



FACTORS INFLUENCING THE KNOWLEDGE LEVEL OF THE PARTICIPANT AND NON PARTICIPANT FARMERS OF RICE FFSs ON RECOMMENDED ICM PRACTICES

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ABSTRACT

The present investigation was carried out in Nellore district of Andhra Pradesh state during 2014-15 to study the level of knowledge and factors influencing the level of knowledge of the participant and non participant FFS rice farmers. 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. The results of the study 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%) levels. Whereas in case of non participant farmers majority (65.33%) of the respondents were having medium level of knowledge, followed by low (18.67%) and high (16.00%) levels. The profile characteristics viz., education, social participation, mass media exposure, extension contact, innovativeness, scientific orientation, achievement motivation and management orientation were found to be positively significant with the level of knowledge of participant and non participants. Further, all the selected 12 independent variables put together explained about 86.10 per cent variation in the knowledge level of the participant farmers of rice FFSs and whereas in case of non participant farmers it was found 59.30 per cent.

KEY WORDS: Knowledge level, Integrated crop management, Farmer Field School

INTRODUCTION

Farmer field school (FFS) is described as a Platform and “School without walls” for improving decision making capacity of farming communities and stimulating local innovation for sustainable agriculture. It is a participatory approach to extension, whereby farmers are given opportunity to make a choice in the methods of production through discovery based approach. The continuous learning occur throughout the crop season and facilitates farmer to farmer communication. The special feature of FFS is field based learning and acts as a primary venue of learning for farmers. The Farmer Field Schools are oriented to provide basic agro ecological knowledge and skills in a participatory manner so that farmers experience is integrated in the programme. For the success of any programme, there should be a periodical appraisal and evaluation of what is being done, so that suitable changes can be made for effective functioning. 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 study the impact of FFS programme in terms

of knowledge gained by the participant and non participant farmers of rice FFSs during the year 2014-15.

MATERIAL 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 successfully implemented in this district. Out of 46 mandals of Nellore district, 3 mandals were purposively selected based on the highest number of FFSs 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.

RESULTS AND DISCUSSION

Knowledge is an indispensable criterion for the adoption of any innovation, as it enables the farmers to

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understand completely and clearly the recommended ICM practices. The rate of adoption of an innovation is directly linked with level of knowledge of the respondents. Hence, it was felt necessary to know the knowledge level of the farmers on recommended ICM practices.

Overall level of knowledge on recommended ICM practices by the participant and non participant farmers of rice FFSs

In order to assess the overall knowledge level on the recommended ICM practices by the participant and non participant rice farmers, 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 glance at the Table 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%) levels of knowledge. In case of non participant farmers majority (65.33%) of the respondents were having medium level of knowledge, followed by low (18.67%) and high (16.00%) levels 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. 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 Kernel 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), Obaijah (2004) and Gopala *et al.* (2010).

Relationship between the selected profile characteristics and the level of knowledge of the participant and non participant farmers of rice FFSs

In order to study the nature of relationship between the selected profile characteristics with the level of knowledge on recommended ICM practices by the participant and non participant farmers of rice FFSs, correlation co-efficients (r) were computed and the values were presented in Table 2. The relationship between the selected profile characteristics and the level of knowledge on recommended ICM practices by the participant and non participant farmers of rice FFSs were tested by null hypothesis and empirical hypothesis.

Null Hypothesis (H_0)

There will be no significant relationship between the selected profile characteristics and the level of knowledge on recommended ICM practices by the participant and non participant farmers of rice FFSs.

Table 1. Distribution of respondents according to their overall level of Knowledge

S. No.	Category	Participant farmers (n=75)		Non participant farmers (n=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

Empirical hypothesis (H₁)

There will be a significant relationship between the selected profile characteristics and the level of knowledge on recommended ICM practices by the participant and non participant farmers of rice FFSs.

Age Vs level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r = 0.076, -0.209$) between age and knowledge of the respondents was less than the table value of 'r' at 0.05 level of significance. Hence, null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was a non significant relationship between age and knowledge of the participant farmers of rice FFSs whereas non significant relationship also existed between age and knowledge of the non participant farmers of rice FFSs.

The probable reason for the above trend might be that variation in knowledge had no influence on the age level of the respondents. The possible reason might be due to the fact that irrespective of age of the respondent, the grasping of practical information on FFS rice in the field situation was dependent on individual's personnel interest. This finding was in agreement with Naik (2009).

Education Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r = 0.623, 0.547$) between education and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between education and knowledge of the participant and non participant farmers of rice FFSs.

The probable reason for this trend might be that education widens horizons of the individuals. Educated farmers with more information seeking habits had better access to farm information sources such as farm magazines, books on agriculture possess better capacity to grasp things, analyze and interpret them in proper way. Educated people have more exposure to extension agencies, scientists and research stations which also contribute to their increased knowledge. This finding was in line with the finding of Ramu (2005).

Land holding Vs Extent of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r = 0.042, -0.143$) between land holding and knowledge of the respondents was less than the table value of 'r' at 0.05 level of significance. Hence, null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was a non significant relationship between land holding and knowledge of the participant farmers of rice FFS whereas non significant relationship existed between land holding and knowledge of the non participant farmers of rice FFS. The finding was in tune with Naik (2009).

Farming experience Vs Extent of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r = 0.057, -0.195$) between farming experience and knowledge of the respondents was less than the table value of 'r' at 0.05 level of significance. Hence, null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was a non significant relationship between farming experience and knowledge of the participant farmers of rice FFS whereas non significant relationship existed between farming experience and knowledge of the non participant farmers of rice FFSs.

The probable reason might be that irrespective of the farming experience, participation in FFS might have contributed to gain more confidence and increased knowledge about new and innovative technologies involved in rice cultivation. This finding of the study was in agreement with the findings of Gattu (2001) and Naik (2009).

Social participation Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r = 0.439, 0.337$) between social participation and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between social participation and knowledge of the participant and non participant farmers of rice FFSs.

The possible reason might be that increased social participation of farmers provides more chances of getting exposed to different sources and ideas related to agriculture. Further the social participation provided better

opportunity to have interpersonal interactions which will help in easy adoption of ICM practices and also develop knowledge level. This finding of the study was in agreement with the findings of Ashok (2012).

Mass media exposure Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r=0.456, 0.452$) between mass media exposure and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between mass media exposure and knowledge of the participant and non participant farmers of rice FFSs.

The result supports the general view that high mass media exposure enhances the knowledge of the farmers on several aspects of ICM practices. At present radio, television, newspaper, agricultural magazines, agricultural exhibitions, mobile technologies, internet and other mass media channels were considered to be the accelerators for diffusion of agriculture innovations. Farmers who keep in touch with mass media are likely to have better knowledge on the ICM practices. Hence, the above relationship was observed. This finding of the study was in agreement with the findings of Sreenivasulu (2011).

Extension contact Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r=0.610, 0.570$) between extension contact and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between extension contact and knowledge of the participant and non participant farmers of rice FFSs.

This might be due to the fact that extension personnel are the best and reliable sources of information. Contact with extension agencies can gain more knowledge about the ICM practices in rice cultivation. Hence the above trend was noticed. This finding of the study was in agreement with the findings of Obaiah (2004).

Innovativeness Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r=0.801, 0.449$) between innovativeness and

knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between innovativeness and knowledge of the participant and non participant farmers of rice FFSs.

This might be due to the fact that an individual having high innovativeness desires to seek changes in farming and introduces the same in his own field situations. FFS influences the aspiration of participant farmers to acquire more knowledge on innovations directly from agricultural experts and agricultural officers. This finding was in line with the findings of Sreenivasulu (2011).

Scientific orientation Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r=0.759, 0.465$) between scientific orientation and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between scientific orientation and knowledge of the participant and non participant farmers of rice FFSs.

This might be due to the fact that as the scientific orientation increases the knowledge gain of the farmers about ICM practices of FFS also increases. This is quite common since higher level of knowledge generally enhances scientific and analytical ability of farmers towards any issue more so with the knowledge of ICM practices of rice FFS. Hence, the above relationship was observed. This finding of the study was in agreement with the findings of Ramu (2005).

Achievement motivation Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r=0.578, 0.322$) between achievement motivation and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between achievement motivation and knowledge of the participant and non participant farmers of rice FFSs.

The probable reason for this might be that achievement motivation enables the individual to work

Table 2. Correlation coefficients between selected profile characteristics and the level of knowledge on recommended ICM practices by the participant and non participant farmers of rice FFSs

S. No.	Variables	Participant farmers (n=75)	Non participant farmers (n=75)
		Correlation co-efficients ('r' values)	Correlation co-efficients ('r' values)
X ₁	Age	0.076 ^{NS}	-0.209 ^{NS}
X ₂	Education	0.623**	0.547**
X ₃	Land holding	0.042 ^{NS}	-0.143 ^{NS}
X ₄	Farming experience	0.057 ^{NS}	-0.195 ^{NS}
X ₅	Social participation	0.439**	0.337**
X ₆	Mass media exposure	0.456**	0.452**
X ₇	Extension contact	0.610**	0.570**
X ₈	Innovativeness	0.801**	0.449**
X ₉	Scientific orientation	0.759**	0.465**
X ₁₀	Achievement motivation	0.578**	0.322**
X ₁₁	Management orientation	0.751**	0.415**
X ₁₂	Economic orientation	0.450**	0.215 ^{NS}

* : Significant at 0.05 level of probability

** : Significant at 0.01 level of probability

^{NS} : Non-significant

constantly towards attaining the goal of obtaining higher yields. This forces the individuals to acquire more knowledge on ICM practices of rice FFSs. This finding was in line with the findings of Ashok (2012) and Obaiah (2004).

Management orientation Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r = 0.751, 0.415$) between management orientation and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between management orientation and knowledge of the participant and non participant farmers of rice FFS.

Management orientation is concerned with how well the farmer can organize and utilize factors of planning, production and marketing in his farm to yield more profits. The emphasis of FFSs is on empowering farmers to implement their quality decisions in their own fields based on a more scientific understanding of the agro-ecosystem thus developing their capability to be better managers of their farming systems. So the farmers who had high management orientation will acquire more knowledge

about farm technologies. Hence the above relationship was observed. This finding was in line with the findings of Ramu (2005) Obaiah (2004).

Economic orientation Vs Level of Knowledge

From the Table 2, it is evident that co-efficient of correlation ($r = 0.450$) between economic orientation and knowledge of the respondents was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and non significant relationship between economic orientation and knowledge of the participant farmers of rice FFSs. In case of non participant farmers co-efficient of correlation ($r = 0.215$) between economic orientation and knowledge of the respondents was less than the table value of 'r' at 0.05 level of significance. Hence, null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was a non significant relationship between economic orientation and knowledge of the non participant farmers of rice FFS.

Through FFS, farmers learn and investigate for themselves, the costs and benefits of alternative management practices for sustaining and enhancing farm

Table 3. Multiple Linear Regression analysis of the selected independent variables with the level of knowledge on ICM practices by the participant and non participant farmers of rice FFSs

S. No.	Variables	Participant farmers (n=75)				Non participant farmers (n=75)			
		Std. error	'b' values	't' values	'P' values	Std. error	'b' values	't' values	'P' values
X ₁	Age	0.008	0.008	0.999 ^{NS}	0.322	0.164	-0.208	-1.268 ^{NS}	0.210
X ₂	Education	0.058	0.030	0.507 ^{NS}	0.614	0.258	0.501	1.941*	0.057
X ₃	Land holding	0.017	-0.003	0.203 ^{NS}	0.840	0.202	-0.103	0.510 ^{NS}	0.612
X ₄	Farming experience	0.008	0.001	0.106 ^{NS}	0.916	0.139	0.195	1.410 ^{NS}	0.163
X ₅	Social participation	0.035	0.039	1.127 ^{NS}	0.264	0.246	0.173	0.704 ^{NS}	0.484
X ₆	Mass media exposure	0.040	-0.026	0.651 ^{NS}	0.518	0.157	0.288	1.832 ^{NS}	0.072
X ₇	Extension contact	0.041	0.014	0.337 ^{NS}	0.737	0.128	0.341	2.666**	0.010
X ₈	Innovativeness	0.034	0.154	4.502**	0.000	0.111	0.129	1.162 ^{NS}	0.250
X ₉	Scientific orientation	0.041	0.120	2.960**	0.004	0.172	0.258	1.496 ^{NS}	0.140
X ₁₀	Achievement motivation	0.031	-0.004	0.142 ^{NS}	0.887	0.100	0.021	0.208 ^{NS}	0.836
X ₁₁	Management orientation	0.050	0.135	2.719**	0.004	0.060	0.101	1.671 ^{NS}	0.100
X ₁₂	Economic orientation	0.034	-0.007	0.212 ^{NS}	0.833	0.125	0.157	1.258 ^{NS}	0.213

R² = 0.593

R² = 0.861

* : Significant at 5% level of probability

** : Significant at 1% level of probability

^{NS} : Non significant

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productivity. The farmers who were having more economic orientation had more enthusiasm to acquire more knowledge related to rice cultivation from different sources of information. Hence the above result was observed. This finding was in line with the finding of Obaiah (2004).

Further, in order to study the combined effect of all the independent variables in explaining variation in knowledge level on recommended ICM practices by the participant and non participant farmers of rice FFS, Multiple Linear Regression (MLR) analysis was carried out. The computed co-efficient of determination (R^2) value and partial regression co-efficient (b) values with their corresponding 't' values were presented in Table 3. The R^2 and 'b' values were tested statistically for their significance.

The ' R^2 ' value of 0.861 which depicted that all the selected twelve independent variables put together explained about 86.10 per cent variation in the knowledge of participant farmers of rice FFSs.

The partial regression coefficients presented in Table 3 further revealed that the independent variables viz., innovativeness, scientific orientation and management orientation were found positively significant as evident from their significant 't' values. This implied that innovativeness, scientific orientation and management orientation have contributed to most of the variation in the knowledge level of participant farmers of rice FFSs.

The ' R^2 ' value of 0.593 which depicted that all the selected twelve independent variables put together explained about 59.30 per cent variation in the knowledge of the non participant farmers of rice FFSs.

The partial regression coefficients presented in Table 3 further revealed that the independent variables viz., education and extension contact were found positively significant as evident from their significant 't' values. This implied that education and extension contact have contributed to most of the variation in the knowledge level of the non participant farmers of rice FFSs.

CONCLUSION

The results of the study showed that there is significant difference in the knowledge levels of FFS participant farmers and non participant farmers with respect to ICM practices in rice. The farmer field school being a non formal education and learner centered educational process has technically empowered the rice

growers in increasing their knowledge level on improved cultivation practices. It is therefore concluded that the farmer field school extension approach could be used as a means for disseminating agricultural technologies.

REFERENCES

- Ashok, K.G. 2012. Knowledge and adoption of System of Rice Intensification (SRI) technology among farmers in Nagapattinam district of Tamil Nadu. *M.Sc.(Ag.) Thesis*. Acharya N G Ranga Agricultural University, Hyderabad.
- Gattu, K.C. 2001. Production Constraints of Turmeric Cultivation in Karimnagar District of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N G Ranga Agricultural University, Hyderabad.
- Gopala, Y.M., Raghuprasad, K.P., Krishnamurthy, B.K. 2010. Impact of farmer's participation in Farmer Field Schools on adoption level of cultivation practices of maize Journal of extension education. 22(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.
- Naik, N.Ch.B. 2009. Impact of farmers field schools in Krishna district of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N G Ranga Agricultural University, Hyderabad.
- 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.
- Ramu, A.G. 2005. Knowledge and adoption of Turmeric farmers in Kadapa district of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N G Ranga Agricultural University, Hyderabad.
- Shabnam, M.A. 2011. Impact of Farmers Field School (FFS) on Cotton crop management practices in Dharwad District. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Dharwad.
- Sreenivasulu, M. 2011. Empowerment of farmers through Farmer Field School in Andhra Pradesh. *Ph.D Thesis*. Acharya N G Ranga Agricultural University, Hyderabad.