



Research Paper

## Technical efficiency in rice production in Thane district (M.S.)

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**ABSTRACT :** The improved varieties of rice gives anticipated yield per unit area, when grown under favorable environmental condition. The high yielding varieties are high response to fertilizer, technical efficiency of sample farm under study area of Thane district were varied between 42 per cent to 99 per cent in low and high yielding varieties of rice. At farm with HYV overall level about 75 per cent farm had high technical efficiency. The resource use efficiency of seed and human labour, were found significant in moderate and high adoption category of farmer.

**KEY WORDS :** Technical efficiency, Resource use, Elasticity coefficient

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### INTRODUCTION

Among the various agronomic practices judicious use of manures and fertilizers is one of the important strategy's for increasing production of rice per unit area. The breeding of high yielding varieties have laid the basis for rice production in India. These improved varieties can give the anticipated yield per unit area, when grown under favorable environmental conditions without which they are not able to manifest their maximum yield potential. The high yielding varieties are highly responsive to fertilizers. In India, taking into consideration soil having low levels of organic carbon it is a great challenge to feed hybrid rice with balanced nutrition. Therefore more attention needs to be given on organic sources like FYM, poultry manures and green manuring crops with optimum use of chemical fertilizers, as well as the technical efficiency of these input which are responsible for increasing the productivity of rice

### MATERIALS AND METHODS

The farmers were categorized on the basis of technology adoption index (TAI) of study area and classified into three categories on the adoption level, ie. Low adopter, (up to 33% TAI range) Moderate adopter (34 to 64% TAI range) and high adopter (above 66% TAI range). Then the present study was

undertaken so far to estimate technical efficiency of farm and functional analysis of input. Therefore a study will focus on farm efficiency on yield and a return of rice is the study area. The transformation of inputs into output is described by the production function. The production function is described below :

$$Y = g(X_1, X_2, X_3, \dots, X_n)$$

where,

Y is the per hectare output of crop with a given set of inputs  $X_1, X_2, X_3, \dots, X_n$  per hectare.

The Cobb-Douglas type of production function specified below is used for the present analysis :

$$Y = a x_1^{b_1} x_2^{b_2} x_3^{b_3} x_4^{b_4} x_5^{b_5} x_6^{b_6} U$$

Where,

Y = Yield of rice crop (q/ha.)

a = Intercept, a scale parameter

$X_1$  = Per hectare human labour (days)

$X_2$  = Per hectare quantity of seed (kg)

$X_3$  = Per hectare quantity of FYM (tonnes)

$X_4$  = Per hectare quantity of rab material (Q)

$X_5$  = Per hectare quantity of Urea (kg)

$X_6$  = Per hectare quantity of plant protection (Rs.)

$b_1$  to  $b_6$  = Regression coefficient of respective variables

U = Error term