

**THE EFFECT OF DIFFERENT LEVELS OF
PHOSPHORUS ON THE YIELD OF RICE
VARIETY 'ROHINI' IN VELLAYANI**

The results of trials with phosphatic fertilizers alone and in combination with other fertilizers in various parts of the country show that unlike nitrogenous manures, phosphate generally give little response at most of the places (Mahapatra and Sahu, 1961). However, some of the recent experiments with high yielding varieties have shown a positive response to phosphorus application in certain areas. Hence, a study was conducted during the first crop season of 1971-72 at the Agricultural College and Research Institute, Vellayani, to find out the response of rice variety 'Rohini' to different levels of phosphorus. The soil of the experimental area was red loam and medium in fertility, with a pH of 5.6. The experiment was laid out in a randomised block design with six replications. The levels of P₂O₅ tried were 0, 20, 40 and 60 kg per hectare as super phosphate, and was applied at the time of planting. All the plots of the experiment received a uniform dose of 80 kg nitrogen and 50 kg K₂O per hectare.

The data on the yield of grain presented in Table 1 show that the application of phosphorus has not given any significant increase in yield even at 60 kg P₂O₅ per hectare. This lack of response may be due to the fact that sufficient amount of available phosphorus was initially present in the soil. The chemical analysis of the soil before planting showed 40 kg of available phosphorus per hectare. Flooding might have further increased the availability of phosphorus as reported by Basak and Bhattacharya (1962). Irrigation water also very often supplies some quantity of P₂O₅ (Mahapatra and Sahu 1961). The cumulative effect of all these factors, viz., higher initial status of available phosphorus, increased availability due to flooding and the presence of P₂O₅ in irrigation water might have resulted in lack of response to added phosphorus. Similar results were reported by Suseelan (1969).

Table 1
Yield of grain and straw in kg per hectare

Serial No.	Treatment (P ₂ O ₅ per hectare)	Yield of grain in kg per hectare	Yield of straw in kg per hectare
1	0 kg	2540	5400
2	20 "	2540	5400
3	40 "	2710	5600
4	60 "	2540	5950
	S.Em	±141	±437
		Not significant	Not significant

The results of straw yield presented in Table 1 also show that there was no significant response to added phosphorus even at higher levels. The same factors responsible for the lack of response to added phosphorus in the case of grain yield, can be attributed for the lack of response in the case of straw yield also.

Hence in red loam soils of Vellayani, little appreciable response is obtained to phosphorus application for the rice variety 'Rohini'.

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