

each year for fruit quality studies. Yields were measured when the fruit was harvested. Soil samples were obtained from the 0- to 6-inch depth of all plots in June 1962, following five years of differential phosphate treatment. Analyses of these samples are also reported in the soil testing section.

Results

During the first three years, yields were not significantly affected by phosphate applications (Table 1). This would indicate that the soil phosphorus levels when sampled in 1957 were adequate for production of Valencia oranges. In the fourth year of Experiments 1 and 2, yields were significantly increased by phosphate. However, the four-year average yields were not significantly increased by phosphate applications at any location. Fruit was picked late during the 1961-62 season (approximately June 15), which could have been a factor in the yield difference. Young and Forsee (33) found that dropping of mature fruit was associated with a lack of available phosphorus, and the later the date of picking the greater this drop. It should be emphasized that the yield responses were obtained in the fourth year of the experiments, but phosphate had not been applied for five years prior to their initiation.

TABLE 1.—EFFECT OF PHOSPHATE ON YIELD OF VALENCIA ORANGES IN THREE EXPERIMENTS.

Season	Yield, Boxes/Tree/Year					
	Experiment 1†		Experiment 2‡		Experiment 3§	
	0 P ₂ O ₅	120 lb. P ₂ O ₅ /A	0 P ₂ O ₅	120 lb. P ₂ O ₅ /A	0 P ₂ O ₅	120 lb. P ₂ O ₅ /A
1958-59	3.47	3.41	6.14	6.33	—	—
1959-60	7.85	7.63	5.19	5.48	3.78	3.93
1960-61	3.42	3.41	4.46	4.32	2.97	3.09
1961-62	6.24	6.70*	6.11	6.82**	3.58	3.82
Average	5.25	5.29	5.48	5.74	3.44	3.61

* Significantly different from the 0 P₂O₅ yield at the 5% level.

** Significantly different from the 0 P₂O₅ yield at the 1% level.

† Each value is the average yield of 48 trees.

‡ Each value is the average yield of 32 trees.

It is thought that these increases in yield due to superphosphate applications were due to phosphorus and not to calcium