

FACTOR INFLUENCING FERTILIZER CONSUMPTION IN KHAMMAM AND MAHABUBABAD DISTRICTS OF TELANGANA

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ABSTRACT

A factor influencing fertilizer consumption at micro level reveals the possibilities of optimizing fertilizer consumption through needed changes. The present study was conducted in Khammam and Mahabubabad district in Telangana state. The multi stage purposive sampling technique has been adopted to select the sample farmers for the study. The data collected from 120 paddy growers by personal interview method and analysis has done by functional analysis to find out the factors which influence the fertilizer consumption. The overall analysis revealed that gross irrigated area under paddy and barring cost of procurement of fertilizer input were highly significant for boosting up fertilizer consumption in paddy production in the study area.

KEY WORDS: *Fertilizer consumption, Khammam, Mahabubabad, Paddy*

INTRODUCTION

India has the largest paddy output in the world and is also the fourth largest exporter of rice in the world. In India, West Bengal is the largest rice producing state. Paddy fields are a common sight throughout India, both in the northern gangetic plains and the southern peninsular plateaus. Paddy is cultivated at least twice a year in most parts of India, the two seasons as *Rabi* and *Khari*, respectively. Paddy is the major food crop and staple food of the Telangana state.

Agriculture is the backbone of the Indian economy and fertilizers play a key role in agricultural prosperity. Agricultural production can be increased through expansion of arable land or through

improving the productivity of available land. There being hardly any scope for bringing more land under cultivation, future increase in agricultural output has to depend to a larger extent on increasing the productivity of available land. In the Indian context, land is becoming a dwindling resource for agriculture owing to competing demand for its use to achieve the productivity gains of shrinking land, fertilizer application has become inevitable (Bala *et al.*, 2005). India made rapid strides in food production during the last three decades resulting in self-sufficiency and surplus production. However, feeding burgeoning population through the next 25 years remains an uphill task. The country will have to feed about 1.30 billion people by 2020 requiring 5-6

million tonnes of additional food grains every year. Fertilizer is one of the key inputs to increase agricultural production to feed our increasing population (Praveen *et al.*, 2017).

Khammam is spread over an area of 15,81,000 ha with nearly 48 per cent of the area under forests, highest among the other districts. While gross cropped area is 4,79,000 ha, the net sown area is 28.5 per cent of the total geographical area. The cropping intensity is 109 per cent and about 8 per cent of the area is under non-agricultural uses while permanent pastures constitute 2.5 per cent. The district receives 1096 mm rainfall annually and is relatively less drought prone. Irrigated area in the district accounts for 39 per cent. Rice has maintained its share in the cropping and accounts for over 37 per cent (Anon., 2019).

MATERIALS AND METHODS

Multi stage purposive sampling technique was used for the selection of districts. Khammam and Mahabubabad districts were selected as major of farmers are paddy grower's in these districts (Figure 1). In order to select the farmers, from two districts purposive sampling procedure were used. 60 farmers from Khammam and 60 farmers from Mahabubabad were selected randomly as per the availability of the paddy growers. Farmers were selected randomly to fulfill the objective of the study. The data collected by using structured questionnaires.

Functional analysis

To identify the factors influencing the fertilizer consumption in paddy production, functional analysis was used (Raghu and Chowdry, 1999).

$$Q_{Fi} = b_0 + b_1X_{1i} + b_2X_{2i} + b_3X_{3i} + b_4X_{4i} + b_5X_{5i} + b_6X_{6i} + U_i$$

Where,

$i = 1$ to ' n ' farmers.

The above multiple linear regression is specified as

Q_{Fi} = Quantity of fertilizer in kg used in N,P&K equivalent terms by the i^{th} farmer.

X_{1i} = Gross irrigated area under paddy in hectares by the i^{th} farmer

X_{2i} = Productivity of paddy in kg/ha obtained by the i^{th} farmer

X_{3i} = Cost of procurement of fertilizer input incurred by the i^{th} farmer in Rs.

X_{4i} = Credit obtained in Rs. by the i^{th} farmer for investment in paddy crop

X_{5i} = Recommended dose of fertilizer (Yes/No) followed by GSFC

X_{6i} = Level of education

RESULTS AND DISCUSSION

The analysis of factors influencing fertilizer consumption at micro level reveals the possibilities of optimizing fertilizer consumption through the needed changes. It was learnt from almost all the farmers in the study area that the application of fertilizer was a pre-requisite for the realization of expected level of output on the farm. Their adoption behaviour of fertilizer use was guided by the practices followed by their predecessors over time. But the quantum of fertilizer consumed was determined by a

number of factors and no single factor could completely account for the total variability. Hence, the determining factors and their magnitude of influence on the ultimate consumption of fertilizer were identified at micro level following the methodology. The results of the regression analysis are furnished in Table 1.

The adjusted multiple coefficient of determination ($\bar{R}^2$) was 0.997 and highly significant, which indicated that 99.70 per cent of the variation in fertilizer consumption was explained by the

independent variables included in the model. All the variables included in the functional model turned out to be significant at probabilities ranging from 1 to 10 per cent. The coefficient of gross irrigated area under paddy was positive and highly significant at one per cent level (49.04) which indicated that one-hectare increase in the irrigated area will increase fertilizer consumption by 49.04 kgs.

The coefficients of productivity and credit were positive and significant at 10 per cent level which indicated that one unit increase in the variables over and above their level would result in an increase in the mean level of fertilizer consumption by 0.03 and 0.002 kg, respectively.

The coefficient of cost incurred in procurement of fertilizer input was negative (-0.10) and highly significant at one per cent level, which indicated that one rupee increase in the procurement cost of fertilizer input of fertilizer consumption by 0.10 kg, keeping other variables constant. Both the qualitative variables considered for the study contributed to the increase in the fertilizer consumption. The coefficients of dummy variable for the knowledge on recommended dose and education were positive and significant. This indicated that the average consumption of a farmer with the knowledge on the recommended dose and higher level of education was 47.34 and 50.86 kg, respectively higher than a farmer without the knowledge on the recommended dose and lower level of education, holding other variables.

CONCLUSION

The analysis of factors influencing fertilizer consumption at micro level

revealed that the gross irrigated area under paddy and dummy variables included in the model very greatly influenced the fertilizer consumption in the study area. Among the quantitative variables included in the model, the coefficient of cost of procurement of fertilizer input was turned to be negative and highly significant at one per cent level. The overall analysis revealed that barring cost of procurement of fertilizer input were responsible for boosting up fertilizer consumption in paddy production in the study area.

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Table 1: Factors influencing fertilizer consumption in paddy production (n=120)

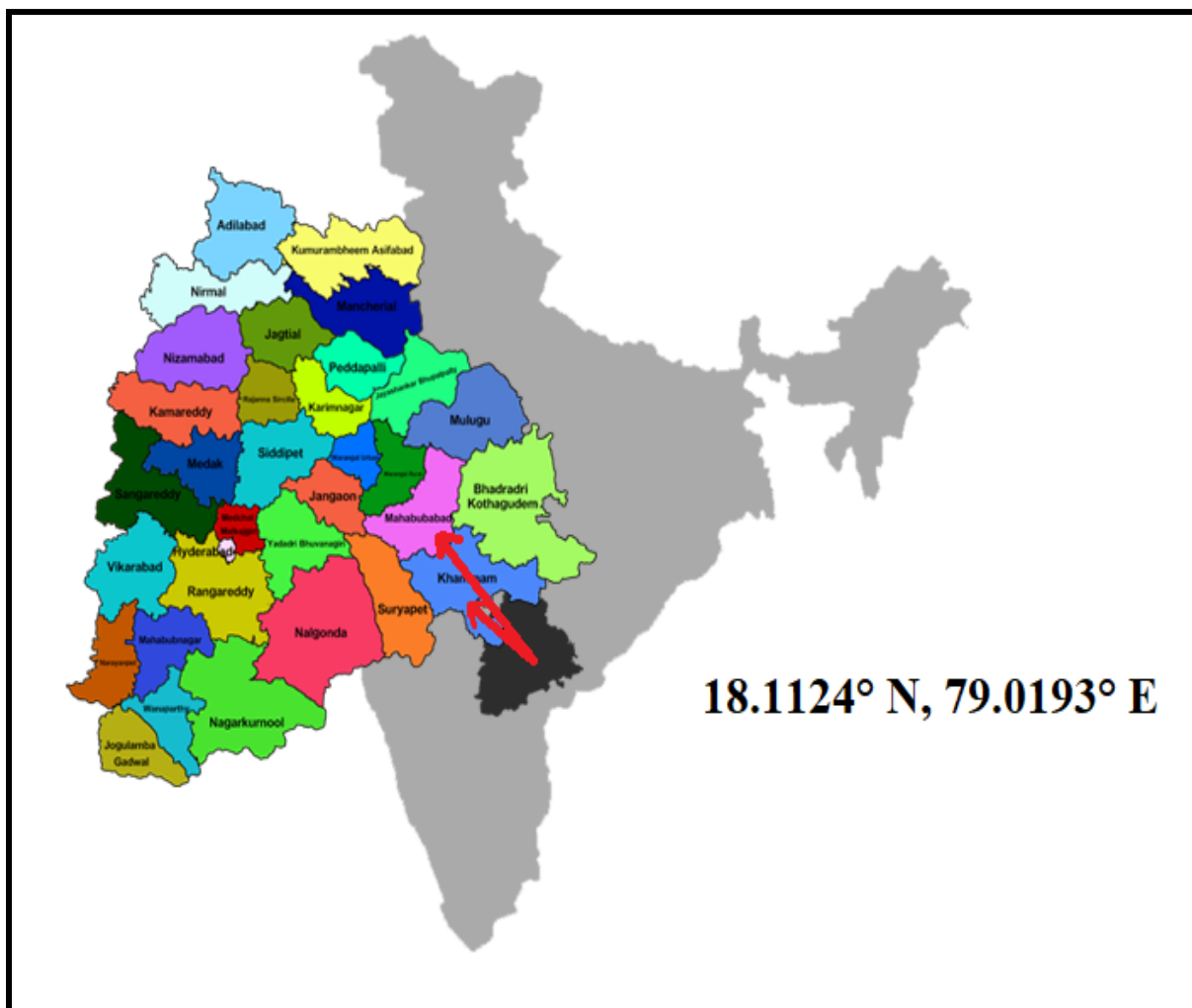
Sr. No	Independent Variables	Constant	Regression Coefficients	Adjusted R ²
1	Gross irrigated area under paddy in hectare (X ₁)	229.89** (84.37)	49.04*** (6.50)	0.997
2	Productivity of paddy in kg ha ⁻¹ (X ₂)	229.89** (84.37)	0.03*** (0.01)	0.997
3	Cost of procurement of fertilizer input in Rs. (X ₃)	229.89** (84.37)	-0.10*** (0.002)	0.997
4	Credit obtained for investment in paddy production in Rs.(X ₄)	229.89** (84.37)	0.002* (0.001)	0.997
5	Dummy variable for knowledge on the recommended dose of fertilizer (X ₅) X ₅ = 1 if the farmer knows the recommended dose X ₅ = 0 if the farmer does not knows the recommended dose	229.89** (84.37)	47.34** (19.36)	0.997
6	Dummy variable for education (X ₆) X ₆ = 1 if the farmer has higher level of education X ₆ = 0 if the farmer has lower level of education	229.89** (84.37)	50.86*** (16.73)	0.997

Note: Figures in parentheses indicate standard errors

* Significant at 10 per cent level

** Significant at 5 per cent level

*** Significant at 1 per cent level.



(Source: Anon., 2019)

Fig. 1: Location of study area

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