940	1941	Av.			
	1. Coker's Clevevilt 7.....	536	530	456	567	660				550	1.33	36.9	32.2
2. Summerour's Hibred.....	504	557	481	538	634	543	1.41	42.6	28.9
3. W. W. Wannamaker's Cleveland W. R.....	513	523	468	594	610	542	1.27	37.0	32.4
4. Rhyne's Cook.....	596	521	451	547	522	527	1.44	36.4	30.0
5. Stoneville 5A.....	525	483	437	537	634	523	1.23	36.9	32.8
6. Stoneville 2B.....	503	521	404	549	630	521	1.41	36.0	33.6
7. Maret's Cleveland.....	437	510	451	546	593	507	1.27	35.6	33.0
8. Petty's Toole.....	466	483	386	567	599	500	1.19	35.8	29.4
9. Rhyne's Clevevilt.....	545	489	368	492	589	497	1.38	35.7	32.1
10. Cook No. 12.....	534	480	408	468	549	488	1.27	35.9	30.3
11. W. W. Wannamaker's Dixie Triumph.....	481	505	326	556	546	483	1.42	35.8	32.6
12. Perry's Toole.....	485	477	376	529	536	481	1.20	35.7	28.9
The following varieties have not been in the test continuously and yield averages are not given.									
13. Deltapine 12.....	.....	.....	463	607	626	.....	1.14	40.9	32.8
14. Tifton Station 21.....	.....	.....	418	575	680	.....	1.45	38.0	33.2
15. Deltapine 11A.....	.....	.....	441	603	579	.....	1.28	38.6	33.0
16. Deltapine 14.....	.....	.....	.....	648	639	.....	1.32	39.3	33.0
17. Coker's 4 in 1 str. 4.....	.....	.....	.....	574	589	.....	1.33	34.8	33.3

containing 3 to 4 per cent nitrogen at time of planting and supply the remaining nitrogen as a top dressing to the growing crop. If conditions are such as to indicate too much nitrogen the top dressing may be omitted.

For a number of years fertilizer manufacturers have had access to many good nitrogen carrying materials both organic and inorganic. In tests at Tifton all of the common inorganic materials have given profitable increases in yield of cotton. Sulphate of ammonia, urea, nitrate of soda, and cyanamid are all considered good sources of inorganic nitrogen for cotton fertilizers. Organic materials included in this test are cottonseed meal, peanut meal, and tankage. Over a period of seven years there has been no significant difference in yields obtained from these organic materials. Nitrogen derived from inorganic materials is usually much cheaper than that from organic sources; therefore it is desirable that most of the nitrogen in mixed fertilizers should be obtained from inorganics. However, it is usually desirable to obtain one-fourth to one-third of nitrogen in mixed fertilizers from high grade organics. Organic materials improve the physical condition of the mixture and supply some nitrogen in a form that does not leach so readily from the soil if heavy rains occur soon after fertilizer is applied.

PHOSPHORIC ACID: Cotton plants receiving an insufficient supply of phosphoric acid start growth slowly, have poor root systems, and are late maturing. Coastal Plain soils are naturally deficient in available phosphorus, virgin soils being particularly deficient in this element. However, phosphorus does not leach readily from the soil, and where applications have been made from time to time, as with a normal cropping system, deficiencies are not as acute as on new land. Average South Georgia soils require applications of 30 to 50 pounds of phosphoric acid (P_2O_5) per acre to produce good cotton yields. This would require 400 to 600 pounds per acre of mixed fertilizer carrying 8% phosphoric acid.

Superphosphate is by far the most commonly used source of phosphoric acid in mixed fertilizers. In a test covering a period of six years superphosphate gave slightly higher yield of cotton than did either triple superphosphate or di-calcium phosphate.

POTASH: Severe potash deficiency is common throughout most of the Coastal Plain area. The general prevalence of "rust" indicates that potash has not been applied in sufficient quantities in the past. Cotton plants suffering from potash hunger are usually small and disease-susceptible with leaves "rusting" and shedding prematurely. Late bolls are small and often fail to open. Yield and quality of lint are often seriously reduced. Potash deficiency is most likely to occur on land that has been heavily cropped and where previously used fertilizers have carried low percentages of potash. Where peanuts are harvested for market large quantities of potash are taken from the land, and cotton following this crop should receive additional potash to offset this loss. Most South Georgia soils require applications of 30 to 50 pounds per acre to produce good yields of cotton. This will require 400 to 600 pounds of mixed fertilizer carrying 8 per cent potash. When cotton is planted on land severely deficient in this element it is often necessary to apply more than 50 pounds of potash per acre in order to control rust. In such cases it is probably better to supply additional potash as a top dressing.

