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COMPARATIVE STUDY ON KNOWLEDGE LEVEL OF PARTICIPANT AND NON PARTICIPANT FARMERS OF FARMERS FIELD SCHOOLS

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ABSTRACT
The present study was conducted in Bangalore rural district of Karnataka to assess the knowledge level of participant (n=60) and non participant (n=60) farmers of Farmers Field Schools with the total sample size of 120 respondents. The results indicated that 58.4 per cent of maize growing participants had high level of knowledge where as 66.7 per cent of non participants possessed low level of knowledge. In case of finger millet 70.9 per cent of participants had high level of knowledge where as 62.5 per cent of non participants had low level of knowledge and a significant majority (75.0 %) of aerobic rice growing participants possessed high level of knowledge whereas 58.4 per cent of non participants had low level of knowledge. There exists a significant ($p<0.01$) difference in knowledge level between participants and non-participants in cultivation practices on Maize, Finger millets and Aerobic rice crops. It is also evident from the findings that the mean knowledge also established significant ($p<0.01$) variation between participants and non-participants.

KEYWORDS: Knowledge, Farmers field School, Maize, Finger Millet, Aerobic Rice and Dependency Ratio.

INTRODUCTION

Agriculture in India plays a major role in economic development. Besides technological advancement, extension plays a great role in agricultural development. Generally farmers have no direct linkage with advanced agricultural technology. Hence, there is need for education and extension efforts to modernize outlook of farmers to make them innovative, enterprising and willing to adopt readily changing technologies. The ICAR, Government of India established different organizations like Agricultural Technology Management Agency (ATMA), Agricultural Technology Information Centre (ATIC), Agricultural Research Information System (ARIS), Raitha Samparka Kendra (RSK) etc. But, all these are involved in the promotion of participatory multidisciplinary research where the need for empowerment of the farmers is significant. Serious proposals have been made to switch over to a more participatory extension approach. One such participatory extension approaches is Farmers Field School (FFS). The Farmers Field School (FFS) is a non-formal learner centered education process. It seeks to empower people to solve their field problems actively by fostering participation, interaction, dialogue, joint decision making, self confidence and self determination. Farmers learn by carrying out for themselves various activities related to selected farming technology and through constant observation of the technology performance in the field. It promotes healthy and quality discussions and decisions. The continuous learning occurs throughout crop season and facilitates farmer to farmer communication. Some of the special features of FFS are, all learning is field based and so it is the primary venue for learning, it is a group activity, with about 30 farmers and farm women who learn constantly during the crop period, learners (participants) work in small sub groups, collect data, analyze data and take decisions based on the results obtained, it promotes healthy discussions and quality decision making and learning continues until a crop season.

MATERIALS AND METHODS

The present investigation was carried out in Bangalore rural district of Karnataka state during 2011-12. Out of four taluks, one taluk that is Doddaballapur was purposively selected considering five villages for the study where highest number of FFSs was conducted during 2010-11. The coverage of FFS programmes based on all the three crops, namely Maize, Finger millet and Aerobic rice. List of FFS organized was collected from the Department of Agriculture. Overall 120 respondents (60 participants and 60 non participants) were selected for the study. Ex-post facto research design was employed for conducting the study. Considering the practices disseminated through FFS a knowledge questionnaire was developed. Totally 53 statements for Maize, 65 statements for Finger millet and 55 statements for Aerobic rice were formed. The knowledge test developed was administered to the respondents. Quantification of the knowledge statements were made by giving a score of ‘one’ and ‘zero’ to the correct and incorrect responses respectively. Data was collected by using a detailed interview schedule employing personal interview method. Family dependency ratio was worked out using the ratio between non working to the working member of the family expressed in percentage. The responses were scored, quantified, categorized and tabulated using percentage, mean, standard deviation, chi-square test and student t-test.

RESULTS AND DISCUSSION

Table 1 depicts the profile of participant and non participant farmers of FFS.

Nearly half of participants (48.3 %) and non participants (46.6 %) found in the 36-50 years age group followed by less than 36 and more than 50 years age groups in both type of farmers. In general, the farmers of middle age are enthusiastic, more work efficiency and more family responsibility. The result was in line with the findings of Mahatab Ali (2010) and Yavana Priya (2010). It was observed that 43.3 per cent and 45.0 per cent had high school level of education among participants and non participants respectively. However, 26.7 per cent of the participant and non participant farmers had PUC and above level of education. It is universal fact that education plays a key role in moulding and bringing desirable changes among human beings. As the majority of the farmers were educated, they were able to gather knowledge on recent technologies on cultivation practices. The findings are on line with the findings of Krishnamurthy (1999), Mahatab Ali (2010), and Gopala (2010). It could be seen that 65.0 per cent of the participants and 70.0 per cent of non participants were big farmers followed by small and medium farmers. The probable reason could be that the main occupation of almost 95 per cent of the respondents being agriculture. The findings are in conformity with the findings of Mahatab Ali (2010) and Gopala (2010).

Nearly half of the participants (43.4 %) and non participants (40.0 %) had medium family followed by small and big families.The present trend in the village is to have a medium family for agricultural operations towards decision making for better economic progress and quality life. The findings are on line with the findings of Mahatab Ali (2010). It was observed that most of the participants and non participants possessed low and medium family dependency ratio. However, the result established that 28.3 per cent of participants and 23.3 per cent of non participants had no family dependency ratio. The reason for low and medium family dependency ratio was the involvement of more number of family members in the agricultural operations and allied activities. The findings are on line with the findings of Chithra Nair (2011).

Table 1 Profile of Participant and Non Participant Farmers of Farmer Field Schools

(n=120)

Characteristics	Category	Participants (n=60)		Non participants (n=60)		χ^2 Test
		N	%	N	%	
Age (years)	Below 36	18	30.0	16	26.7	0.45 ^{NS}
	36-50	29	48.3	28	46.6	
	Above 50	13	21.7	16	26.7	
Educational level	Up to primary	9	15.0	3	5.0	4.11 ^{NS}
	Middle	9	15.0	14	23.3	
	High school	26	43.3	27	45.0	
	PUC & above	16	26.7	16	26.7	
Landholdings (acres)	Marginal (<2.5)	8	13.3	7	11.7	0.34 ^{NS}
	Small (2.5 – 5.0)	13	21.7	11	18.3	
	Big (>5.0)	39	65.0	42	70.0	
Family size (Members)	Small (Up to 5)	17	28.3	21	35.0	0.63 ^{NS}
	Medium (6-7)	26	43.4	24	40.0	
	Large (Above 7)	17	28.3	15	25.0	
Family Dependency Ratio (%)	No (0)	17	28.3	14	23.3	1.66 ^{NS}
	Low (below 26)	18	30.0	23	38.3	
	Medium (26-50)	17	28.3	13	21.70	
	High (Above 50)	8	13.4	10	16.70	

NS: Non-Significant, $\chi^2(0.05, 2df) = 5.991$, $\chi^2(0.05, 3df) = 7.815$

Table 2 revealed the overall knowledge level on cultivation practices of Maize, Finger millet and Aerobic rice among participant and non participant farmers.

Maize farmers

About 58.4 per cent of participants had high level of knowledge where as 66.7 per cent of non participants possessed low level of knowledge. There existed significant ($p<0.01$) difference between participants and non participants in their overall knowledge level in respect of cultivation practices of maize (fig 1).

Finger millet farmers

Seventy point nine per cent of participants had high level of knowledge where as 62.5 per cent of non participants had low level of knowledge. There existed significant ($p<0.01$) difference between participants and non participants in their overall knowledge level in respect of cultivation practices of finger millet (fig 2).

Aerobic Rice farmers

A significant majority (75.0 %) of participants possessed high level of knowledge whereas 58.4 per cent of non participants had low level of knowledge. There existed significant ($p<0.01$) difference between participants and non participants in their overall knowledge level in respect of cultivation practices of aerobic rice (fig 3).

The probable reasons for this trend is because the FFS participants were well trained in ICM practices during FFS sessions. FFS is being conducted for one complete season with weekly intervals. Further, the personal and

psychological traits of the FFS participants revealed that their education level was fairly good. This might have helped the respondents to gain high knowledge regarding ICM practices. The other contributing factors were the respondents were having 'high extension participation' 'high extension contact', 'high achievement motivation' 'cosmopolite' and 'highly innovative nature of the respondents'. The low knowledge level of non participants may be due to less exposure to new technology, lack of participation in training programmes, lack of participation in FFS and low extension contact when compared to participants. The findings are in agreement with findings of Krishnamurthy (1999) and Gopala (2010).

Table 2 Overall knowledge level of participant and non participant farmers of Farmers Field Schools

(n=120)

Crops	Category	Participants (n_1)		Non participants (n_2)		χ^2 Test
		N	%	N	%	
Maize	Low (<38.44)	2	8.3	16	66.7	
(n_1 = 24, n_2 = 24)	Medium (38.44-50.94)	8	33.3	6	25.0	20.17**
	High (>50.94)	14	58.4	2	8.3	
Finger millet	Low (<43.63)	2	8.3	15	62.5	
(n_1 = 24, n_2 = 24)	Medium (43.63-58.93)	5	20.8	7	29.2	22.12**
	High (>58.93)	17	70.9	2	8.3	
Aerobic rice	Low (<38.42)	1	8.3	7	58.4	
(n_1 = 12, n_2 = 12)	Medium (38.42-54.62)	2	16.7	4	33.3	11.57**
	High (>54.62)	9	75.0	1	8.3	

**Significant at 1% level, X^2 (0.01, 2df) = 9.210

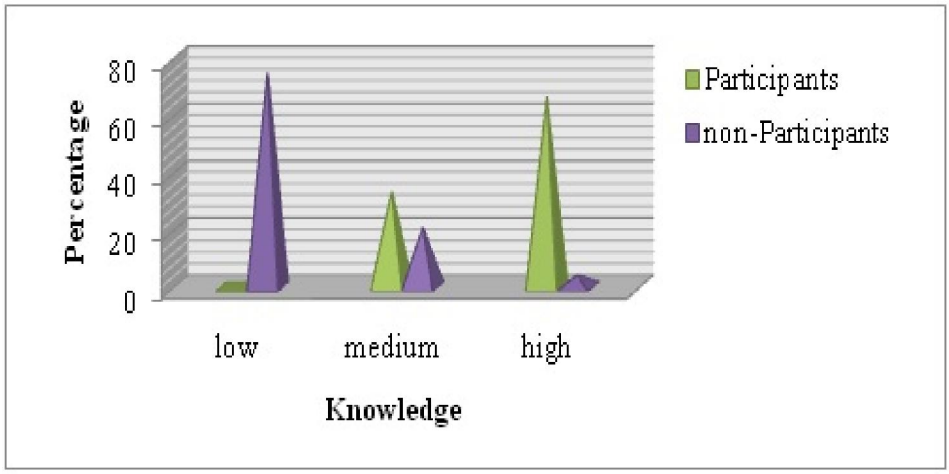

Fig 1 Overall knowledge level of Maize farmers

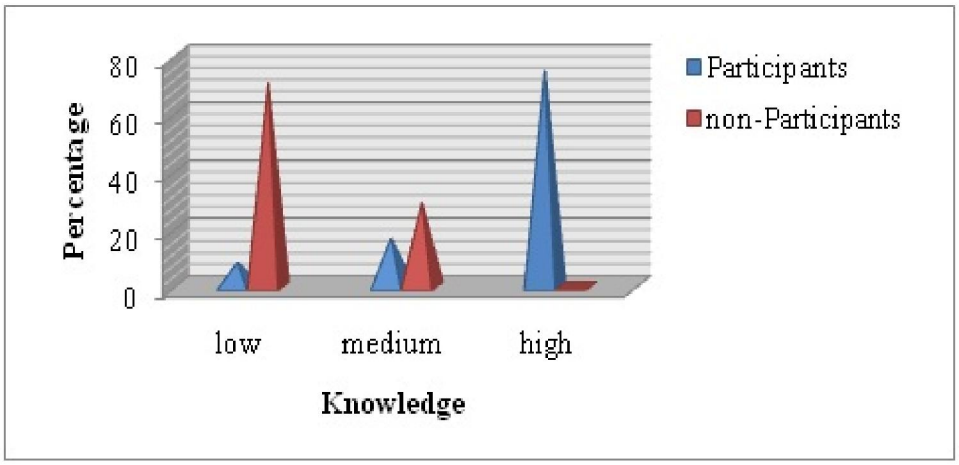

Fig 2 Overall knowledge level of Finger millet farmers

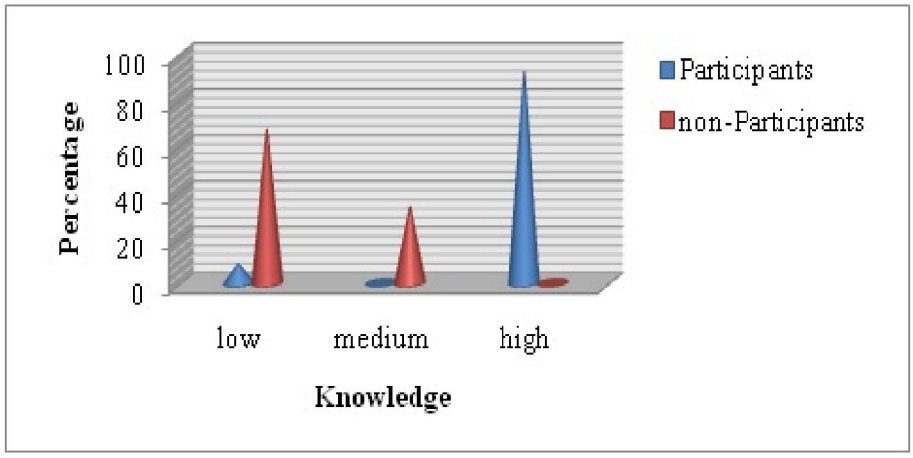

Fig 3 Overall knowledge level of Aerobic rice farmers

Table 3 revealed the overall mean knowledge scores of participant and non participant farmers. Regarding cultivation practices of maize the mean knowledge of the participants was found to be 54.56 per cent and 34.83 per cent among non-participants. The mean knowledge about cultivation practices of finger millet indicates that 63.65 per cent among participants and 38.91 per cent among non participants. The mean knowledge of aerobic rice participants was found to be 59.85 per cent as compared to 33.18 per cent of non participants on cultivation practices. There was a significant ($p<0.01$) difference in the overall mean knowledge of participants and non participants. FFS participants as compared to non participants had opportunities to understand growth and production pattern of the crops and also important aspects like Agro-Eco System Analysis (AESA). In AESA the participants observe plant height, plant health, insect pests, predators, soil condition etc. After field observation, they analyse the data and draw up their findings and recommendations on a piece of flip chart paper. Then present this to the larger group and after discussing each group's findings and recommendations a consensus is arrived at what action to take. Therefore, participants of the FFS had higher knowledge compared to non participants. The findings are in agreement with findings of Aski *et. al.*(1997).

Table 3 Overall mean knowledge scores of participant and non participant farmers

(n=120)

Crops	Mean knowledge score (%)				Student 't' Test
	Participants (n_1)		Non participants (n_2)		
	Mean	SD	Mean	SD	
Maize ($n_1 = 24$, $n_2 = 24$)	54.56	7.7	34.83	7.6	75.88**
Finger millet ($n_1 = 24$, $n_2 = 24$)	63.65	9.7	38.91	7.8	21.14**
Aerobic rice ($n_1 = 12$, $n_2 = 12$)	59.85	8.9	33.18	8.9	26.67**

**Significant at 1% Level, t (0.01, 46df) =2.576, t (0.01, 22df) =2.810

Table 4 indicate the aspect wise mean knowledge of participant and non participant farmers about maize, finger millet and aerobic rice cultivation practices. It is evident from the result that higher knowledge noticed on harvesting of maize among participants (95.8%) and non participants (75.0 %). Subsequently the knowledge observed in fertilizer (81.5% and 51.2%) and irrigation (79.2% and 64.6%) among participants and non participants on cultivation practices. However, the least knowledge noticed on pest and diseases both in participant and non participant farmers. Similar findings were noticed in finger millet and aerobic rice.

The knowledge on different aspects was found to be higher in case of participants due to FFS demonstration and greater emphasis on seed treatment and germination as compared to non participants who had less knowledge. Hence, they were able to understand these practices better apart. The possible reasons might be that in FFS sessions agro-ecosystem analysis was carried out in which the participants had to identify the beneficiary insects and the harmful insects by establishing insect zoo and high 'extension participation', 'innovativeness' of the respondents might be because of the demonstrations conducted to show the 'importance of IPM practices' during FFS sessions. During FFS session, utilization of locally available resource was given more stress and advocated to reduce application of chemical pesticides. Hence, extension participation might have contributed to gain appropriate knowledge. The findings are in agreement with findings of Yamini Verma and Rajendran (2007).

Table 4 Aspect wise mean knowledge about maize, finger millet and aerobic rice cultivation practices

(n=120)

Crops	Aspects	Response (%)	
		Participants (n_1)	Non participants (n_2)
Maize ($n_1 = 24$, $n_2 = 24$)	Seed and sowing	53.0	32.2
	Fertilizers	81.5	51.2
	Irrigation	79.2	64.6
	Pest and diseases	39.8	25.6
	Intercultural operations	59.4	34.4
	Integrated nutrient management	56.3	34.9
	Harvesting	95.8	75.0
	Overall	**54.6**	**34.8**
Finger millet ($n_1 = 24$, $n_2 = 24$)	Seed and sowing	61.7	36.7
	Nursery management	74.1	45.8
	Fertilizers	80.4	50.6
	Irrigation	81.3	60.4
	Pest and diseases	51.8	27.6
	Intercultural operations	63.4	43.1
	Integrated nutrient management	60.9	37.0
	Harvesting	87.5	66.7
	Overall	**63.7**	**38.9**
Aerobic rice ($n_1 = 12$, $n_2 = 12$)	Seed and sowing	66.0	37.8
	Fertilizers	79.8	57.1
	Irrigation	83.3	41.7
	Pest and diseases	49.2	20.4
	Intercultural operations	53.3	38.3
	Integrated nutrient management	57.3	28.1
	Harvesting	83.3	66.7
	Overall	**59.8**	**33.2**

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