



## **Studies On Adoption of Rice Production Technologies in Cauvery Command Area of Mandya District**

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### **ABSTRACT**

*The study was carried out in Cauvery command area of Mandya district during kharif 2013-14 with the sample size of 350 respondents of Mandya district. The respondents were interviewed using a pre-tested interview schedule on various production technologies followed by the farmers. The result showed that majority of the farmers (62.25 %) of the paddy growers belongs to high adoption category. Whereas, 21.42 and 16.28 per cent of the paddy growers belongs to medium and low adoption category, respectively. Results revealed that age, education, land holding, extension participation and risk orientation were significantly related to their extent of adoption of paddy growers.*

**Keywords:** Yield Gap, Production Technology, Innovations, Extent of Adoption, Behavioral Response.

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### **INTRODUCTION**

Rice (*Oryza sativa* L.) is the world's most important cereal crop and a primary source of food over one third of world population. In India it is grown in an area of 43.0 million hectares with production of 105.0 million tons of milled rice and the productivity of 2390 kg/ha (Anon, 2016). In Karnataka, it occupies in an area of 10.91 lakh ha with a production of 29.67 lakh tones of grain and the productivity of 2843 kg/ha [1]. In Mandya district, it is grown over an area of 58,487 ha with the production 2155.60 lakh tones with the productivity of 3280 kg/ha [1]. There is a yield gap between farmers practice and demonstration yield achieved by the extension personnel or scientist of the research station. The rice production could be enhanced through adoption of improved production practices. In spite of number of improved cultivation practices recommended by the farm scientists and extension workers, farmers of the district are not being fully adopted the package of practices. Hence, the present study was carried out to assess the extent of adoption of package of practices and to identify the constraints in adoption of practices by rice growers.

### **MATERIAL AND METHODS**

The present study was carried out during the year 2013-14 in Cauvery command of Mandya district of Karnataka. The study consists of 350 sample size covering seven taluks of Mandya district viz., Mandya, Maddur, Malavalli, K.R. Pet, Pandavapura, Srirangapatna and Nagamangala. Fifty respondents were randomly selected from all seven taluks of Mandya district. Ex-post facto design was employed in the present study as the events have already occurred and design employed was appropriate. In Mandya district Krishna Raja Sagara reservoir is the main source of irrigation for rice growers. The data were collected through pre-tested interview schedule and analyzed using simple percentage. The methodology followed for developing scoring procedure for measuring adoption is as follows. The rice cultivation practices recommended by the University of Agricultural Sciences, Bangalore were considered for study. The score were assigned for the adoption of each of the recommended practices by farmers in the following way.

Adoption pattern	Score
Full adoption	2
Partial adoption	1
Non-adoption	0

$$\text{Adoption quotient} = \frac{\text{Adoption score of the respondent}}{\text{Max. Adoption score that could be obtained}} \times 100$$

Adoption can be termed as a behaviour response. It is the overt behaviour of a farmer expressed in terms of aggregate adoption scores obtained by him with respect to recommended technologies of paddy crop. Partial adoption refers to any deviation from the normal recommendation. The total practices selected for the study were 70. The total score for a respondent was obtained by summing up the score obtained on each individual practice. The maximum score that one could get was 70 and minimum was zero. The respondents were categorized in to three categories based on the following criteria.

## RESULTS AND DISCUSSION

The results presented in the table 1 revealed that considerable percentage (63.72 %) belonged to middle age category followed by 20.00 per cent and 16.28 per cent belonging to young and old age categories, respectively. This table also indicated that, 86.28 per cent of the respondents belonged to medium education category followed by 8.00 and 5.72 per cent belonged to high and low education category. In case of land holding, more than one third (45.71 %) of the hybrid paddy growers were small farmers followed by big (34.28%) and marginal farmers (20.00%) with respect to their land holding. And this table also showed that 58.57 per cent of the respondents belonged to medium extension participation category followed by 27.15 and 14.28 per cent of the respondent belonged to high and low extension participation category. In case of risk orientation, 62.72 per cent of the respondents comes under medium risk orientation category followed by 27.15 and 14.28 per cent of the respondents comes under high and low risk orientation category, respectively.

The result presented in Table 2, shows that majority of the farmers (62.25 %) of the paddy growers belongs to high adoption category. Whereas, 21.42 and 16.28 per cent of the paddy growers belongs to medium and low adoption category, respectively. The reason for high adoption could be the educational status of the respondents was found to be significant. This would enable them to acquire better knowledge to adopt the improved technologies regarding paddy cultivation skilfully. The results are in accordance with the findings with findings of Bhagwat and Gohad [2] and Pottapa [4].

The result in Table 3, presents different level of adoption behaviour such as, full adoption, partial adoption and no adoption, as per individual adopted improved technologies of paddy cultivation. 65.72 per cent of the paddy growers had fully adopted production technologies like IR – 64 and seed treatment. Whereas, 24.28 and 1.00 per cent had partial adoption and no adoption. In case of nursery management, 81.44 per cent of the farmers practicing nursery managements like wet nursery and dry nursery followed by 11.42 and 7.14 per cent had no adoption and partial adoption. This table also indicating that 76.58 per cent of the paddy growers practicing land preparation technologies like bund trimming, ploughing, levelling and puddling followed by 13.14 and 10.28 per cent had partial adoption and no adoption. In case of transplanting practices, 86.85 per cent of the farmers fully adopted practices like FYM used, Green manure used, incorporation of green manures prior to planting (15 days before), age of seedlings, plant population per square meter and transporting of seedlings. Whereas, 8.00 and 5.15 per cent had partial adoption and no adoption. This table also presenting the application of herbicides, 61.42 per cent of the farmers fully adopted the technologies on uses of herbicides like quantity of herbicides and quantity of sand applied followed by 22.87 and 15.71 per cent had partial adoption and no adoption. In case of weed control practices, 52.58 per cent of the farmers fully adopted the practices like use of cono weeders and number of times weed controlled followed by 25.14 and 22.28 per cent had no adoption and partial adoption. This table also indicating the irrigation practices, 58.00 per cent of the farmers fully adopted like tube well and open well for irrigation followed by 24.28 and 17.72 per cent had partial adoption and no adoption.

In case of plant protection measures, 45.72 per cent of the farmers fully adopted measures like chemical used, quantity of chemical used ad number of times sprayed followed by 34.28 and 20.00 per cent had no adoption and partial adoption. This table also presents that harvesting practices, here 58.57 per cent of the farmers fully adopted the practices like contract labour and machine harvesting followed by 24.58 and 16.85 per cent had partial adoption and full adoption, respectively. The reason behind that the paddy

growers were aware about improved technologies of paddy cultivation and also they frequently having contact with the extension workers. The results are in accordance with the findings with findings of Rizwana [5] and Chandra Naik[3].

It was clear from Table 4, land holding, extension participation and risk orientation had positive and significant relationship with adoption of improved technologies in paddy cultivation and remaining age and education had non significant relationship with adoption of improved technologies in paddy cultivation. Normally the farmer with medium to larger holdings will have high income and intends to adopt innovations. The findings are in conformity with the findings of Saxena and Singh [6] and Rizwana [5].

**Table 1: Profile characteristics of paddy growers**

n = 350

Particulars	Criteria	Paddy growers	
		No	%
Age	Young (< 21.15)	70	20.00
	Middle (21.15-24.30)	223	63.72
	Old (> 24.30)	57	16.28
Education	Low (< 19.06)	28	8.00
	Medium (19.06-22.83)	302	86.28
	High (> 22.83)	20	5.72
Land Holding	Marginal (< 2.5 ac)	70	20.00
	Small (2.5-5.0 ac)	160	45.71
	Big (> 5.0 ac)	120	34.28
Extension Participation	Low (< 20.73)	50	14.28
	Medium (20.73-23.05)	205	58.57
	High (> 23.05)	5	27.15
Risk Orientation	Low (< 19.52)	45	12.86
	Medium (19.52-22.43)	230	65.72
	High (> 22.43)	75	21.42

**Table 2: Overall adoption of improved technologies used by paddy growers [n = 350]**

Characteristics	Paddy growers	
	No	%
Low (<51.22)	57	16.28
Medium (51.22-55.51)	75	21.42
High (>55.51)	218	62.28

**Table 3: Extent of adoption of improved technologies used by paddy growers n = 350**

Improved Technologies	Criteria	Paddy growers	
		No	%
Production technologies	Full adoption (< 27.13)	230	65.72
	Partial adoption (27.13-30.52)	85	24.28
	Not adoption (>30.52)	35	10.00
Nursery management	Full adoption (<19.15)	285	81.44
	Partial adoption (19.15-21.49)	25	7.14
	Not adoption (>21.49)	40	11.42
Land preparation	Full adoption (<19.89)	268	76.58
	Partial adoption (19.89-23.31)	46	13.14
	Not adoption (>23.31)	36	10.28
Transplanting practices	Full adoption (<19.39)	304	86.85
	Partial adoption (19.39-22.06)	28	8.00
	Not adoption (>22.06)	18	5.15
Application of herbicides	Full adoption (<14.50)	215	61.42
	Partial adoption (14.50-16.30)	80	22.87
	Not adoption (>16.30)	55	15.71
Weed control practices	Full adoption (7.16)	184	52.58
	Partial adoption (7.16-8.09)	78	22.28
	Not adoption (>8.09)	88	25.14
Irrigation practices	Full adoption (<17.32)	203	58.00
	Partial adoption (17.32-19.83)	85	24.28
	Not adoption (>19.83)	62	17.72
Plant protection measures	Full adoption (<25.34)	160	45.72
	Partial adoption (25.34-28.11)	70	20.00
	Not adoption (>28.11)	120	34.28
Harvesting practices	Full adoption (<18.39)	205	58.57
	Partial adoption (18.39-21.05)	86	24.58
	Not adoption (>21.05)	59	16.85

**Table 4: Relationship between independent variables and adoption of paddy growers**  
n = 350

Sl. No.	Characteristics	Correlation Co-efficient (r)
1	Age	-0.146 <sup>NS</sup>
2	Education	0.058 <sup>NS</sup>
3	Land Holding	0.296*
4	Extension Participation	0.371**
5	Risk Orientation	0.339*

\*\* Significant at 1 per cent level      \* Significant at 5 per cent level

NS: Non-significant

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