

## Profit And Yield Maximising Doses Of Fertilizers For Paddy

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### ABSTRACT

The study investigates the economic analysis of fertiliser use efficiency in paddy crop, which provide practical answers to the farmers in promoting fertiliser consumption and enhancing productivity levels of paddy. Quadratic response function between input and output data of paddy was fitted for deriving maximum and optimum doses of N and P<sub>2</sub>O<sub>5</sub> are not only lower than the yield maximising and recommended doses but also provide the maximum return per unit of area. The optimum doses of fertiliser nutrients were higher at lower price ratios and vice-versa. The study suggests that doses of fertilisers should be recommended after marginal analysis.

**Key words :** Marginal analysis of paddy yield and fertiliser, slashed optimum.

### INTRODUCTION

Under the conditions like consequent price hike of fertilizers due to withdrawal of subsidy, missing precise knowledge of the soil, low purchasing power of the farming community and feeding the teeming population is unthinkable without increasing production potential through adoption of modern scientific technology based on judicious and balanced fertilization and increasing cropping intensity. Undoubtedly, intensive agriculture has enabled the country to keep pace with the increasing food demands. Research investigations carried out in different agro-climatic regions on viable cropping system have evidently elucidated that stabilised yield at higher levels of productivity with 200 to 400 per cent cropping intensity are possible only under balanced fertilizer application, which proved beneficial for getting higher crop yields alongwith maintaining the soil health in terms of available nitrogen, phosphorus and potash nutrients. Therefore, soil-test research should aim to provide the most balanced doses of fertilizers for a range of investment levels or farmer's fertilizer budget to get more profit.

The increased use of chemical fertilizer coupled with the introduction of high yielding varieties have brought about spectacular increase in the yield of crops in irrigated areas. However, the recent hike in the prices of chemical fertilizers has adversely affected productivity of crops. The study is intended to provide practical answers to the farmers regarding use of chemical fertilizers. It would go a long way in promoting fertilizer consumption and enhancing productivity levels of paddy crop in the study area. The problem was undertaken for studying the "An Economic Analysis of Fertilizer Use Efficiency in Paddy Crop of Jabalpur District" with the following objectives:-

- (1) To analyse the response of paddy to application of fertilizer.
- (2) To estimate economic optima relevant to the paddy crop.
- (3) To arrive at policy implications based on the economic analysis of paddy crop in Jabalpur district of Madhya Pradesh.

### MATERIALS AND METHODS

The study is based on secondary data on input and output, collected from the Annual Progress Report of Cropping System Research Scheme of I.C.A.R., from the Department of Agronomy, J.N.K.V.V., Jabalpur pertains to the year 1996-97. The agronomic experiments were conducted with different levels of nitrogen and phosphorus in randomized block design. The interaction term was also taken in to consideration. Quadratic response function was fitted to paddy crop using the data on nitrogen and phosphorus as independent variables and yield of paddy as dependent variable. The function used is as below:-

$$Y = a + b_1 N + b_2 P - b_3 N^2 - b_4 P^2 + b_5 NP$$

Where :

- $b_1$  and  $b_2$  = Linear effects of nitrogen (N) and phosphorus (P), respectively.  
 $b_3$  and  $b_4$  = Quadratic effects of factors nitrogen (N) and phosphorus (P), respectively.  
 $b_5$  = Interaction of factors nitrogen and phosphorus.  
Y = Yield in kg/ha

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