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COMPARATIVE ANALYSIS OF KNOWLEDGE AND PRODUCTIVITY LEVELS OF THE PARTICIPANT AND NON PARTICIPANT FARMERS OF RICE FARMER FIELD SCHOOLS

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ABSTRACT

The present investigation was carried out in Nellore district of Andhra Pradesh state during 2014-15 to compare the knowledge and productivity levels of the participant and non participant farmers of rice FFS. A total of 150 respondents were selected for the study out of which 75 farmers were participant farmers of rice FFS and the other 75 were non participants. Independent sample‘t’ test and Chi square tests were carried out to compare the knowledge and productivity levels of the participant and non participant farmers of rice FFS. The Independent sample‘t’ test showed that there is significant (p value < 0.01) difference between participant and non participant farmers with regard to their knowledge and productivity levels. The results of Chi square test revealed that there is significant association (p value<0.05) between the ‘participation in FFS’ and the ‘levels of knowledge’, ‘productivity levels’ on recommended ICM practices.

KEYWORDS: Knowledge Level, Productivity Level, Integrated Crop Management, Farmer Field School

INTRODUCTION

Knowledge is one of the most important components of behavior and plays a major role in the covert and overt behavior of human beings. The knowledge acquired during the learning process can be used to build on existing knowledge enabling farmers to adapt their existing technologies so that they become more productive, more profitable and more responsive to changing conditions, or to adopt new technologies. India is an agricultural country but unluckily the potential per acre of various crops could not be exploited for many reasons including nutrient losses occurring, managing soil productivity and moisture conservation etc. Dealing with these challenges there is every need to plan for an effective programme that goes beyond dissemination of technologies among farmers. Further, helping them in organizing themselves for sharing production and protection technologies, marketing and advocacy in such a way that empowers themselves in making their soils productive and get higher yields.

The Farmer Field School (FFS) is one of the most effective extension approaches ever developed (*Dinpanah et al. 2010*) to provide knowledge about Integrated Crop Management (ICM) practices. It is described as a Platform and “School without walls” for improving decision making capacity of farming communities and stimulating local innovation for

sustainable and productive agriculture. It is a season-long, field oriented and discovery-based learning opportunity. It comprises a group of farmers who are facilitated by extension field staff in conducting various integrated crop management practices. It comprises a group of approximately 25 to 30 farmers who attend the field school weekly or fortnightly to learn through discoveries and simple experimentations. So far a limited research was done on FFS programme and also the Department of Agriculture organized more number of farmer field schools on rice in Nellore district, an attempt was made to compare the knowledge level of the participant and non participant farmers of rice FFS.

METERIAL AND METHODS

Nellore district of Andhra Pradesh was purposively selected as rice is extensively cultivated and also Farmer Field School on Integrated Crop Management (ICM) was being successfully implemented in this district. Out of 46 mandals of Nellore district, 3 mandals were purposively selected based on the highest number of FFS on rice were conducted. Two villages *i.e.* one FFS village and another non FFS village were selected randomly from each selected mandal thus making a total of six villages of which three were FFS and three non FFS villages. From each FFS and non FFS selected villages, 25 respondents were selected by using simple random sampling procedure, thus making a total of 150 respondents for the study of which 75 farmers were FFS rice farmers and the other 75 were non FFS rice farmers. Independent sample‘t’ test and Chi square tests were carried out to compare the knowledge and productivity levels of the participant and non participant farmers of rice FFS with regard to ICM practices.

RESULTS AND DISCUSSIONS

Overall Levels of Knowledge on Recommended ICM Practices by the Participant and Non Participant Farmers of Rice FFSs

In order to assess the overall knowledge levels on the recommended ICM practices by the participant and non participant rice farmers, necessary data were collected and the respondents were categorized into three groups viz., low, medium and high by using mean and standard deviation and the results were presented in Table 1.

A cursory look at the Table 1and Figure 1 revealed that 53.33 per cent of the participant farmers were having medium level of knowledge, followed by high (34.67%) and low (12.00%) knowledge levels. In case of non participant farmer’s majority (65.33%) of the respondents were having medium level of knowledge, followed by low (18.67%) and high (16.00%) knowledge levels.

Table 1: Distribution of Respondents According to Their Overall Level of Knowledge

S. No.	Category	Participant Farmers (n_1=75)		Non Participant Farmers (n_2=75)	
		Frequency	Percentage	Frequency	Percentage
1.	Low Knowledge level	9	12.00	14	18.67
2.	Medium Knowledge level	40	53.33	49	65.33
3.	High Knowledge level	26	34.67	12	16.00
Total		**75**	**100.00**	**75**	**100.00**
Mean		**37.87**		**22.80**	
SD		**1.20**		**4.16**	

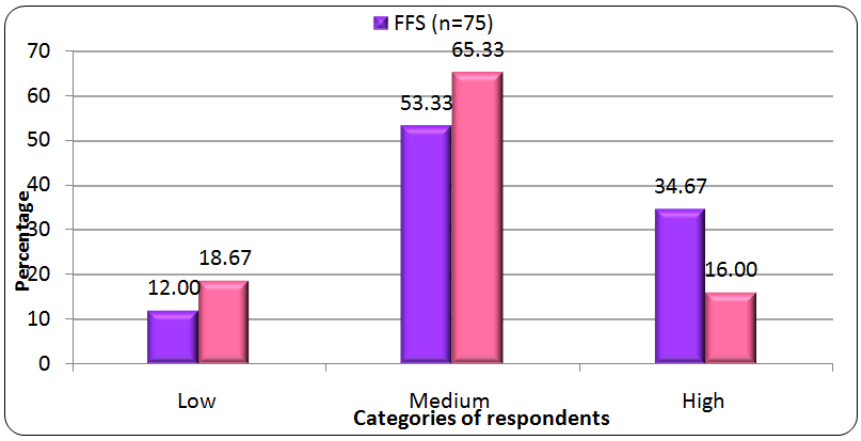

Figure 1: Distribution of Respondents According to Their Overall Level of Knowledge

From the above results it could be revealed that majority of the participant farmers belonged to 'medium to high' levels of knowledge. Whereas in case of non participant farmers majority belonged to 'medium to low' levels of knowledge.

The probable reason for this trend might be that FFS is being conducted for one complete season with weekly intervals. Hence, the participant farmers were well trained on ICM practices during FFS sessions. Further, the personal and psychological traits of the participant farmers revealed that their education level was fairly good. In FFS, farmers trained on rice ICM practices i.e. soil sample collection, seed germination test, seed treatment, Integrated Nutrient Management (INM), Integrated Pest Management (IPM), preparation of Neem Seed Kernal Extract (NSKE) and poison baits, water management, pests and diseases identification, identification of beneficial insects, defoliation experiments, farm machinery etc. through non formal education and also by conducting short and long term experiments in their own fields. This might have helped the respondents to gain high knowledge regarding ICM practices. Hence the above trend of medium to high level of knowledge possessed by the majority of the participant farmers of rice FFS than non participant farmers. This finding was in line with Krishnamurthy (1999), Obaiah (2004) and Gopala *et al.* (2010).

Difference in the Knowledge Levels of Participant and Non Participant Farmers

Independent sample 't' test was carried out to assess the significant difference between participant and non participant farmers with regard to their levels of knowledge on recommended ICM practices of rice.

Table 2: Difference in the Knowledge Levels of Participant and Non Participant Farmers

Dependent Variable	Type of Farmer	N	Mean	Std. Deviation	t value	P value
Knowledge	Participant farmers	75	37.87	1.201	30.121**	0.000
	Non participant farmers	75	22.80	4.162		

****: Significant at 0.01 level of probability**

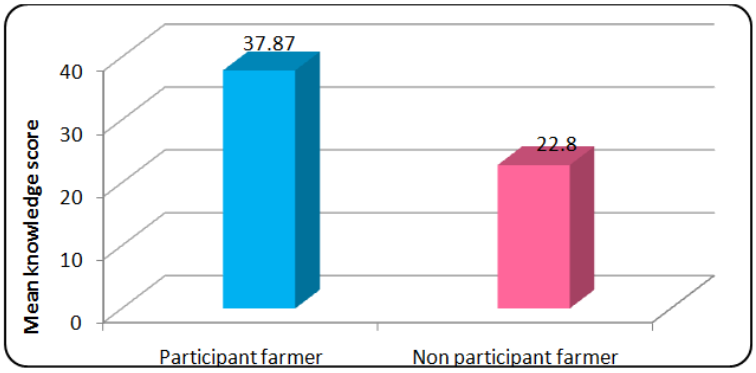

Figure 2: Difference in the Knowledge Levels of Participant and Non Participant Farmers

It is clear from the Table 2 and Figure 2 that, the average knowledge level of participant farmers was 37.87 with standard deviation 1.201 whereas the average knowledge level of non participant farmers was 22.80 with standard deviation 4.162 and the't' value was 30.121. The above results indicated that (p value < 0.01) there was significant mean difference between the participant and non participant farmers with regard to their levels of knowledge at 1% level. This might be due to the participation of farmers in weekly classes and orientation trainings during season long FFS programme organized by extension personnel of Department of Agriculture.

The overall picture related to knowledge of rice cultivation practices showed that FFS has proved its potential in enhancing the knowledge levels of participant farmers. Hence it is recommended that FFS approach should be encouraged as an extension tool for effective dissemination of technologies. This finding was supported by Santagovind (1992), Anusuya (1997), Kumar (l997) and Krishnamurthy (1999).

Association between 'Participation in FFS' and the 'Levels of Knowledge'

Chi square test was carried out to know the significant association between the knowledge level on recommended ICM practices and participation of farmers in FFS.

Table 3: Association between Participation in FFS and the Levels of Knowledge

Participation in FFS	Level of knowledge			Total	Chi – Square Value	P value
	Low	Medium	High			
Participant farmer	912.00%	4053.3%	2634.7%	75100.0%	7.155*	0.028
Non participant farmer	1418.7%	4965.3%	1216.0%	75100%		
Total	**2315.3%**	**8959.3%**	**3825.3%**	**150100.0%**		

***: Significant at 0.05 levels**

The figures mentioned in parenthesis indicate percentage.

It was evident from Table 3 that there was significant association between the knowledge level on recommended ICM practices and participation of farmers in FFS at 5 % level since p value (0.028<0.05) for the corresponding chi square value 7.155, which means that there is significant influence of 'participation in FFS' on 'levels of knowledge'.

Productivity Levels of the Participant and Non Participant Farmers of Rice FFSs

A perusal of Table 4 and Figure 3 revealed that 52.00 per cent of the participant farmers had medium level of productivity, followed by equal (24.00%) per cent of the farmers having low and high productivity levels. In case of non

participant farmers 44.00 per cent of the respondents had medium level of productivity, followed by low (42.7%) and high (13.30%) levels of productivity.

Table 4: Distribution of Respondents According to Their Productivity Levels

S. No.	Category	Participant Farmers(n_1=75)		Non Participant farmers (n_2=75)	
		Frequency	Percentage	Frequency	Percentage
1.	Low productivity	18	24.00	32	42.70
2.	Medium productivity	39	52.00	33	44.00
3.	High productivity	18	24.00	10	13.30
Total		**75**	**100.00**	**75**	**100.00**
Mean		**7680 (kg/ha)**		**6490 (kg/ha)**	
SD		**382.5**		**860**	

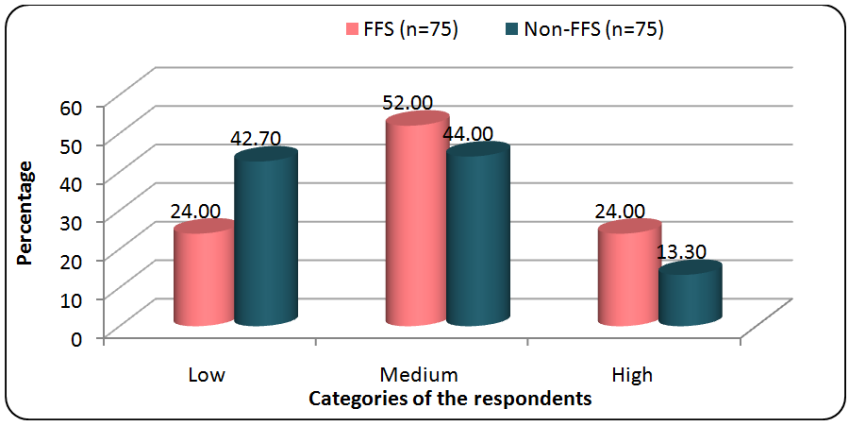

Figure 3: Distribution of Respondents According to Their Overall Level of Productivity

From the above results it is clear that FFS farmer's productivity levels of rice was higher than non participant farmers. FFS is one of the participatory approaches and besides a new science based technology that enables farming community to learn new topics of interest which certainly improves their knowledge and skills in tern resulting in higher yields. Improved yields might be due to the reason that most of the farmers successfully adopted the various cultivation practices like seed treatment, optimum time of sowing, selection of suitable and improved varieties, optimum seed rate, irrigation water management, summer ploughing, Integrated Nutrient Management (INM), weed management, Integrated Pest Management (IPM) etc. in their fields which they learnt during FFS programme. Adoption of these technologies might have enhanced the productivity of rice in case of participant farmers when compared to non participant farmers. Similar findings were reported by Yaminiverma and Rajendran (2007) Yeshwanth (2008) and Shabnam (2011).

Difference in Productivity Levels of Participant and Non Participant Farmers

Independent sample't' test was carried out to assess the significant mean difference between the participant and non participant farmers with regard to their productivity levels.

Table 5: Difference in Productivity Levels of Participant and Non Participant Farmers

Dependent variable	Type of farmer	N	Mean (Kg/ha)	Std. Deviation	t values	p values
Productivity	Participant Farmers	75	7680	382.5	10.944**	0.000
	Non participant farmers	75	6490	860.0		

****: Significant at 0.01 level of probability**

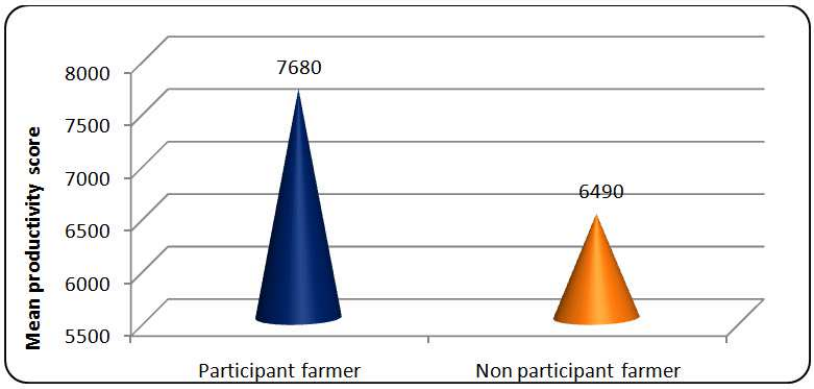

Figure 4: Difference in Productivity Levels of Participant and Non Participant Farmers

It is clear from the Table 5 and Figure 4 that the average productivity of participant farmers was 7680 Kg/ha with standard deviation 382.5 whereas the average productivity of non participant farmers was 6490 Kg/ha with standard deviation 860 and 't' value was 10.944. The above results indicated that (p value < 0.01) there was significant mean difference between the participant and non participant farmers with regard to their productivity levels at 1% level.

Association between 'Participation in FFS' and the 'Productivity Levels'

Chi square test was carried out to know the significant association between the productivity levels and participation of farmers in FFS.

Table 6: Association between Participation in FFS and the Productivity Levels

Type of Farmer	Productivity			Total	Chi – Square Value	p value
	Low	Medium	High			
Participant farmers	18(24.0)	39(52.0)	18(24.0)	75(100.0)	6.706*	0.035
Non participant farmer	32(42.7)	33(44.0)	10(13.3)	75(100.0)		
Total	**50(33.3)**	**72(48.0)**	**28(18.7)**	**150(100.0)**		

***: Significant at 0.05 level of probability**

The figures mentioned in parenthesis indicate percentage

It was evident from Table 6 that there was significant association between the productivity levels and participation of farmers in FFS at 5 % level since p value (0.035<0.05) for the corresponding chi square value 6.706, which means that there is significant influence of participation of farmers in FFS on productivity levels.

CONCLUSIONS

The department of agriculture has brought a positive change in the behavior and position of the farmers of the study area through FFS approach. It has increased the knowledge level of the rice farmers through FFS approach. The investigation showed that there is significant difference in knowledge levels of the participant and non participant farmers of rice FFS. It was concluded that FFS methodology is an effective extension tool to enhance farmer's knowledge related to Integrated Crop Management (ICM) practices in rice crop.

REFERENCES

1. Anasuya, A. 1997. Impact of Farmer Field School on farming community. Unpublished *M.Sc (Ag.) Thesis.* Tamil Nadu Agricultural University. Madurai.

2. Dinpanah, Gh., Mirdamadi, M., Badragheh, A., Masoud Sinaki and Aboeye, F. 2010. Analysis of effect of Farmer Field School approach on adoption of biological control on rice producer characteristics in Iran. *American-Eurasian Journal of Agricultural and Environmental Science.* 7(3): 247-254.

3. Gopala, Y.M., Raghuprasad, K.P., Krishnamurthy, B.K. 2010. Impact of farmer's participation in Farmer Field Schoos on adoption level of cultivation practices of maize Journal of extension education. 22(4).

4. Krishnamurthy, B. 1999. An Analysis of Impact of the Farmers Field School on Integrated Pest Management in Rice. *Ph.D. Thesis*. University of Agricultural Sciences, Bangalore.

5. Kumar, U.S. 1997. Farmers Field School - A medium to transmit know-how and do-how among rice farmers - An analysis. Unpublished *M.Sc. (Ag.) Thesis*. Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu., India.

6. Obaiah, M.C. 2004. A Study on Capacity Building of Rice growing farmers of Farmers Field School in Krishna-Godavari Zone of Andhra Pradesh. *Ph.D Thesis.* Acharya N G Ranga Agricultural University, Hyderabad.

7. Santagovind. (1992). Integrated pest management in rice Achievements and opportunities, Unpublished *M.Sc.(Ag.) Thesis*. Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu. India.