cotton showed excellent control. The percentage of square infestation and damaged locks of harvested cotton was slightly lower than on plots dusted on the standard 10 per cent infestation basis. Field blocks at Lake Park and elsewhere dusted by this system also gave excellent weevil control. The actual significance of differences in its favor over the standard treatment are questionable but its convenience in systematizing farm labor recommends its adoption if further work confirms this season's results.

Plots dusted with arsenicals diluted with sulfur gave good control early in the season, but failed to adequately control late in the season, even where the actual amount of arsenicals applied was comparable to undiluted calcium arsenate. Square damage on these plots was somewhat less than upon the Standard and "Timed Dust" plots but lock injury was much increased on harvested bolls.

Plots and fields sprayed with 10 pounds of calcium arsenate to 50 gallons of water at the rate of 35 to 40 gallons per acre per spray failed to give adequate control. Again early indications were for satisfactory control but failure to control migrant weevils caused severe boll damage late in the season. Records on one series of field tests under conditions of severe infestation gave the following results: Dusted, 653.5 pounds of seed cotton per acre; sprayed, 303.2 pounds of seed cotton per acre; unpoisoned, 96.0 pounds of seed cotton per acre. At least a half grade and two full grades difference in favor of the dusted cotton over sprayed and unpoisoned respectively, resulted from the treatments.

Records from the Lake Park project, where a field scale experiment was carried out, and from commercial cotton dusted by farmers under the supervision and advice of the Station staff, showed a difference in efficiency between Station-applied and farm-applied treatments of approximately 10 per cent in favor of the Station-dusted cotton. A portion of this difference is probably due to delays in applying dust at critical periods caused by interference of other farm operations, and a portion to differences in efficiency in applying the poison.

All indications are that even in years of heavy weevil infestation, Sea Island can be profitably raised in Georgia provided an adequate dusting schedule is maintained. Spraying appears to be adequate only in years of lighter than normal infestation, and then results will be somewhat below dusting. Presquare applications on Sea Island apparently have little ultimate effect if at least one dust is not applied against early migrant weevils. An important factor in weevil control on Sea Island cotton is the higher grade and value of lint resulting from the elimination of weevil-stained lint by proper poisoning.

HORTICULTURE

SWEET POTATOES

The work in progress with sweet potatoes consists of the following:

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
8. Controlled Plant Nutrient Study
9. Cooperative Sweet Potato Project

Sweet Potato—Variety Test (Late Maturity): This work is being continued but is not of sufficient duration to warrant recommendations.

Sweet Potato—Sources of Phosphoric Acid: Six carriers or sources are used in this test. All sources are applied in a complete fertilizer before planting. In order that the phosphate carrier may be the only variable in the source of materials used in this test, nitrogen and potash, in all instances, are derived from the same carriers while the entire amount of phosphate is obtained from the particular material indicated. Consequently it is necessary to compute these formulas on the basis of pounds of plant food per acre rather than on a ton basis. Yields obtained from the various carriers are shown in Table 53.

TABLE 53

SWEET POTATO—SOURCES OF PHOSPHORIC ACID

Average Yield for Years 1935 to 1939, 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 9**
Days Required to Mature: 193

SOURCE OF PHOSPHATE	Amt. Used Per Acre	Phosphoric Acid Content*	YIELD IN BUSHELS PER ACRE					
			No. 1's	No. 2's	Strings	Jumbos	Rot	Total
	(Lbs.)	(%)						
Ammoniated Superphosphate	427	15	161.02	38.96	26.79	15.33	1.08	243.18
Soft Phosphate**	1066	6	157.45	24.21	26.59	5.21	0.65	214.11
Triple Superphosphate	137	46.8	153.24	25.80	28.15	14.96	1.39	223.54
Dicalcium Phosphate	160	40	151.57	38.98	25.99	19.78	0.28	236.60
Basic Slag	800	8	147.06	27.34	24.90	15.68	0.78	215.76
Superphosphate	400	16	145.30	33.47	25.05	14.90	1.22	219.94

*Since the analysis of different batches of materials may vary from time to time, the percentages of "available" phosphoric acid used in this table are approximate for all sources except soft phosphate and basic slag. In these last named materials the figures representing the phosphate content are arbitrary, because manufacturers or distributors furnished only data on the total phosphate contained.

**So far as these tests are concerned, soft phosphate and colloidal phosphate are trade names that may be used interchangeably to indicate "waste pond phosphate".

Sweet Potato—Sources of Nitrogen: Three additional carriers, namely, Uramon, castor meal and peanut meal, have been included in this test. Table 54 contains results from sources that have been in the test long enough to indicate definite trends. All forms of nitrogen are applied in a complete fertilizer previous to planting.

TABLE 54

SWEET POTATO—SOURCES OF NITROGEN

Average Yield for Years 1933 to 1939, 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 14**

SOURCE OF NITROGEN	YIELD IN BUSHELS PER ACRE						Days Required to Mature
	No. 1's	No. 2's	Strings	Jumbos	Rot	Total	
Tankage	155.41	24.42	24.72	5.49	0.54	210.58	193
Cottonseed Meal	151.12	26.68	25.29	5.05	0.52	208.66	193
Sulphate of Ammonia	147.32	25.81	20.35	8.12	0.55	202.15	193
Calnitro	144.19	24.43	21.29	8.50	0.34	198.75	193
Nitrate of Soda	143.05	30.85	24.14	5.54	1.20	204.78	193
Calcium Nitrate	142.66	23.65	24.45	4.67	0.34	195.77	193
Cyanamid	134.05	25.74	22.05	4.04	0.30	186.18	193

Sweet Potato—Sources of Potash: This test includes the more commonly used potash carriers as indicated in Table 55. All sources are applied before planting in a complete fertilizer.

TABLE 55

SWEET POTATO—SOURCES OF POTASH

Average Yield Over a Nine-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 11**

SOURCE OF POTASH	YIELD IN BUSHELS PER ACRE						Days Required to Mature
	No. 1's	No. 2's	Strings	Jumbos	Rot	Total	
Muriate of Potash	154.55	25.58	23.74	6.71	0.72	211.30	181
Kainit	152.58	27.57	22.00	14.79	0.53	217.47	181
Manure Salts	149.50	32.70	23.31	10.08	1.02	216.61	181
Sulphate of Potash	149.14	25.81	22.58	5.06	0.33	202.92	181
Sulphate of Potash Magnesia	142.49	24.24	22.38	3.61	0.41	193.13	181