



Research Article

CONSTRAINTS FACED BY THE PADDY GROWER IN ADOPTION OF RECOMMENDED PRODUCTION TECHNOLOGY FROM WESTERN MAHARASHTRA

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Abstract: The average productivity of the Maharashtra state is low as compared to other rice growing states in India. With this view research was conducted in Kolhapur district of western Maharashtra. Majority of the paddy growers belonged to the middle age group (50.77 percent). More than 50% of the paddy growers had completed secondary and higher secondary education and belonged to joint family (56.92 percent) with medium sized families (41.67 percent). All the farmers were adopted soil, ploughing, puddling, time of sowing/ transplanting. Majority (30.76) of farmers suffers from higher labour wages, unavailability of required variety seeds at input dealers and feels that production cost is more and two-fifth (41.54 percent) of farmers suggested that improved variety seeds from university should be made easily available.

Keywords: Paddy production technology and constraints

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Introduction

Rice is from the family, Gramineae. It is the staple food for about half of the human race. It is the leading cereal crop which can be grown in the standing water of areas of flat, low-lying tropical soils. India is the second leading producer of rice in the world. In India, rice is grown on an area of 44 million hectares with a production of about 132 million tons.[1] while in Maharashtra it is grown over an area of 15.35 lakh hectares with an annual rough rice production of 35.81 lakh tones. The average productivity of the Maharashtra state is low as compared to other rice growing states viz. Punjab, Tamil Nadu, Haryana, Andhra Pradesh *etc.*[2]. There are many problems associated with adoption of recommended farm practices which may be related to socio-economic status of farmers, technological, financial, or institutional *etc.* which need to be addressed. These problems reflect the quality and quantity adversely. Adoption of an innovation depends on many factors viz., awareness and knowledge of adopters, innovativeness, characteristics of an innovations *etc* [3]. The soil and climate of Kolhapur district of western Maharashtra is most suitable for rice cultivation and production of rice can be increased through timely adoption of recommended rice production technology by the farmers. Keeping these facts in view the present study was undertaken with the following specific objectives

1. To study the extent of adoption of recommended paddy production technology by the respondents.
2. To study the constraints faced by the respondents in adoption of recommended paddy production technology by respondents.
3. To obtain the suggestions from the respondents for efficient use of recommended paddy production technology

Material and Methods

The study was conducted in Hatkanangle, Radhanagari and Bhudharghar tahsils of Kolhapur district. In all 13 villages from three tahsils were selected randomly. From these selected villages, 10 paddy growers from each village were selected randomly. The total sample size was 130.

The farmers were interviewed with the help of structured interview schedule personally. The extent of adoption paddy production technology was studied. The constraints in adoption of technologies and suggestions of farmers for efficient use of innovations were also studied. The data were tabulated and processed through the primary and secondary tables. The statistical tools frequency, percentages, and means of the averages were used for interpreting the data and inferences are drawn.

Results

Adoption of improved paddy technology

It is revealed from [Table-1] that all farmers were adopted soil, ploughing, puddling, time of sowing/ transplanting while majority of paddy growers adopted technologies namely fertilizer management for mid-late and late variety (60.00 percent) and plant protection measures (70.00 percent) but less adoption of Bhogavati cultivar of paddy.

Socio-economic characteristics

The socio-economic characteristics of paddy grower are given in [Table-2]. Majority of the paddy growers belonged to the middle age group (50.77 percent) followed by 33.08 percent and 25.00 percent belonging to old age group and young age group respectively. More than 50% of the paddy growers had completed secondary and higher secondary education and belonged to joint family (56.92 percent) with medium sized families (41.67 percent). In addition to agriculture occupation, majority of paddy growers (86.54 percent) enjoying dairy as their secondary occupation. Majority (68.46 percent) of the paddy growers had land holding less than 1 hectare and 27.69 percent paddy growers had land holding between 1.01 to 2 hectares and majority (57.69 percent) of the them irrigated their field by well as a source of irrigation followed by lift irrigation from river. Majority (52.30 percent) of the paddy growers had obtained annual income less than Rs. 150,000/- and about 39.24 percent of the paddy growers obtained annual income more than Rs. 1, 50,000/-

Table-1 Classification of paddy growers according to their level of adoption

S	Technologies	Adoption (n= 130)		
		Complete	Partial	No
1	Soil			
	Light to medium	130(100.0)	-	-
	Saline soil	-	-	-
2	Preparatory tillage			
	Ploughing	130(100.0)	-	-
	Puddling	130(100.0)	-	-
	Application of FYM (10 t/ha)	16(12.30)	-	114(87.70)
3	Green manuring			
	Dhaincha	02 (01.54)	05 (03.85)	123 (94.61)
	Giripushpa	-	02 (01.54)	128 (98.46)
	Jute	04 (03.08)	06 (04.62)	120 (92.30)
	Green Manuring @ 3-5 Tonns /ha	02 (01.54)	11 (08.46)	117 (90.00)
4	Type of Application			
	Soil application at flowering stage	03 (02.31)	03 (02.31)	124 (95.38)
	Sowing (30-40 Kg/ha)	05 (03.85)	03 (02.31)	122 (93.84)
5	Time of Sowing/ Transplanting/Dibbling			
	15 May - 15 June	130 (100.0)	-	-
6	Seed rate (Kg/ ha)			
	Transplanting (35-40)	130 (100.0)		
	Sowing (80-100)	70 (53.80)	06 (04.60)	54 (41.60)
	Dibbling (50-60)	44 (33.80)	02 (01.50)	84 (64.70)
	Hybrid variety (20)	05 (03.80)	02 (01.50)	123 (94.70)
7	Seed Treatment			
	Thiuram or captan @ 2.5 gm/Kg	108 (83.08)	05 (03.85)	17 (13.07)
8	Spacing (cm)			
a)	Dibbling method			
	Early variety -15x 15	30 (23.07)	06 (04.62)	94 (72.31)
	Midlate variety- 20x15	29 (22.31)	04 (03.08)	97 (74.61)
	Late variety - 20x 15	29 (22.31)	04 (03.08)	97 (74.61)
b)	Sowing method -22.5	49 (37.69)	-	81 (62.31)
c)	Transplanting method-20 x 15	22 (16.92)	04 (03.08)	104 (80.00)
8	Improved varieties			
a)	Early			
	Ratnagiri-24	02 (01.54)	01 (00.77)	127 (97.69)
	Phule Radha	22 (16.92)	-	108 (83.08)
b)	Midlate			
	Jaya	-	03 (02.31)	127 (97.69)
	Phule maval	-	-	130 (100.0)
c)	Late			
	Masuri	-	-	130 (100.0)
	Suvarna	-	-	130 (100.0)
d)	Scented			
	Basmati 370	01 (00.77)	-	129 (99.23)
	Bhogavati	53 (40.77)	06 (04.61)	71 (54.62)
	Indrayani	17 (13.08)	08 (06.15)	105 (80.77)
	Phule Samruddhi	10 (07.69)	05 (03.85)	115 (88.46)
	Sugandha	-	-	130 (100.0)
	Avishkar	01 (00.76)	-	129 (99.24)
e)	Hybrid variety			
	Sahyadri-2	04 (03.08)	1 (0.76)	125 (96.26)
9	Fertilizer Management			
a)	Early variety			
	Nitrogen (100 Kg/ha)	33 (25.38)	07 (5.38)	90 (69.24)
	Phosphorous (50 kg/ha)	33 (25.38)	05 (3.85)	92 (70.77)
	Potash (50 kg/ha)	33 (25.38)	05 (3.85)	92 (70.77)
	50 % N + Full (P+K) at sowing/ planting	33 (25.38)	05 (3.85)	92 (70.77)
	50 % N at 25- 30 days after sowing/planting	30 (23.08)	09 (6.92)	91 (70.00)
b)	Midlate& Late variety			
	Nitrogen (100 Kg/ha)	80 (61.54)	07 (5.38)	43 (33.08)
	Phosphorous (50kg/ha)	81 (62.31)	07 (5.38)	42 (32.31)
	Potash (50 kg/ha)	70 (53.85)	07 (5.38)	53 (40.77)
	40 % N + Full (P+K) at sowing/ planting	77 (59.23)	11 (8.46)	42 (32.31)
	40 % N at 25- 30 days after sowing/planting	77 (59.23)	11 (8.46)	42 (32.31)
	20 % N at 55- 60 days after sowing/planting	76 (58.46)	11 (8.46)	43 (33.08)
c)	Hybrid variety			
	Nitrogen (120 Kg/ha)	04 (3.08)	1 (0.77)	125 (96.15)
	Phosphorous (50 kg/ha)	03 (02.31)	02 (01.54)	125 (96.15)
	Potash (50 kg/ha)	03 (02.31)	02 (01.54)	125 (96.15)
	50 % N + Full (P+K) at sowing/ planting	03 (02.31)	02 (01.54)	125 (96.15)
	25 % N at 25- 30 days after sowing/planting	03 (02.31)	02 (01.54)	125 (96.15)
	25 % N at 55- 60 days after sowing/planting	03 (02.31)	02 (01.54)	125 (96.15)
B)	Charsutri method	02 (01.54)	01 (0.77)	127 (97.69)
a)	Use of paddy ash			

	2 t/ha at sowing/ planting	-	02 (01.54)	128 (98.46)
b)	Use of glyricidea leaves			
	Quantity- 3 t/ha At puddling	-	02 (01.54)	128 (98.46)
c)	Paired row planting			
	15-25 cm x 15-25 cm	-	-	130 (100.00)
d)	Use of Urea Briquettes	02(01.54)	01 (0.77)	127 (97.69)
10	Inter-culturing			
	Harrowing (need based)	110 (84.61)	17 (13.08)	03 (02.31)
	Water stagnation in trenches for Weed control	50 (38.46)	36 (27.69)	44 (33.85)
	Butaclor or Bethiocars for weed control @ 3 Kg/1000 lit. water	30 (23.00)	09 (07.00)	91 (70.00)
11	Water management			
	Root initiation -1-2 cm	41 (31.54)	40 (30.77)	49 (37.69)
	Primary stage of seedling – 2-3 cm	41 (31.54)	40 (30.77)	49 (37.69)
	Tillering stage- 3-5 cm	41 (31.54)	40 (30.77)	49 (37.69)
	Flag initiation-5-10 cm	41 (31.54)	40 (30.77)	49 (37.69)
	Flowering & grain filling stage-10 cm	45 (34.61)	38 (29.23)	47 (36.16)
	water drainage 10 days before harvest	50 (38.46)	36 (27.69)	44 (33.85)
12	Crop protection			
a)	Stem borer			
	Control- dipping of seedlings in 0.1 % Chlopyriphos solution before transplanting	25 (19.23)	07 (5.38)	98 (75.39)
b)	Army worm			
	Control			
	i.Methyldiparathion	50 (38.46)	15 (11.54)	65 (50.00)
	Qty- 20 kg/ha			
	Cypermethrin (25 EC) Qty- 120ml/500lit	50 (38.46)	15 (11.54)	65 (50.00)
c)	Jassids			
	Control-i. Malathion (25 EC) Qty- 100ml/500lit	105 (80.77)	06 (4.61)	19 (14.62)
d)	Crab			
	Control- boiled rice + Thimath/ quinolphos / carbofuron in crab's hole	31 (23.85)	-	99 (76.15)
e)	Leaf blight			
	Control: i. Carbandazium Qty-5 00 gm/ha	110 (84.61)	03 (02.31)	17 (13.08)
f)	Harvesting			
	After maturity of 80-90 % of grains Harvest at ground level	92 (70.77)	-	38 (29.23)
	use of Vaibhav sickles	60 (46.15)		70 (53.85)
14	Duration of crop (days)			
	Early variety : 95 – 120	39 (30.00)	-	91 (70.00)
	Midlatevariety : 120-130	30 (23.07)	-	70 (76.93)
	Late variety : 130-145	25 (19.23)	-	105 (80.77)
	Hybrid variety : 125-140	03 (02.31)	-	127 (97.69)
15	Yield (Qtl/ha)			
	Early variety : 25-40	23 (17.69)	-	107 (82.31)
	Midlatevariety : 40-50	27 (20.77)	-	103 (79.23)
	Late variety : 35-45	25 (19.23)	-	105 (80.77)
	Hybrid variety : 65-75	03 (2.31)	-	127(97.69)

Constraints faced by the paddy growers

The data regarding the constraints faced by the paddy growers are depicted in [Table-3] and the results obtained are as follows.

It is revealed that majority (30.77 percent each) of farmers suffers from inadequate labour and higher wages, unavailability of required variety seeds at input dealers and feels that production cost is more. Nearly twenty percent farmers facing constraints namely Heavy losses caused insect pests and diseases, unavailability of FYM/compost followed by 17.69 percent of the farmers stated costly chemical fertilizers as a constraint [4,5].

Suggestions made by the paddy growers

The data regarding the suggestions made by the paddy growers are presented in [Table-4] and the results obtained are as follows. Majority (41.54 percent) of farmers suggested that improved variety seeds from university should be made easily available followed by training for recommended paddy production technologies organized before onset of season (20.00 percent) and provision of minimum support price for paddy crop by the government (15.38 percent)

Table-2 Classification of paddy growers according to their socio-economic characteristics

S	Characteristics	Respondents (N=130)	
		Number	Percentage
1	Age		
	Young (up to 35 years)	21	16.15
	Middle (36-55 years)	66	50.77
	Old (56 & above)	43	33.08
	Total	130	100.00
2	Education		
	Illiterate	02	01.54
	Primary	20	15.39
	Secondary & Higher secondary	77	59.23
	Degree and above	31	23.84
	Total	130	100.00
3	Type of Family		
	Joint	74	56.92
	Nuclear	56	43.08
	Total	130	100.00
4	Family size		
	Small (up to 4 members)	45	34.62
	Medium (5-8 members)	68	52.30
	Large (9 & above)	17	13.08
	Total	130	100.00
5	Occupation		
a)	Main		
	Agriculture	130	100.00
b)	Secondary		
	Agri. Allied	112	86.54
	Service	10	07.69
	Business	6	04.61
6	Land holding (Ha.)		
	Less than 1.00 ha.	89	68.46
	1.01 – 2.00 ha.	36	27.69
	2.01 to 4.00 ha	04	03.07
	4.01 to 10.00	01	00.80
	More than 10.01 ha.	-	-
	Total	130	100.00
7	Source of water		
	Well		
	Bore well	04	03.08
	River	69	53.07
	Canal	10	07.69
8	Annual income		
	Less than Rs. 150,000 /-	68	52.30
	Rs. 150,001 /- to Rs.3,50,000 /-	51	39.24
	Rs. 3,50,001 and above	11	08.46
	Total	130	100.00

Table-3 Constraints faced by the paddy growers

S	Constraints	No. of farmers n=130	Percentage
1	Inadequate labour and high wages.	40	30.77
2	Unavailability of compost / FYM	24	18.46
3	Unavailability of Urea briquette	12	9.23
4	Unavailability of insecticides and pesticides in time	16	12.30
5	Production cost is more	40	30.77
6	Heavy incidence of pest and diseases (Change in atmosphere).	25	19.23
7	Costly chemical fertilizers	23	17.69
8	Unavailability of bio-pesticides	12	09.23
9	Unavailability of required variety seed at input dealer	40	30.77

Table-4 Suggestions made by of paddy growers

S	Suggestions	Respondents (n=130)	Percentage
1	Pre seasonal Training of paddy cultivation	26	20.00
2	Soil testing should be done	7	5.38
3	University variety seed should be easily available	54	41.53
4	Cooperative farming	12	9.23
5	Resistance variety to insect and pest	14	10.77
6	Crow-bar implements should be made available	6	4.61
7	Availability of urea briquette on subsidy	7	5.38
8	Limit of paddy crop loan should be increased	15	11.54
9	Marginal Support Price (MSP)	20	15.38

Discussion

Adoption of improved varieties but not the Bhogavati cultivar might be due to the major crop of Kolhapur district covers sugarcane crop as commercial and paddy

as domestic purpose. Major paddy growers were young group and obtained education upto higher and secondary education which is related to the adoption of improved technologies of paddy and belonged to recommended yield of paddy per hectare.

Conclusion

The finding of the study indicated that although the paddy growers from Kolhapur district grows paddy for domestic purpose, they had scope to increase the productivity of paddy through adoption of recommended paddy production technologies.

Application of research: This research will applicable in major rice growing pocket

Research Category: Agriculture Extension

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