Role of Farmer Field School in Application of IPM in Thi-Qar Province of Southern Iraq

Hakeem S. Abd[1], Dipak De[2] and Basavaprabhu Jirli[3]

1. Ph. D Scholar, 2. Prof., 3. Asso. Prof., Deptt. of Extension Education, IASc., BHU, Varanasi, India.

Corresponding author e-mail: hakeem.abd24@gmail.com

ABSTRACT

The present study was conducted in Thi-Qar province of southern Iraq where farmers are adopting the IPM practices in Polly plastic house. Population in the study was 450. Multistage simple random sampling technique was followed to draw a sample of 90 farmers (20% of the total number of farmers). The personal interview with Polly plastic house owners was adopted to collect data. The data was collected during October 2012 to November 2012. The study revealed that the highest per centage (42.22%) belonged to medium adoption category of application of IPM in Polly plastic house. Among IPM practice (73.80%) respondents adopted belonged to the biological control processes. The relationship of the independent variables with application level of farmers' waspositive and significant at one per cent level of probability with nine variables. Multiple regression analysis was carried out with eleven variables namely age, social class, Occupation, Education, Size of land holding, Farm power, Family size, Family type, number of Polly plastic installed and Source of information utilized. The study contributed that the ten variables at significant level of variation to the extent of application level of farmers the FFS on IPM in Polly plastic (R^2=71.90). The farmers were satisfied about FFS on IPM in Polly plastic house.

Key words: *Impact; Application; Farmer Field School; Integrated Pest Management; Polly plastic house;*

Knowledge is an important factor to enhance productivity in agriculture in developing countries. The generation and diffusion of knowledge on sustainable farming practices has long been a problem in promoting rural development especially in under developed countries. A new concept of farmer training called the "Farmer Field School" (FFS) was developed in the 1980s by the Food and Agriculture Organization (FAO) in Indonesia for the promotion of integrated pest management (*Pontius, 2002*). The primary objective of the FFS was growing a "healthy crop" and the experiential learning approach, a cornerstone of FFS, was adhered to in covering additional topics including pest and disease identification, agro-ecological interactions, and implementing participatory field trials. The field school syllabus was modified to focus on the demonstration and dissemination of crop specific IPM strategies. The expected outcomes were to be increased knowledge of IPM, adoption of crop specific IPM strategies, and the diffusion of knowledge and practices via farmer-to-farmer communication. Groups of 20-25 farmers were asked to attend one session per week over the length of an entire growing season of 16 weeks. Each FFS was facilitated by an extension worker who had attended a training-of-trainers workshop *Amujal, et al (2004)*. FFS uses discovery-based learning; farmers find out for themselves the principles of IPM through observation and simple experiments (*Davis, 2006*).Integrated pest management (IPM) is an approach which first assesses the pest situation, evaluates the merits of pest management options and then implements a system of complementary management actions within a defined area. The goal of IPM is to mitigate pest damage while protecting human health, the environment and economic viability. Integrated Pest Management is a dynamic system that is adaptable to diverse management approaches. Pest management decisions are made by the individual producer, business entity or government agency but are influenced by the diversity of public and private values (*Ciborowski, 2012*). Biological control represents one alternative to the use of insecticides .Biological control is the conscious use of living beneficial organisms, called natural enemies, for the control of pests, virtually all

pests have natural enemies, and many pests can be effectively controlled by managing these natural enemies .The study focuses on impact of FFS on knowledge regarding IPM and the theoretical link between increased knowledge on the adoption of IPM strategies. Previous researches in the diffusion of agricultural innovations assert that awareness and knowledge of a new technology is a necessary first step in the adoption, decision-making process (*Rogers,1995*). In order to reduce the overuse of fertilizer and toxic substances which is may influence to human health. Hence, the method of farmer field schools approach was used to apply IPM in Polly plastic house for increasing the knowledge level of farmer's in southern provinces of Iraq. The study was conducted with the following objectives:

1. To study the application level the farmer field school on IPM in Polly plastic of Thi-Qar province of southern Iraq.
2. To study relationship between the independent variables and the impact of farmer field school on IPM in Polly plastic.
3. Extent of satisfaction of farmers about farmer field school on IPM.

METHODOLOGY

The present study was carried out in Thi-Qar province in southern Iraq. Where IPM technology was adopted to replace chemical control in Polly plastic house. The total number of farmers who adopted IPM in Polly plastic house in year 2012 was 450. The respondents sample of the study for the purpose of data collection was 90.The sample was selected on the basis of a simple random sampling (20%). The data was collected through personal interview method. The schedule was built to measure the application of farmer field school on IPM. The number of questions was 20.The questions were divided into four groups *viz;*(i) biological control (ii) agricultural control methods (iii) mechanical control (iv) chemical control. The schedule was pre-tested in the non sampling area. The statistical methods *viz;* mean, standard deviation, correlation and multiple regression analysis were employed to arrive at conclusion. With the help of review of literature and discussion with extension specialists a list of statements were prepared to analyze satisfaction level of respondents regarding IPM. Each statement was measured with three point continuum and based on the response the data was presented.

RESULTS AND DISCUSSION

To study the application level of farmer field school on IPM in Polly plastic of Thi-Qar province of southern Iraq: The application level of farmer field school on IPM has been classified into three categories (low, medium and high). It is clear from Table-1that the majority of the beneficiaries were having medium level (42.22%), followed by Low level (31.11%) and remaining beneficiaries were high level (26.67%) of adoption of IPM in Polly plastic house.

Table 1. Distribution of farmers as per their level of adoption of IPM

Category	No.	%	mean	SD
Low	28	31.11	13.511	2.67
Medium	38	42.22		
High	24	26.67		
Total	90	100		

The above Table 1 explains distribution of farmers who adopted IPM practice in Polly plastic house. It can be noticed from the data the level of adoption of IPM in Polly plastic house is prospective, it can be concluded that farmers proffered use of IPM in Polly plastic. Although the approach of FF Sin Polly plastic was adopted in the recent past, the value of crop productivity per acre from farmer's participation in an FFS increased about 70 per cent.

The elements of IPM processes in farmer filed school in Polly plastic house were enlisted as viz; (i) biological control (ii) agricultural control methods (iii) mechanical control (iv) chemical control. The data has been presented in the Table 2. The results have revealedthat the biological control had been adopted by (73.80%) respondents, followed by agricultural control methods processes (71.77%) respondents, mechanical control (66.11%) respondents and chemical control processes (58.06%) respondents.

Table 2. Distribution of farmers based on adoption of IPM processes in Polly plastic

Processes	%
biological control processes	73.80
agricultural control methods processes	71.77
mechanical control processes	66.11
chemical control process	58.06

It is evident from the Table 2 that, majority (73.8%) of farmers adopted biological control processes, may be their previous experience might have added to their adoption. Similarly agricultural control methods were next in order. Since the remaining two processes needs money and training, farmers must be looking for technical inputs. Similar outcomes have been reported by *Dinpanah, et. al. (2010), Tripp et. al (2005), Mancini, et. al (2006)* were found significant difference in knowledge between two groups of rice producers about the application the biological control in rice frames.

To study relationship between the independent variables and the impact of farmer field school on IPM in Polly plastic: An effort was made to analyze relationship between the FFS on IPM and independent variables for adoption. As shown in Table 3, then invariables studied were found to be significantly related with level of farmers the FFS on IPM in Polly plastic house application IPM in Polly plastic.

Table 3. Relationship among the selected socio- personal variables and the application level of IPM by farmers

Characteristics	"r" value	"t" value
Age	0.1768*	1.696
Social class	0.3792**	3.865
Occupation	0.323**	3.218
Education	0.2446**	2.382
Size of land holding	0.1831*	1.757
Farm power	0.333**	3.161
Family size	0.188*	1.807
Family types	0.272**	2.716
No.of Polly plastic installed	0.0162^{NS}	-9.418
Social participation	-0.081^{NS}	-0.766
Sources of information utilization	0.277**	2.719

*significant at 0.05 level of probability
** significant at 0.01 level of probability NS= non significant.

It is evident from the Table 3, only nine variables were found to be significantly related with application level of IPM practice in Polly plastic .According to the results Table 3, it can be concluded the younger farmers were more likely to participate in FFS than older farmers. And some operation needed to increase education level; also other socio-personal variables were that influencing in adopting the FFS in IPM on Polly plastic to application IPM in Polly plastic house. Interestingly the variables; number of poly plastics installed and social participation were negatively and non significantly associated with adoption of IPM practices in poly plastic house.

Table 4. Multiple regression analysis of independent variables with application level of farmers the FFs in IPM.

Characteristics	"b" value	Std. error	" t"value
Age	0.024725108	0.095037	0.260162^{NS}
Social class	0.367850692	0.010063	36.55458^{**}
Occupation	0.081999219	0.012495	6.562358^{**}
Education	0.37724633	0.018257	20.6631^{**}
Land holding	0.326086957	0.010723	30.41008^{**}
Farm power	0.901639344	0.065743	13.71461^{**}
Family size	0.327510917	0.008355	39.19928^{**}
Family types	1.481481481	0.045738	32.39052^{**}
No of Polly plastic	-0.925833748	0.005534	-167.312^{NS}
Social participation	0.089193382	0.010859	8.214089^{**}
Sources of inform.	0.089285714	0.012395	7.203387^{**}

*significant at 0.05 level of probability ** significant at 0.01 level of probability Ns= non significant R^2=0.719 F value= 5.87 ** d.f (11, 90), Interceptconstant (a) = 21.47

Multiple regressions: To predict important independent variables contributing for adoption of IPM practices in poly plastic house, the technique of multiple regressions was used. The technique was used to determine the effect of the selected variables independent on the dependent variable namely the application level of IPM

Table 5. Distribution of farmers according the satisfaction about FFS in IPM on Polly plastic

Statements of satisfaction	Fully satisfied		Just satisfied		Some extent		Not satisfied		Total
	No.	%	No.	%	No.	%	No.	%	
Towards knowledge &skill gain	40	44.44	15	16.67	17	18.89	18	20	90
Toward utility of the training	26	28.89	23	25.56	25	27.78	16	13.33	90
Toward content and methods	20	22.22	22	24.44	30	33.33	18	20	90
Toward specialist staff to clarify the transfer of modern agricultural techniques	12	13.33	49	54.44	10	11.11	19	21.11	90
Toward the possibilities of physical and human resources responsible for guiding the implementation of extension program	22	24.44	14	15.56	18	20	36	40	90

in Polly plastic house. Only nine independent variables were fitted with application level of farmers in the multiple regression equation. The findings have been incorporated in Table 4.

It is evident from the Table 4 that out of eleven independent variables taken together nine variables explained the variation in application of IPM to the extent of 71.90 per cent. The respective "F" value (significant at 1 per cent level) at (11, 90) degrees of freedom given in parenthesis was 5.87. Thus, the results implied that only nine independent variables would account for highly significant amount of variation in application level of farmers. The coefficients of regression (b-value) are only nine variables are found to be significant with application level of farmers.

Extent of satisfaction of the farmers about farmer field school on IPM : An effort was made to find out the extent of satisfaction of farmers about farmer field school on IPM in Polly plastic house. The results were presented according to four tests (Fully satisfied, just satisfied, satisfied only to some extent and not satisfied).

The above Table 5, depict that (44.44%), of the respondents were fully satisfied with their knowledge and skill gain from application of FFS on IPM in Polly plastic.A high majority (54.44%) of respondent expressed that they were just satisfied towards the specialist staff to clarify of modern agricultural techniques by FFS. A high percentage (40%) of respondents felt that they were not satisfied towards the possibilities of physical and human resources responsible for guiding the implementation of extension program. The moderate percentage was (33.33%) of respondents expressed that they were Satisfied only to some extent towards content and methods. Thus it may be concluded from the above table that a very high majority (44.44%) of respondents felt that they were fully satisfied towards their knowledge and skill gain from FFS on IPM in Polly plastic house. Because the farmers always seeks more information about growing vegetable crops in the Polly plastic house.

CONCLUSION

The results of the study showed that largest per centage of the farmers (42.22%) arein the medium level of application IPM. The relationship between the independent variables and application level of FFS on IPM in Polly plastic revealed that only nine were positively and significantly related. The multiple regression analysis explained the variation to the extent (71.90%) with the IPM application level. Those nine independent variables can be considered as important to predict the level of application of the respondents. The results also depicted the extent of satisfaction of farmers about FFS on IPM in Polly plastic house. The highest percentage was (54.44%) with just satisfied after and less percentage was (33.33%) with satisfied only to some extent.

Paper received on : February 03, 2015
Accepted on : March 10, 2015

REFERENCES

Amujal, M.(2004). Assessing the influence of farmer field schools on adoption of integrated pest management technologies by cowpea farmers in Eastern Uganda. Unpublished M.Sc. Thesis. Makerere University, Kampala, Uganda.

Ciborowski, J. (2012). Definition of Integrated Pest Management. http://www.mda.state.mn.us/plants/pestmanagement/ipm

Davis, K. (2006). Farmer field schools: A boom or bust for extension in Africa? *J. of Intl. Agril. and Ext. Edu.*, **13**(1), 91-97.

Dinpanah, G. Mirdamadi, M. Badragheh A. Sinaki J,M, and Aboeye, F. (2010). Analysis of effect of farmer field school approach on adoption of biological control on rice producer' producer' characteristics in Iran, *American-Eurasian J. Agric. & Environ. Sci.*, **7** (3): 247-254.

Mancini, F., Bruggen, Van. and Jiggins J. (2006). Evaluating cotton integrated pest farmer field schools outcomes using sustainable livelihoods approach in India, Cambridge University Press. *Agric.*, **43**: 97-112.

Pontius, J., Dilts, R. and Bartlett, A. (2002). Ten years of IPM training in Asia - from Farmer Field School to community IPM – Bangkok, FAO, pp.1-110

Rogers, E. (1995). Diffusion of Innovation. New York: Free Press.

Tripp, R.,Wijertne, M. and Piyadasa, V.H. (2005). What should we expect from Farmer Field Schools? A Sri Lanka case study. *World Development*, **33**(10):1705–1720**.**

• • • • •