

ADOPTION OF PRODUCTION PRACTICES OF PADDY BY TRIBAL FARMERS

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Large number of technologies have been evolved in the field of agriculture but are not being accepted and adopted at its fullest extent by the farmers. The gap between recommendations by the scientists and actual use by farmers is still existing. Supe et .al (1983) and Jaiswal (1985) reported a substantial technological gap in respect of use of seed rate, fertilisers and plant protection measures by farmers. Number of factors may be responsible for the existing adoption gap. The speedy adoption of improved agricultural technologies and innovations are most important for enhancing agricultural production at faster rate and hence it is a crucial aspect under innovation diffusion process.

In the past few years significant break through has been made in the extension efforts to popularise a variety of improved crops, there by weaning away the tribals from subsistence oriented primitive cultivation systems. Among food crops and other commercial crops paddy occupies the largest acreage followed by millets like jowar, bajra, ragi and other cash crops like turmeric, ginger, brinjal and chillies etc. in R.C Varam agency area and paddy is the staple food for tribals. The agricultural practices employed for them are primitive and are characterized by rainfed annual cropping much of which is podu cultivation.

There is hardly any detailed literature on the farming system of tribal areas relating to dissemination and their extent of adoption of improved agricultural technology for paddy except some studies on shifting cultivation. As

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agriculture is main stay for tribals and the new agricultural technology is generated and disseminated by the research stations and the developmental agencies. Hence there is an urgent need for deeper probe into the tribal farming to know the extent to which the improved agricultural technology is known and adopted by them and the constraints operating there in. Keeping in view the present study was designed with the following objectives.

Objectives:

1. To study the extent of adoption of improved agricultural technologies of Paddy by the tribal farmers.
2. To understand the constraints in adoption of the improved technology.
3. Suggestions of the farmers to overcome these problems.

Methodology:

The study was conducted in R.C. Varam tribal area of Andhra Pradesh. Four villages in 3 mandals covered by the IFAD (International Fund For Agriculture Development) project were selected purposively to conduct the study. A total sample of 60 respondents 15 from each village Cheruvupalem (R.C.Varam mandal), D.N.Palem (Devipatnam mandal), Kutravada and P.M.Kota (Maredumilli mandal) were selected at random. To measure the adoption behaviour of the tribal farmers gap analysis was carried out for assessing the extent of gap i.e difference between existing practices and recommended practices of the university. A separate schedule for identification of gap in adoption covering all the package of practices of paddy is developed and administered on the individual respondents.

Results and Discussion

LAND PREPARATION: It is observed from the table that a majority 76.67 per cent of the respondents are fully adopting land preparation practices. 13.33 per cent are partially adopting and only 10 per cent of the respondents are not adopting the recommended practices. The farmers who are cultivating high yielding varieties are fully adopting the recommended practices of land

Table: Table showing the extent of Adoption of package of practice of paddy

Sl. No.	PRACTICES	FULL		PARTIAL		NIL	
		F	%	F	%	F	%
1	Land preparation	46	76.67	8	13.33	6	10
2	Variety	38	63.33	-	-	22	36.67
3	Seed rate	17	28.33	34	56.67	9	15
4	Time of sowing	60	100	-	-	-	-
5	Spacing	8	13.33	18	30	34	56.67
6	Seed treatment	-	-	-	-	60	100
7	Organic manures[FYM]	-	-	22	36.67	38	63.33
	Fertilisers						
8	Basal N	16	26.67	14	23.33	30	50.00
9	P	4	6.67	-	-	56	93.33
10	K	-	-	-	-	60	100
11	Zn	-	-	-	-	60	100
12	Top dressing of N	4	6.67	24	40.00	32	53.33
13	Weed control	-	-	60	100	-	-
14	Plant protection	-	-	24	40.00	36	60.00
15	Harvesting method	60	100	-	-	-	-
16	Threshing method	60	100	-	-	-	-

preparation. The respondents who are partially adopting and or not adopting the recommended practices either has the constraint of leveled land or that of the plough bullocks. The farmers dig the soil with the hand implement called 'GOBBAM' when ploughing with bullocks becomes a constraint. In order to fill the gap the extension personnel has to create awareness on the importance of land preparation.

VARIETY: The table shows that 63.33 per cent of the respondents are adopting high yielding varieties of paddy. Only 36.67 per cent of the respondents are not adopting high yielding varieties of paddy. It was observed that the majority of the farmers who are adopting high yielding varieties are not using the recommended or suitable varieties to their situations. The high yielding varieties of paddy which were introduced by ITDA (Integrated Tribal Development Agency) a decade or above are still used by the tribals as the yields are more

compared to the local strains. The farmers who are not adopting the HYVs are totally depending on the traditional varieties. The reason being lack of conviction on HYVs, non availability of seed in time, high cost and lack of information about the procurement of the seed material.

To bridge the gap extra efforts of extension personnel are required in introducing situation specific varieties of paddy and demonstrate the performance of introduced varieties to motivate and convince the farmers.

SEED RATE: A majority 56.67 percent of the respondents partially adopt the correct seed rate per acre. Only 28.33% of the respondents adopt the recommended seed rate and 15 per cent do not adopt. The Partial adopters are those who use more seed rate than the recommended seed rate of 30 kgs / acre. The fear of low germination leads to use of higher doses. The non adopters are those who lack in knowledge. The importance of correct seed rate and knowledge of calculating the required quantity of seed rate based on germination tests should be educated to the farmers through awareness camps and training programmes.

TIME OF SOWING : All the farmers take up the sowings in time and they have the knowledge of yield reduction with delayed sowings in dry paddy.

SPACING : 56.67 percent of the respondents do not adopt the spacing in paddy. 30 percent adopt partially and only 13.33 per cent of the respondents adopt spacing. Lack of knowledge is the main reason for not adopting the spacing in paddy by the tribals. Requirement of labour, time and lack of skill leads to partial adoption with those who are aware of the importance of spacing. The tribal mostly engage their family labour only and do not hire the outside labourers. As such the labour intensive practices are neglected. This gap can be narrowed down by conducting training programs both on knowledge and skill. Exposure visits and result demonstrations also helps in convincing the farmers.

SEED TREATMENT : 100 percent of the respondents do not practice the seed treatment. During discussion majority of the farmers expressed that they

are not aware of the seed treatment. Very few farmers are aware of the benefits of seed treatment. To bridge the gap method demonstrations and awareness camps has to be conducted.

ORGANIC MANURES : 63.33 percent of the respondents do not apply organic manures. 36.67 percent adopt partially. The tribals practice is penning of the cattle in the cultivated lands during the off season and do not practice composting of the available cow dung. Lack of knowledge and skills in preparing the compost pits and also lack of stall feeding of the animals are some of the reasons for not applying the farm yard manures in the cultivated fields. The resource poor farmers lack in cattle number and as such they do not apply farm yard manure. Some farmers adopt partially because sufficient quantity of organic manure is a constraint. In order to reduce the gap demonstrations for preparing the compost pits and the benefits of using organic manures has to be explained to the tribals.

BASAL APPLICATION OF NITROGEN : 50 per cent of the respondents do not practice basal application of nitrogen. Only 26.67 percent of the respondents adopt the practice. And 23.33 % partially adopt the basal application of nitrogen. The reasons for non adoption is mainly due to the belief that the application of nitrogen fertiliser increases the incidence of pest and diseases. Lack of knowledge of in using the correct dosage, involvement of cost, transport problem are some of the other factors for non adoption. To reduce the gap extension personnel has to conduct awareness camps and training programmes on the importance and method of application of nitrogenous fertilizers.

PHOSPHOROUS: 93.33 percent of the respondents do not apply phosphorous. Only 6.67 per cent use phosphorous in the basal application. During discussions farmers expressed that lack of awareness and knowledge about the importance of phosphorus is the reason for non adoption. The soil test results have also indicated that the soils in this region are low in 'P' content. For bridging the gap awareness camps has to be organised by the extension personnel on the advantages of "Phosphorous" like improvement in grain

weight, grain filling, quality and development of resistance to pests and diseases etc.,

POTASH: The table shows that cent percent of the respondents do not adopt use of potash in the paddy preparatory fields.. The soil test results have also indicated that all the soils were low in 'K' content. This gap will be narrowed by conducting awareness programs on the importance of potash by the extension personnel.

ZINC: Zinc deficiency was reported in the soils of this region in the soil test results. Adoption of zinc application was nil with all the farmers. The reasons for non adoption is lack of awareness and knowledge. To bridge the gap awareness program on the importance of 'Zn' application like stunted growth, reduction in yield and development of resistant to withstand the cold climatic conditions has to be explained to the farmers.

TOP DRESSING OF NITROGEN : 53.33 percent of the respondents do not adopt the practice. 40 percent partially adopt and only 6.67 percent fully adopt the practice. A majority of respondents do not adopt top dressing of nitrogen because of lack of knowledge of its importance. Partial adopters are those who take up top dressing depending upon the financial position and the availability of fertiliser. To narrow down the gap exposure visit to research station should be organized for showing the advantages of split application of nitrogen.

WEED CONTROL: Control of weeds in the paddy fields is partially adopted by all the respondents. The reason for partial adoption i.e., one or maximum two times weeding is mainly because the tribal agriculture practices depends on the family labor and also the practice of zig-zag method of planting which does not allow for free weeding in this region of high rainfall. Further during the rainy days the weeding activity can not be taken up because of continues down pour and loose soil conditions. Lack of proper implements and the knowledge of weed loses are the other reasons for not adopting the practice fully.

PLANT PROTECTION MEASURES: 60 per cent of the respondents do not adopt any control measures for controlling the pests on paddy crop. 40 percent of the respondents partially adopt control measures to control the pests on paddy. The reason for non adoption and partial adoption is mainly due to lack of knowledge about the different methods of controlling the pest and specifically the chemical control method. The knowledge of spray mixture, time and quantity etc are not know to the tribal farmers. The tribal farmers generally depend on the non chemical methods of controlling the pests, which are in-sufficient to control all the pest. The knowledge of IPM has to be extended to bridge the gap.

HARVESTING AND THRESHING: The tribal farmers are good at deciding the time for harvest of the crop i.e., on physiological maturity of the crop. The tribal celebrate festivals synchronizing with the harvest of the crop. Full adoption was observed with regard to harvesting and threshing technologies.

Conclusion :

50 per cent of the tribal farmers are using high yielding varieties of paddy and nitrogenous fertilizers either full or partial. Nil adoption of 'P', 'K' and 'Zn' was observed with all the farmers even though the soil test results are indicating that the soils are low with these nutrients. 40 per cent Partial adoption was observed for Plant protection and 100 per cent partial adoption with inter cultivation operations. These observations are in contradiction with the statement that all the farmers were found to be partially adopting nitrogen, phosphorus fertilizers and some of them were using potassium fertilizers, insecticides and fungicides by Ratan (1978), Bhagat (1987) and Bhoite and Barve (1984) reported similar observations.

This clearly shows that the tribal farmers might have convinced with the merits of using HYVs of seed, nitrogen fertilizers and plant protection measures which helped in building favourable attitude there by resulting in adoption of the HYVs, nitrogen fertilizers, and pesticides. This can be concluded that the extent of adoption of majority of the practices is partial

or nil. The extension personnel will take care of the nil and partial adopted practices like adoption of 'P', 'K' Zn, plant protection and inter cultivation operations by conducting exposure visits and result demonstrations.

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