

sults at Tifton. The cotton dusted with calcium arsenate produced 150 pounds per acre of Grade 1 lint, valued at 25 cents a pound; the sprayed cotton produced 131 pounds of Grade 2 lint, valued at 22 cents per pound; while the untreated cotton produced 104 pounds per acre of Grade 4 lint, valued at 18 cents per pound. The gains in yield and improvement in grade from weevil control resulted in an increased crop value over cost of treatment of about \$10 per acre in the dusted cotton and about \$4 per acre in the sprayed cotton.

The weevil control on the Lake Park (Echols County) field block was again very satisfactory. No presquare applications were made, but three early postsquare dustings with calcium arsenate made for hibernating weevils almost exterminated them. Two additional applications late in June and early in July gave complete control of the early migratory weevils. A heavy migration in late July was only partially controlled by dusting, owing to almost continuous daily rains through early August, but a yield of 160 pounds of Grade 1 lint per acre and a fair profit was obtained.

Experiments indicate that no additional gains may be expected from presquare treatment of Sea Island cotton if the early postsquare treatments are properly applied, and that improvement in quality of lint by protecting the bolls until late in the season is an important factor in the gains to be derived from boll weevil control.

HORTICULTURE

SWEET POTATOES

The study of sweet potato culture conducted previous to 1932 is reported in previous annual reports.

Experiments now in progress consist of:

1. Variety Test
2. Sources of Phosphoric Acid
3. Sources of Nitrogen
4. Sources of Potash
5. Top Dressing Test with Nitrogen
6. Top Dressing Test with Potash
7. Ratios of Mineral and Organic Nitrogen

Sweet Potato—Variety Test: The test with early maturity of sweet potato varieties has been discontinued and in its place a test for late maturity has been initiated, in which is included several varieties and strains that have been selected for high starch content. These will be compared with such standard varieties as Porto Rico and Southern Queen.

Sweet Potato—Sources of Phosphoric Acid: All sources of phosphoric acid were applied in a complete fertilizer previous to planting. During the four years over which this test has been in progress, ammoniated superphosphate is producing the highest yield of marketable potatoes. Comparative yields from the various sources are shown in Table 49.

TABLE 49

SWEET POTATO—SOURCES OF PHOSPHORIC ACID

Average Yield for Years 1935 to 1938, Inclusive

Fertilizer: 800 Pounds per Acre, 3.29% Nitrogen, 8% Phosphoric Acid from Sources as Indicated and 6% Potash (equivalent to the old formula of 8% Phosphoric Acid, 4% Ammonia and 6% Potash)

Variety: Porto Rico

Average Date Planted: April 11

SOURCE OF PHOSPHATE	YIELD IN BUSHELS PER ACRE						Days Required to Mature
	No. 1's	No. 2's	Strings	Jumbos	Rot	Total	
Ammoniated Superphosphate.....	165.11	42.15	26.09	15.65	1.35	250.35	189
Soft Phosphate.....	160.23	24.13	26.23	6.21	0.82	217.62	181
Triple Superphosphate.....	160.10	27.26	27.40	12.34	1.74	228.84	189
Dicalcium Phosphate.....	157.79	42.00	24.78	23.14	0.36	248.07	189
Basic Slag.....	156.00	27.91	24.10	19.30	0.98	228.29	189
Superphosphate.....	152.94	36.27	24.62	17.39	1.53	232.75	189

Sweet Potato—Sources of Nitrogen: Data obtained in this test indicate that higher yields may be expected from the organic sources of nitrogen. However, since nitrogen from these sources is more expensive than that from inorganic carriers, it may not follow that higher returns will be realized. Yields are shown in Table 50. All the nitrogen materials were used in a complete fertilizer and applied before planting.

TABLE 50

SWEET POTATO—SOURCES OF NITROGEN

Average Yield for Years 1933 to 1938, Inclusive

Fertilizer: 800 Pounds per Acre, 3.29% Nitrogen from Sources as Indicated, 8% Phosphoric Acid and 6% Potash (equivalent to the old formula of 8% Phosphoric Acid, 4% Ammonia and 6% Potash)

Variety: Porto Rico

Average Date Planted: April 16

SOURCE OF NITROGEN	YIELD IN BUSHELS PER ACRE						Days Required to Mature
	No. 1's	No. 2's	Strings	Jumbos	Rot	Total	
Tankage.....	156.01	25.10	24.23	2.23	0.63	208.20	189
Cottonseed Meal.....	155.45	27.88	24.52	4.28	0.61	212.74	189
Nitrate of Soda.....	149.79	33.37	24.21	6.13	1.40	214.90	189
Calcium Nitrate.....	146.61	25.29	21.60	3.60	0.40	197.50	189
Calnitro.....	144.79	25.56	21.11	4.19	0.40	196.05	189
Sulphate of Ammonia.....	138.09	26.72	19.71	3.60	0.65	188.77	189
Cyanamid.....	126.59	26.59	22.15	2.23	0.35	177.91	189

Sweet Potato—Sources of Potash: Comparative yields from the more commonly used sources of potash indicate that muriate is the best

source from which to obtain potash in fertilizer for sweet potatoes. Data resulting from this test are shown in Table 51. All carriers were applied in a complete fertilizer previous to planting.

TABLE 51

SWEET POTATO—SOURCES OF POTASH

Average Yield Over an Eight-Year Period

Fertilizer: 800 Pounds per Acre, 3.29% Nitrogen, 8% Phosphoric Acid and 6% Potash (equivalent to the old formula of 8% Phosphoric Acid, 4% Ammonia and 6% Potash). The Potash is Derived from Sources as Indicated

Variety: Porto Rico

Average Date Planted: April 12

SOURCE OF POTASH	YIELD IN BUSHEL PER ACRE						Days Required to Mature
	No. 1's	No. 2's	Strings	Jumbos	Rot	Total	
Muriate of Potash.....	159.04	25.73	22.76	7.06	0.82	215.41	189
Kainit.....	156.27	28.69	21.43	16.06	0.60	223.05	189
Manure Salts.....	154.67	34.16	22.54	11.15	1.15	223.67	189
Sulphate of Potash.....	154.42	26.18	22.46	5.25	0.38	208.69	189
Sulphate of Potash Magnesia.....	147.03	25.28	21.61	3.93	0.47	198.32	189

Sweet Potato—Top Dressing Test with Nitrogen: In this test a complete fertilizer is applied previous to planting and the side dressings at the first cultivation. As will be observed in Table 52, little increase in No. 1 potatoes results from the use of nitrogen as a side dresser for this crop.

TABLE 52

SWEET POTATO—TOP DRESSING TEST WITH NITROGEN

Average Yield for Years 1933 to 1938, Inclusive

Fertilizer: 800 Pounds per Acre, 3.29% Nitrogen, 8% Phosphoric Acid and 6% Potash (equivalent to the old formula of 8% Phosphoric Acid, 4% Ammonia and 6% Potash). Applied before Planting.

Variety: Porto Rico

Average Date Planted: April 14

TOP DRESSING*	YIELD IN BUSHEL PER ACRE						Days Required to Mature
	No. 1's	No. 2's	Strings	Jumbos	Rot	Total	
Check (No Top Dressing).....	180.13	30.35	18.80	17.10	1.02	247.40	188
100 Pounds Nitrate of Soda.....	183.54	32.16	18.98	19.95	0.79	255.42	188
200 Pounds Nitrate of Soda.....	185.18	40.68	19.07	22.25	0.90	268.08	188

*Top dressing applied at first cultivation.

Sweet Potato—Top Dressing Test with Potash: A complete fertilizer was applied previous to planting and supplemented with top dressings of potash as indicated in Table 53. Data from this test show a significant

