treatment. This is the first reported favorable response to phosphorus applications of citrus trees growing on a typical Lakeland fine sand. Phosphorus responses had previously been reported on more highly leached soils (**23, 33**).

TABLE 7.—EFFECT OF PHOSPHATE APPLICATIONS ON GROWTH AND LEAF COMPOSITION OF YOUNG PINEAPPLE ORANGE TREES ON ROUGH LEMON ROOTSTOCKS. (EXPERIMENT 5—POLK COUNTY GROVE).

Phosphate Rate	Increase in Trunk Diameter, 3-59 to 12-61	P in Leaves
	cm.	%
No P_2O_5	2.8	0.131
2% P_2O_5	3.2	0.141
8% P_2O_5	3.5	0.154
8% P_2O_5 †	3.3	0.150
2% P_2O_5, 1 time/yr. ‡	3.3	0.143
8% P_2O_5, 1 time/yr. ‡	3.2	0.150
Statistical significance: No P vs P	*	**

† Applied as ammoniated superphosphate in mixed fertilizer. Other treatments received ordinary superphosphate in same fertilizer. All fertilizers applied 4 times annually.

‡ Other fertilizer applied to these plots contained no phosphate.

Statistical symbols:

* indicates significance at the 5% level.

** indicates significance at the 1% level.

A third young tree experiment was conducted on Lakeland fine sand in a Polk County commercial grove in which phosphate was being applied as a supplement to the regular fertilizer applied by the grower. During the first year of the experiment, the grower inadvertently applied activated sewage sludge as a source of organic nitrogen. It contains approximately 2.5 percent P_2O_5. No response in growth was obtained due to differential phosphate applications. Evidently the small amount of phosphorus applied in the sludge (equivalent to a 1 percent P_2O_5 fertilizer) was sufficient for growth of the young trees.

Four additional experiments were initiated on flatwoods soils to evaluate their phosphorus needs. Three of these were severely damaged by freezes and had to be abandoned. The fourth is being continued.