

Knowledge level of paddy growers regarding improved practices of paddy cultivation in Raipur, Chhattisgarh, India

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This study was conducted in Raipur district of Chhattisgarh state in 2004/05. A sample of 160 respondents was considered. The study was undertaken to ascertain the knowledge level of recommended rice cultivation practices among farm women and farm men of IVLP (Institutional Village Linkage Programme) and non- IVLP villages. An operational measure for knowledge was developed by constructing a teacher-made knowledge test as suggested by Anastasi (1961). A significant difference was found between the knowledge level of male and female farmers in both types of villages. However, the mean knowledge value of IVLP farm women was more than non- IVLP farm women. This study clearly established that women farmers lagged behind with respect to their knowledge of rice farming technology. Intensive training programmes, group discussions, demonstrations, tours, field visits etc are some of the techniques suggested to increase their knowledge level.

Introduction

Rice cultivation is the main source of livelihood for rural populations living in developing countries. Achieving self-sufficiency in rice production and maintaining price stability are important objectives in low-income countries. To achieve this goal one important factor is to make farmers knowledgeable about improved rice farming techniques. Women and small farmers play an important role in both rice-production and post-harvest activities yet they often do not receive proportionate social and economic benefits when improvements in rice cultivation are initiated at the field level.

Evidence throughout the developing countries shows that women's farming knowledge and skill levels remain very low. Women agricultural workers occupy very low positions in the agrarian hierarchy. Key reasons are the lack of technical advice they receive on production and marketing, cultural

practices and skills related to training in farming technologies and socio-economic factors. No worthwhile change is possible without considering gender issues and without women and men accepting the change. To enable women to contribute fully to development in any field, whether at home or at work, it is imperative to first develop their potentiality by improving their knowledge, attitude and skill. So long as gender is an important indicator of economic, social and political roles, there will be a need for special policies targeted at rural women for education and training, technology transfer and credit.

METHODOLOGY

The study was conducted in Raipur district of Chhattisgarh. There was a requirement to select the villages based on the coverage of the IVLP by Indira Gandhi Agricultural University in order to know the influence of the programme on the knowledge.

Hence two blocks of the district in which the IVLP villages are located were selected. 160 respondents were selected randomly for the study, 80 from exposed villages and 80 from non-exposed villages. Out of 80 respondents, 40 were females and 40 males in both exposed and non-exposed villages. Female and male

respondents were drawn from different households. An operational measure for knowledge was developed by constructing a teacher-made knowledge test as suggested by Anastasi (1961). The test was based on the package of practices for rice cultivation recommended by Indira Gandhi Agriculture University, Raipur. Thirty-three items in the nursery and main field operations of paddy cultivation were selected from the package of practices after discussion with subject matter specialists and extension personnel of IGAU (Indira Gandhi Agriculture University)

Each practice was put in question form to obtain responses from respondents. The correct response was given a score of 'one' and incorrect responses 'zero'. The

total score for each respondent was computed by summing up the scores on all knowledge items. The maximum and minimum score obtainable for each respondent was 33 and zero, respectively. Based on the total scores obtained, the knowledge index was worked out as follows:

Knowledge index =

$$\frac{\text{No of correct responses}}{\text{Total no of knowledge items}} \times 100$$

Respondents were further categorized into three groups of knowledge level based on mean and SD.

Table 1. Knowledge level of men and women paddy growers regarding improved practices of paddy cultivation in IVLP and Non-IVLP villages.

N=160

Particulars	IVLP				Non-IVLP			
	Farmwomen		Farm men		Farmwomen		Farm men	
	No.	%	No.	%	No.	%	No.	%
Improved variety	36	90.00	37	92.50	30	75.00	36	90.00
Seed rate	35	87.50	38	95.00	20	50.00	38	95.00
Seed treatment	38	95.00	30	75.00	-	-	25	62.50
Time of sowing/nursery raising	34	85.00	39	97.50	25	62.50	39	97.50
Area required to raise the nursery for one acre	3	7.50	29	72.50	-	-	10	25.00
FYM application in nursery	2	5.00	31	77.50	-	-	25	62.50
Zinc sulphate for nursery	2	5.00	13	32.50	-	-	7	17.50
Spacing between rows in nursery	1	2.50	11	27.50	-	-	5	12.50
Application of ammonium sulphate/urea in one acre of nursery when plants turn yellow	6	15.00	27	67.50	1	2.50	15	37.50
Age of seedlings at the time of transplanting	36	90.00	40	100.00	30	75.00	40	100.00
Plant to plant distance in the main field	32	80.00	40	100.00	32	80.00	38	95.00
No. of plants/sq.meter in bushening	1	2.50	8	20.00	-	-	2	5.00
Application of nitrogenous fertilizer in split doses	28	70.00	39	97.50	12	30.00	36	90.00
Application of potash fertilizers as a basal dose in a single application	24	60.00	39	97.50	8	20.00	35	87.50
Water level to be maintained in the field	2	5.00	29	72.50	-	-	15	37.50
Increasing urea efficiency by adding neem/coal tar	5	12.50	38	95.00	1	2.50	18	45.00
Benefit of potash application	6	15.00	39	97.50	2	5.00	25	62.50
Application of nitrogenous fertilizer after pest control	2	2.50	35	87.50	-	-	15	37.50
Ill effects of regular use of granular fertilizer	30	75.00	36	90.00	1	2.50	20	50.00
Application of ZnSO ₄ or SSP atleast once in three years	3	7.50	25	62.50	1	2.50	10	25.00
Time of application of herbicides	3	7.50	30	75.00	1	2.50	20	50.00
Use of flat fan nozzle	1	2.50	24	60.00	-	-	3	7.50
Application of herbicide with urea or sand	11	27.50	37	92.50	2	5.00	16	40.00
Weeding interval	5	12.50	31	77.50	1	2.50	23	57.50
Controlling rat infestation	7	17.50	39	97.50	1	2.50	23	57.50
Knowledge about friendly insects	15	37.50	36	90.00	3	7.50	27	67.50
Use of light trap	4	10.00	25	62.50	-	-	1	2.50
After flowering application of pesticides/insecticides in the	3	7.50	29	72.50	1	2.50	15	37.50

evening instead of morning								
Application of pesticides/ insecti-cides in case of rain within three hours of spraying	28	70.00	40	100.00	5	12.50	30	75.00
Pest control	3	7.50	28	70.00	-	-	13	32.50
Disease control	2	5.00	30	75.00	-	-	15	37.50
Proper irrigation during tillering stage	18	45.00	39	97.50	10	25.00	31	77.50
Draining water from the field 10-15 days before harvesting	32	80.00	40	100.00	15	37.50	35	87.50

Results and discussion

A review of the results in Table 1 reveals that the knowledge of most female farmers in IVLP villages was high in practices like improved variety, seed rate, time of sowing, age of seedling, plant to plant distance, seed treatment, application of pesticides after rain and harvesting. This finding was in conformity with that of Basavaraja (1987), Deepali (1979), Singh and Roy (1993). Women were quite knowledgeable about seed management aspects because Indira Gandhi Agricultural University provided training in collaboration with IRRI. The women were trained regarding various aspects of seed management and therefore gained expertise. Farmwomen in IVLP villages were also found to have a high knowledge in certain non-seed management practices. Almost 80% of farmwomen had correct knowledge about plant-to-plant distance in the main field. Though they had not been taught about it they had learnt by experience that a distance of 15x15 or 15x10 cm from plant-to-plant yields good results and the same while transplanting. Most women knew about the application of nitrogenous fertilizers in split doses and potash as a basal dose in a single application. The farmers very commonly use nitrogenous and potash fertilizers. Farmwomen are not active participants in fertilizer application but they accompany their counterparts to the fields at the time of fertilizer application and are therefore knowledgeable about the procedure. Farmwomen have experienced the ill effects of regular use of granular fertilizers and therefore were aware of this fact. Moreover many of them are regular listeners of radio programmes pertaining to agriculture like 'Bhuyan kay Ghot', 'Kalyani' etc, which provide information regarding various agricultural aspects. Female farmers learnt the practice of draining water from the field from their ancestors. They believed that pesticides/fungicides get washed away by rain immediately after their application.

Therefore under such circumstances the application needs to be repeated.

The knowledge of farmwomen regarding pesticide/fungicide application, disease control, and weedicide application was low. These findings corroborate the findings of Sithalaxmi (1975), Deepali (1979), Biote and Thorat (1995), Balasubramaniam and knight (1997), Shinde *et al* (2000). For gaining knowledge regarding these operations farmwomen require assistance and training because the operations are quite complex. But unfortunately they could not get the proper assistance, resulting in low knowledge. Women participate in weeding but they do hand weeding only. Similarly when it comes to pesticide/fungicide application they help men in preparing the solution, cleaning and maintaining the equipment, but tasks like quantity of pesticides/fungicides to be applied or which pesticide/fungicide to apply, may be the responsibility of men.

In IVLP villages a number of training programmes pertaining to rice farming were conducted, but in almost all the trainings men were the main participants. Women were trained only in seed management. There were hardly any women who participated in any other training pertaining to rice farming apart from the above-mentioned one. Instead they were trained in *papad* making, *bijouri*, *souse* and other preparations. Women were also trained in mushroom cultivation. Consequently they were well versed in different techniques of mushroom cultivation. Farmwomen in these villages hardly leave any rice farming operation untouched, but were not trained except in seed management.

One of the main reasons for the low knowledge of farmwomen in rice farming may be that during the bench mark survey conducted by concerned people in IVLP,

information was not separated by gender especially information about rice farming. This may not be necessarily due to a deliberate decision to ignore women and overlook their role but may be due to common pitfalls. For example, the authorities have undervalued the women's work in rice farming and failed to distinguish between the different tasks, responsibilities and obligations of men and women in a household.

As far as men folk in IVLP villages are concerned, their knowledge was found to be quite high because they were trained rigorously in almost all rice farming operations. A number of trainings were conducted, where they were exposed to the modern techniques and methods of paddy cultivation. Verma *et al.* (1984) and Aski *et al.* (1997) lend support to the findings of the present study. Apart from this demonstration, field visits, tours and other such extension activities were organized and male farmers were made to attend these. Consequently the male farmers became more knowledgeable and much more experienced in various rice farming activities. The finding is in conformity with that of Manjunath (1980) and Tailor *et al.* (1998).

Table 1 deciphers the practices in which farmwomen had appropriate knowledge - time of sowing, seed rate, age of seedlings and plant-to-plant distance in the field. This finding is in conformity with that of Deepali (1979). Farmwomen were found

to have very poor knowledge regarding the majority of rice farming activities. They were not exposed to training programmes or to extension activities. They hardly got any opportunity to go out of the village. Farmwomen in non-IVLP villages faced more social restrictions, which was also one of the reasons for their poor knowledge. Unlike farmwomen in IVLP villages, these women were found to be less interested and enthusiastic about gaining knowledge about rice production technology. The women revealed that they felt shy and hesitant to talk to male village level workers.

Though very few men in these villages had participated in training or extension activities pertaining to rice farming, their knowledge was better than their counterparts. The reason may be that farmers in these villages had very good irrigation facilities, which is a pre-requisite for paddy cultivation. Therefore most of the farmers were quite enthusiastic and interested in knowing and learning about modern rice farming technology. So whenever they got the chance to attend any training programme or other extension activity, conducted by the Department of Agriculture, they participated actively. Male farmers also obtained information from village level workers, input dealers and from the farmers of neighbouring villages.

Table 2: Overall knowledge level of male and female paddy farmers with respect to improved practices of paddy cultivation in IVLP villages

N=80

Category of knowledge	Farmwomen		Farm men	
	No.	%	No.	%
Low	25	6.25	6	15.00
Medium	13	32.50	7	17.50
High	2	5.00	27	67.50

Table 2 showed that most farmwomen belonged to the category of low knowledge whereas most men belonged to the high knowledge category. This finding is supported by that of Chi *et al.* and Ogundele (2004). Poor knowledge of farmwomen may be because they received very little training pertaining to rice farming.

Table3: Overall knowledge level of male and female paddy farmers with respect to improved practices of paddy cultivation in Non-IVLP villages N=80

Category of knowledge	Farmwomen		Farm men	
	No.	%	No.	%
Low	35	87.50	20	50.00
Medium	5	12.50	15	37.50
High	-	-	5	12.50

In non-IVLP villages, as Table 3 indicated, the majority of male and female respondents had a very low knowledge of rice farming. None of the farmwomen was found to have high knowledge. Non-IVLP farmers because of less exposure to training and extension activities were found to have minimum knowledge about rice production technology. This finding is supported by Lalitha (1985), Mulay (1988) and Bordoloi (1997).

Table 4: Difference in knowledge level of male and female farmers in IVLP villages

N=80

Sl.No	Particulars	Knowledge level		't' value
		Farmwomen	Farm men	
1.	Mean	14.40	27.27	7.434**
2.	S.D	5.51	10.22	

** Significant at 1% level

Table 5: Difference in knowledge level of male and female paddy farmers in Non- IVLP villages

N=80

Sl.No	Particulars	Participation in rice farming activities		't' value
		<i>Farmwomen</i>	Farm men	
1.	Mean	1.42	2.52	3.10**
2.	S.D	0.59	0.75	

*Significant at 1 % level

In Table 4, there was a significant difference between the knowledge level of male and female farmers. The reason for the low knowledge of farmwomen was less exposure to training pertaining to rice farming. In some cases, farmwomen's busy schedule at home prevented them from participating in extension activities and that resulted in poor knowledge.

In Table 5, the difference in knowledge levels of male and female farmers in non-IVLP villages was significant. Both had poor access to training, extension activities and other sources that could improve their knowledge, yet male farmers managed to participate in extension activities conducted in nearby villages or acquired knowledge from village level workers, input dealers, etc. On the other hand farmwomen faced a number of hindrances resulting in poor knowledge regarding rice production technology.

CONCLUSIONS

There was a significant difference between the knowledge level of male and female farmers in both types of villages. Therefore, women farmers in these villages should be provided with opportunities to participate in extension activities. They should be trained in different rice farming techniques. Training programmes and other extension activities should also be conducted in non-IVLP villages.

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