Extent of Knowledge of Tribal Farmers about Rice Production Technology

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ABSTRACT

The study was conducted in Bastar district of Chhattisgarh state during 2004 and 2005 to study the extent of knowledge of tribal farmers about recommended rice production technology. A total of 480 respondents (240 contact and 240 non-contact tribal farmers) constituted the sample of the present study. The findings revealed that most of the respondents had medium knowledge level about recommended rice production technology, moderate attitude towards Recommended Modern Agricultural Technology (RMAT), low to medium level of social participation, medium to low socio-economic status, utilized institutional sources for credit facilities, low level of extension contact with extension agents and medium level of exchange of information regarding recommended rice production technology. The major contributing practices for knowledge gaps were major diseases and their control, use of weedicides, major insects and their control, seed treatment and improved nursery. Significant difference was investigated between the technological gaps of contact and non–contact tribal farmers.

Key words : *Tribal farmers; Extent of knowledge; Knowledge gap;Rice.*

In Chhattisgarh state, rice is an important kharif cereal, occupying an area of 3.8 million hectare out of total kharif cereals of 4.3 million hectare. In this region rice is mainly grown through biasi method constituting more than 80 per cent of rice cultivation in the area. Other important systems are transplanting, line sowing and lehi system. As regards to total population the figure is 1.21 crore which includes 3.39 lacs tribals. Rice cultivation is major agricultural activity of the farming community of this state. In spite of abundant rainfall, optimum solar radiation, favourable temperatures, relatively well conserved soils, surplus man power for year around crops production, the productivity of rice in the state is 1.31 t ha-1, which is far behind the productivity of India (1.9 t ha-1), China (6.3 t ha-1), Japan ((6.4 t ha-1) and Egypt (8.4 t ha-1). The overall picture reveals that the agriculture in Chhattisgarh is relatively under developed as compared to most of the Indian states. Despite improvement in production technology of rice crop a break through of higher order has not been achieved. Several scientists have opined that knowledge about improved practices is a key factor in harnessing good yield from rice.

The progress and prosperity of a nation to a very great extent depends on how far its agriculture sector is advanced and modernized. Adoption of improved and up to date agricultural technologies by the majority of agriculturists is a pre-requisite to agricultural development in the developing countries, like India where the economy is mainly based on agricultural sector. The government is running various programmes to improve the economic conditions of the tribals. Agriculture being the backbone of tribal economy, it is envisaged to enhance agricultural production in tribal areas.

Therefore to assess the knowledge level of tribal farmers regarding recommended rice production technology, the study entitled "Study on extent of knowledge of tribal farmers about recommended rice production technology in Bastar district of Chhattisgarh state" was under taken with the specific objectives, i) to find out the extent of knowledge of the contact and non-contact tribal farmers about recommended rice production technology and ii) to study the knowledge gap in recommended rice production technology among the contact and non-contact tribal farmers.

METHODOLOGY

The study was carried out in Bastar district of Chhattisgarh state during the year 2004 to 2005. The district is situated in south part of the state and Jagdalpur is the head quarter of Bastar district. Bastar district has

14 development blocks. All the blocks are denoted as tribal blocks by the government. Out of total blocks, five blocks were selected for the present study. On the basis of their geographical distribution in different directions viz. north, south, east, west and central part, five blocks viz. Keshkal, Narayanpur, Bastanar, Bakawand and Jagdalpur were purposively selected for the study.

Five selected blocks possess more than 67 per cent of the tribal population, growing paddy as main crop. There are 94 RAEO circles in Bastar district, from each selected blocks 50 per cent rural agriculture extension officer (RAEO) circles were selected randomly. Thus, the total of 40 RAEO circles has been selected and from each RAEO circle one village has been selected randomly for the present study.

The name of contact and non-contact tribal farmers of forty selected villages were listed and arranged alphabetically. Out of which 06 contact and 06 non-contact tribal farmers were selected with the help of random number table from each village. In this way 240 contact and 240 non-contact tribal farmers from these selected villages were undertaken for the study with the help of random sampling basis. Finally the total sample constitutes 240 contact and non-contact farmers each.

The following device was developed to measure the knowledge level of respondents regarding selected technologies recommended for paddy crop.

$$KI = \frac{\text{Obtained knowledge score}}{\text{Obtainable knowledge score}} \times 100$$

Where,

KI = Knowledge index of a respondent

t –test It was applied for comparison of two small samples for contact and non-contact farmers. The t-value was worked out by using the following statistics :

$$t = \frac{\left|\overline{Y_1} - \overline{Y_2}\right|}{S_c\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

RESULTS AND DISCUSSION

1. Knowledge level of recommended rice production technology : It is evident from the data presented in Table 1 that maximum number of the contact tribal farmers (51.67%) had medium knowledge level of recommended rice production technology, 33.33 per cent and 15.00 per cent of the farmers had low and high knowledge level of recommended rice technology, respectively.

Whereas, the majority of non-contact tribal farmers (49.58%) had medium knowledge level of rice production technology, followed by low level (42.08%) and high knowledge level (8.33%) of rice production technology.

Table 1. Distribution of respondents according to their level of knowledge about recommended rice production technology

Characteristics	Respondents Contact tribal farmers Non-contact tribal farmers (n=240)			
	No.	%	No.	%
Knowledge level				
Low (up to 33.33%)	80	33.33	101	2.08
Medium (33.34 to 66.66%)	124	51.67	119	49.58
High (above 66.66%)	36	15.00	20	08.33

Thus, it may be stated that approximately half of the respondents had medium knowledge level of rice production technology. Even then, knowledge level of contact tribal farmers was higher than non-contact tribal farmers.

The majority of the contact and non-contact tribal farmers had medium knowledge level of recommended rice production technology. This was followed by low level of knowledge and high level of knowledge. It has been observed that approximately half of the respondents had medium knowledge level of rice production technology. The knowledge level of contact tribal farmers was higher than non-contact tribal farmers (Table 1). This finding is in confirmation with the works of Bhatt (1990), Patel (1990), Thakker (1993), Vedpathak (2001) and Pandey (2002).

2. Extent of knowledge : The extent of knowledge of the contact and non-contact tribal farmers regarding selected practices of recommended rice production technology was assessed and data are summarized in Tables 2 and 3, respectively.

In case of contact tribal farmers, the practices of higher percentage grouped into complete knowledge category were time of sowing (52.92%) followed by seed rate (33.33%), improved sowing methods of rice (30.00%) and irrigation application (30.00%). The practices of higher percentages in relation to the contact tribal farmers grouped into partial knowledge category were irrigation application (59.17%) followed by improved variety (58.33%), seed treatment (56.67%), seed rate (55.83%), improved nursery (55.42%), fertilizer application (55.42%), improved sowing methods of rice (55.00%) and major insects and their control (47.08%). Similarly, the practices of higher percentages of the contact tribal farmers grouped

into no knowledge category were use of weedicides (49.67%) followed by major diseases and their control (47.08%) (Table 2).

Table 2. Distribution of contact tribal farmers according to their extent of knowledge regarding selected practices of recommended rice production technology

S. No.	Selected practices	Extent of Knowledge					
		No (0)		Partial (1)		Complete (2)	
		No.	%	No.	%	No.	%
1.	Improved sowing method of rice	36	15.00	132	55.00	72	30.00
2.	Improved nursery	39	16.25	133	55.42	68	28.33
3.	Improved variety	32	13.33	140	58.33	68	28.33
4.	Seed treatment	50	20.83	136	56.67	54	22.50
5.	Seed rate	26	10.83	134	55.83	80	33.33
6.	Time of sowing	12	5.00	101	42.08	127	52.92
7.	Fertilizer application	43	17.92	1335	5.42	64	26.66
8.	Use of weedicides	112	49.67	100	41.67	28	11.16
9.	Irrigation application	26	10.83	142	59.17	72	30.00
10.	Major insect & their control	93	38.75	113	47.08	34	14.17
11.	Major diseases & their control	113	47.08	106	44.17	21	08.75

Table 3. Distribution of non-contact tribal farmers according to their extent of knowledge regarding selected practices of recommended rice production technology

S. No.	Selected practices	Extent of Knowledge					
		No (0)		Partial (1)		Complete (2)	
		No.	%	No.	%	No.	%
1.	Improved sowing method of rice	67	27.92	124	51.67	49	20.41
2.	Improved nursery	64	26.67	134	55.83	42	17.50
3.	Improved variety	48	20.00	133	55.42	59	24.58
4.	Seed treatment	119	49.58	105	43.75	16	06.67
5.	Seed rate	59	15.00	129	53.75	52	21.66
6.	Time of sowing	38	15.83	126	52.50	76	31.67
7.	Fertilizer application	56	23.33	130	54.17	54	22.50
8.	Use of weedicides	133	55.42	94	39.17	13	05.41
9.	Irrigation application	41	17.08	135	56.25	64	26.67
10.	Major insect & their control	114	47.50	105	43.75	21	08.75
11.	Major diseases & their control	127	52.92	98	40.83	15	06.25

In case of non-contact tribal farmers, none of the practice having higher percentage in complete knowledge category was observed. The practices of higher percentages in partial knowledge category were irrigation application (56.25%) followed by improved nursery (55.83%), improved variety (55.42%), fertilizer application (54.17%), seed rate (53.75%), time of sowing (52.50%) and improved sowing method of rice (51.67%). Similarly, the practices of higher percentage in no knowledge category were use of weedicides (55.42%) major diseases and their control (52.92%) and seed treatment (49.58%) and major insects and their control (47.50%) (Table 3). The percentage of contact tribal farmers under complete knowledge and partial knowledge categories was higher in comparison to non-contact tribal farmers (Table 2 and 3). Pandey (2002) reported almost similar findings regarding extent of knowledge.

3. Knowledge gap : The data presented in Table 4 reveals that overall knowledge gaps of the contact and non-contact tribal farmers in relation to the selected practices of recommended rice production technology were 47.99 percent and 57.67 per cent, respectively.

As reported by the contact tribal farmers, the major contributing practices for this gap were major diseases and their control (69.17%) followed by use of weedicides (67.50%), major insects and their control (62.29%) and seed treatment (49.17%). In case of non-contact tribal farmers, the major contributing practices for this gap were use of weedicides (75.00%) followed by major diseases and their control (73.33%), seed treatment (71.46%) and major insects and their control (69.37%).

That is why; knowledge gap of contact tribal farmers (47.99%) in relation to the selected practices of recommended rice production technology was low in comparison to non-contact tribal farmers (57.67%). Khan (1996) and Prakash et al. (2004) found more or less same finding as in the present investigation in relation to knowledge gap.

4. t-test : The data presented in Table 4 reveals that there was significant difference between the knowledge gaps of contact and non-contact tribal farmers regarding recommended rice production technology. The average knowledge gap among the non-contact tribal farmers (57.67%) was higher than the contact tribal farmers (47.99%). Various factors may influenced the knowledge gap of the respondents such as sources of information, contact with extension agents, exchange of information and attitude towards Recommended Modern Agricultural Technology (RMAT). The t-test proves that there was significant difference between the knowledge gaps of the contact tribal farmers and the non-contact tribal farmers.

Table 4. Knowledge gap of the respondents regarding selected practices of recommended rice production technology

S. No.	Selected practices	Contact tribal farmers				Non-contact tribal farmers			
		Max. obtained Score	Total knowledge Score	obtained knowledge gap (%)	Rank	Max. obtained Score	Total knowledge score	obtained Knowledge gap (%)	t-Rank value
1.	Improved sowing method of rice	480	276	42.50	VII	480	222	53.75	VI
2.	Improved nursery	480	269	43.96	VI	480	218	54.58	V
3.	Improved variety	480	276	42.50	VII	480	251	47.71	IX
4.	Seed treatment	480	244	49.17	IV	480	137	71.46	III
5.	Seed rate	480	294	38.75	IX	480	233	51.46	VII
6.	Time of sowing	480	355	26.04	X	480	278	42.08	XI
7.	Fertilizer application	480	261	45.62	V	480	238	50.42	VIII
8.	Use of weedicides	480	156	67.50	II	480	120	75.00	I
9.	Irrigation application	480	286	40.42	VIII	480	263	45.21	X
10.	Major insects & their control	480	181	62.29	III	480	147	69.37	IV
11.	Major diseases & their control	480	148	69.17	I	480	128	73.33	II

Over all knowledge gap 47.99 57.67 2.64*

* Significant at p = 0.05 ** Significant at p = 0.01

CONCLUSION

Most of the respondents had medium knowledge level of recommended rice production technology, moderate attitude towards Recommended Modern Agricultural Technology (RMAT), low to medium level of social participation, medium to low socio-economic status, utilized institutional sources for credit facilities, low level of extension contact with extension agents and medium level of exchange of information regarding recommended rice production technology.

The major contributing practices for knowledge gaps were major diseases and their control, use of weedicides, major insects and their control, seed treatment and improved nursery. Significant difference was investigated between the technological gaps of contact and non–contact tribal farmers.

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