

## **FARMER FIELD SCHOOL AND INTERACTION OF EXTENSION PERSONNEL WITH FARMERS, AN ANALYSIS OF DISTRICT CHARSADDA**

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### **ABSTRACT**

The present study analyzed the interaction of extension personnel/facilitators with farmers and adoption ratio of Farmer Field School approach regarding bitter gourd crop in 10 villages of district Charsadda. The respondents were selected randomly from each village on the basis of 60% of FFS members thus, the size of 150. Both primary and secondary data were collected from farmers and department of agricultural extension respectively. Structured interview schedule was developed and each farmer was interviewed personally. The study was based on comparison before and after FFS. Result of the study showed that agricultural extension department has brought a positive change in the attitude of farmers through FFS approach. About 69% of the respondents were between the ages of 31-50 years, Majority 77% of respondents was literate. It is concluded that empirical activities of FFS approach is not only beneficial and useful but enhanced the agricultural productivity. Interaction of extension agents with farmers, increased awareness and propagated new technologies which resultantly improved the socio-economic conditions of farmers. The study recommends that extension department should extend developmental activities through participatory FFS approach. Trainings, seminars and refresher courses should be arranged for both FFS facilitators and farmers.

**Key Words:** Farmer field school, extension personnel, adoption ratio and district Charsadda

## INTRODUCTION

Extension methods are some of the substantial method for treating the modern results of research in agriculture, techniques to improve agriculture manufacturing in particular and uplift the rural population in general (FAO, 2000). These techniques are used by extension personnel for bringing about desirable changes in the behavior of farmers to accumulate the best learning situations and to generate a situation in which interaction and communication can take place between extension personnel and farmers (FAO, 2000). Extension techniques are effective means of communication to offer skills and knowledge, so that farmers can see, hear, and do the things communicated by extension personnel (FAO, 2000). In addition, extension techniques arouse mature youth men and women for action (FAO, 2000).

Extension approach refers to the principle for an organization, which informs, stimulates and guides structure, programs, strategies, resources, mission, vision, leadership, and linkages (FAO, 2000). Extension approach influences the choice of the target audience, resources and its allocation, methodologies employed, and results and impact of the extension efforts (FAO, 2000). Extension approaches are the basic planning philosophy adopted by an agricultural extension organization to help extensionists understand the fundamental, concept and functional methods of extension to fulfill its aims, especially in the planning phase, (FAO, 2000).

A Farmer Field School (FFS) is a season-long training activity that occurs in the field covering all the altered developing stages of the crops and their relevant management/control practices. The training procedure is always learner-centered, participatory and relying on an experiential studying technique. The first farmer field school was established in 1989 in Central Java during the pilot phase of the FAO-assisted National IPM Program (FAO, 2000).

Over the years, the FFS approach has successfully been tailored from a mono crop rice production program in Southeast Asia to the complex and diverse smallholder agriculture approach in Africa. FFS provides experience based learning which combines the domains of ecology and non-formal education and learning to give farmers the opportunity to comprehend about their crops and to learn from each other (FAO, 2000). Learning objectives of FFS are; i) cultivate healthy crops, ii) observe field regularly iii) conserve natural enemies of pests, iv) farmers understand ecology and become experts in their own field. The FFS based IPM technique was institutionalized

in Pakistan in 2001(PHP, 2001). The FFS is a non-formal training program for chosen farmers within a local area, usually a village. The FFS technique was designed initially as a way to introduce knowledge and information on IPM to irrigated rice farmers in Asia, particularly in the Indonesia and Philippines (Quizon *et al.*, 2001).

FFS addresses the weaknesses in agriculture research and extension linkages and low rating of farmers' knowledge (Onduru *et al.*, 2002). FFS is found to be important to enable farmers to comprehend the concepts and techniques of INM, which is a vital aspect of a long-term strategy of sustainable agricultural productivity (Ban and Samanta, 2006). The application of FFS approach to INM is meant to improve farmers' analytical and experimental abilities in finding sustainable solutions to the soil fertility problems (Elias, 2012). In order to attain sustainability and productivity goals, it is necessary to motivate self-discovery actions to develop technologies that suited to local conditions by farmers to deal with agricultural production problems,

## **MATERIALS AND METHODS**

The study was conducted in district Charsadda. The area was selected due to the establishment of FFS by Agricultural Extension Department. The district is administratively subdivided into two tehsils which contain 46 union councils and more than 150 villages. The FFS covered 26 villages in tehsil Charsadda; it was not possible to entertain all the villages. Therefore, on the basis of equal allocation, 10 FFS villages were purposively selected. A list of FFS participants was obtained from FFS villages. From each FFS on the basis of equal allocation 15 farmers were selected randomly. Total number of respondents was 150. The research was based on primary data as well as secondary data. Primary data were collected from farmers and secondary data was obtained from Agricultural Extension Department District Charsadda. A pre-tested interview schedule was prepared to assemble complete and correct information. Each respondent was personally interviewed. During the interview, purpose of the study was also explained to the respondents.

The study focused at the interaction of extension personnel and farmers before and after FFS. The collected data were analyzed using Statistical Package for Social Sciences (SPSS) version 16 and presented frequency distribution and cross tabulation.

### **Age of the respondents**

Age is an imperative factor, which determines the response of a person during various activities in life as rational discussion making process etc. Different research findings show that creativity and adoptability are positively correlated with age. In other words, younger the person, rapid will be his adoptability and responsiveness to any activity, particularly, in communication and understanding (Jensen, 1982; Basant, 1988; Tsur *et al.*, 1990). Age plays a vital role in adoption of any innovation adoption and diffusion of invention are positively correlated with age (Braun, 2000). Data in Table 1 reveal that farmers of the study area were categorized into four age groups i.e. 21-30 years, 31-40 years, 41-50 years and above 51 years. It was found that there were only 32 respondents in first age group, 61 respondents were in second group and became the major group of respondents, the third age group contained second majority that is 42 respondents 15 respondents were have above 51 years of age.

**Table: 1** Age wise distribution of the respondents

Age group	Frequency	Percentage
21-30	32	21
31-40	61	41
41-50	42	20
Above 50	15	10
<b>Total</b>	<b>150</b>	<b>100</b>

Source: Field survey

### Education level of the respondents

Education plays an important role in human resource development. New knowledge and skill is acquired through education and habits of people are transferred from one group to another. Human performance is affected by education. Educated people have more favorable attitude towards agricultural skills, knowledge and information as against uneducated ones (Hassan, 1991). Data regarding educational level are presented in Table 2.

Farmer's educational level was categorized into six different groups. First group of the farmers were illiterate, second group was primary having education up to 5<sup>th</sup> class, the third was middle having 6-8 years of education, the fourth was Matric having 10 years of schooling, the fifth was intermediate having 12 years of education and the last one was graduate.

The data presented in Table 2 shows that out of the total 150 sample respondents, 34 (22.7 %) were illiterate. The farmers who had the primary level of education were 37 (24.7 %), up to middle were 23 (15.3 %) while (26.7 %) respondents had educational level up to Matric in district Charsadda. There were 9 (6.0 %) respondents who were intermediate, while 7 (4.7 %) respondents were graduates in district Charsadda. It is evident from Table 2 that majority had education up to matric.

**Table: 2** Distribution of the respondents regarding their literacy level

Literacy Level	Frequency	Percentage
Illiterate	34	22.7
Primary	37	24.7
Middle	23	15.5
SSC	40	26.7
HSSC	9	6.0
Graduate	7	4.7
<b>Total</b>	<b>150</b>	<b>100</b>

Source: Field survey

### Acquaintance with extension personnel

Behavior affects the personality of any person and plays a vital role in dissemination of information (Ali, 1991). Extension worker provides training and information to farmers to get better productivity and improve quality of crops. Extension agent helps farmers to adopt improved inputs and techniques to get profitable markets, enhance agricultural productivity to increase household income and ultimately improve the quality of (Robertson, 2013).

Table 3 shows that all the FFS participants of district Charsadda knew the extension personnel/facilitator through different sources. A total of 116 respondents told that they know the extension personnel and met them in field, 14 respondents met extension personnel in their office, 12 in village and 8 made a phone call in district Charsadda.

**Table: 3** Respondents acquaintance with extension personnel before FFS

Venue	Frequency	Percentage
In field	116	77.3
In office	14	9.3
Village	12	8.0
Phone	8	5.3

Source: Field survey

### Farmer's visit to extension personnel office

Farmers visit the extension personnel office to gain new knowledge and information relating to farmers problems such as fungal attack, root rot, blight, aphids and white fly etc. The visits signify the interest of farmers and their confidence in agricultural extension personnel. The greater the confidence in agricultural personnel, the more frequent visits will be paid by the farmers (Abbas *et al.*, 2008, Akhtar, 1990). Table 5 shows that 92 FFS respondents have visited the office of extension personnel/facilitator, while 58 did not pay any visit in district Charsadda. Out of 92 respondents, 16 visited the office weekly, 38 respondents visited monthly and 37 yearly.

Overall analysis of data in Table 4 shows that 61 % of the respondents visited the extension personnel office while 39 % did not pay any visit. Out of 58 respondents, who did not visit the office, 2 showed no interest, 18 were busy and have no time to visit the office, 30 respondents told that they do not require visiting but solved their problems by them. These results are in conformity with Pervaiz (2009).

**Table: 4** Respondents visit frequency and reasons for not visiting local extension personnel office

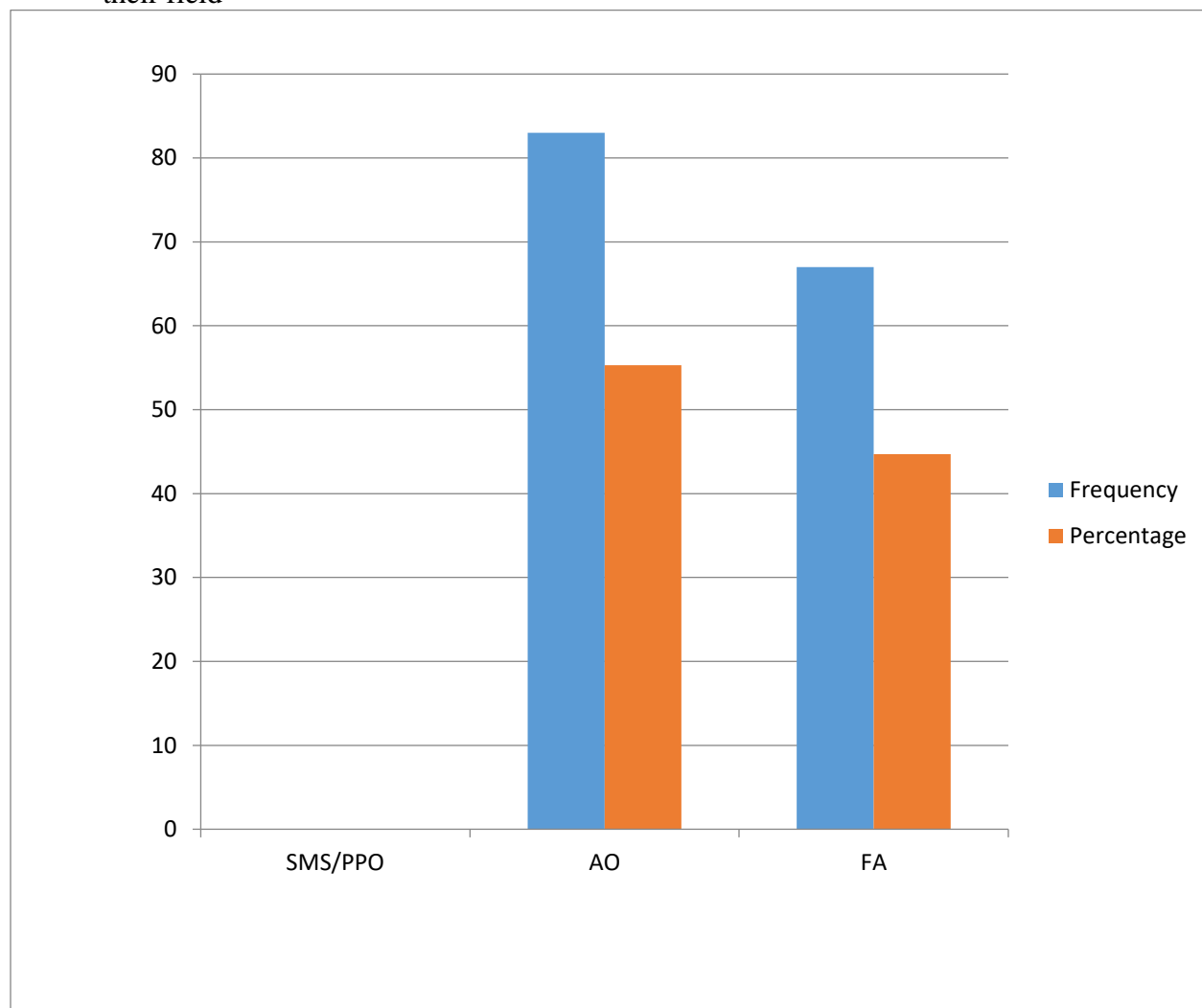
<b>Response of Respondents</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	92	61
No	58	39
<b>If yes then frequency</b>		
Daily	1	0.7
Weekly	16	10.7
Monthly	38	25.3
Yearly	37	24.7
<b>If no, reasons</b>		
No interest	2	1.3
Have no time	18	12.0
Not required	30	20.0
Others	8	5.3

Source: Field survey

**Extension personnel's field visit**

The main reason of extension worker visit to the farming community is to help educate the farmers regarding their problems and its solution. Table 7 indicates that the extension personnel such as agriculture officer (AO) and field assistant (FA) regularly visited the farmers in their fields. Data regarding the visit of extension personnel showed that in district Charsadda 83 respondents reported that agriculture officer visited his field while 67 respondents reported that field assistant visited their fields.

**Figure: 1** Distribution of respondents regarding extension personnel visit to their field



Source: Field survey

### Frequency of extension personnel field visit before and after FFS

Farmer field school (FFS) facilitator play an important role in the smooth running of FFS by having close contact with FFS registered farmers and understanding of their living standard. It is also important for each FFS facilitator to develop a close cordial relation with FFS member farmers for the effective dissemination of agricultural information to the farmers (Siddiqui, 2003). The extension personnel visited the farmer's fields at different intervals in area under his jurisdiction. Data regarding the visit of extension personnel are given in Table 5, which indicates that 59 respondents were weekly visited by the extension personnel, 67 reported monthly visits and 24 stated yearly visits by the extension personnel. All the respondents answered that the



extension personnel visited their demonstration field regularly on weekly bases after the establishment of FFS for the agro eco-system analysis (AESAs).

The data in Table 5 clearly indicates that before FFS activities majority of the respondents stated that they were visited monthly by extension personnel; followed by weekly and yearly visits. However, all the respondents reported that they were visited weekly by extension personnel after FFS.

**Table: 5** Distribution of respondents regarding extension personnel visit to farmer's fields

Visit Frequency	Before FFS		After FFS	
	Frequency	%	Frequency	%
Daily	0	0.00	0	0.00
Weekly	59	39.3	150	100
Monthly	67	44.7	0	0.00
Yearly	24	16.0	0	0.00

Source: Field survey

### Source of knowledge/information about FFS

Agricultural research organizations and extension department are close institutional partners in technology generation and transfer. In developing countries a lot of problems are tackled by agricultural research organization (Oram & Bindlish, 1984; Idachaba, 1987). Both organizations face a lot of problems, but lack of coordination and weak linkages between extension and research are main technology transfer constraints in many countries (Kaimowitz *et al.*, 1990; Eponou, 1993). For the diffusion and adoption of innovation or new technologies information play an important role. Table 6 shows that the main source of information about FFS was extension personnel and fellow farmers in district Charsadda. The majority i.e 104 respondents knew about FFS from extension personnel and 46 from fellow farmers.

**Table: 6** Distribution of respondents regarding source of information about FFS

Source of information	Frequency	Percentage
Agricultural extension personnel	104	69.3
Agricultural research staff	0	0.00
Mass media	0	0.00
Fellow farmers	46	30.7

Source: Field survey

**Extension methods used for information dissemination before FFS**

The main function of extension is information dissemination (Orr, 2003) in a manner to facilitates it's utilization by farmers. A large variety of methods are used to deliver information but the main concern is which method is suitable for the particular situation. Agricultural extension affects the organization, shape, and content of activities (Moris, 1991) that focus on bringing change. The main concern is how information can best be disseminated to intended populations.

In agricultural extension there are three methods used for the dissemination of information to farmer's community i.e. individual method, group method and mass method. In Table 7 the data indicate that there were two methods used for the dissemination of information, individual and group methods. In district Charsadda, 29 farmers reported individual method while 121 mentioned use of group method for the dissemination of information.

Thus, it can be concluded that group method is frequently used and also effective in disseminating information to the farmers in the study area.

**Table: 7** Extension methods used by respondents for information dissemination before FFS

Extension method used	Frequency	Percentage
Individual method	29	19.3
Group method	121	80.7
Mass method	0	0.00

Source: Field survey

### Extension approach used by extension personnel other than FFS

Extension approaches are the basic planning philosophy that is being adopted by an agricultural extension organization. This helps extensionists to understand the fundamentals, concepts and functional methods of extension adopted to fulfill its aims, especially in the planning phase.

Many extension approaches in the past have been introduced like village AID, IRDP, T&V, PSEA, PEA and CSEA, conventional and participatory etc; some of these approaches were implemented in the field through farmer field school. Table 8 shows that in district Charsadda 54 farmers responded that conventional approach was used other than FFS and 96 farmers responded that participatory technology development and dissemination approach was used.

**Table: 8** Other extension approaches used by extension personnel

Extension approach	Frequency	Percentage
Training and Visit	0	0.00
Conventional	54	36
Participatory technology development and dissemination	96	64

Source: Field survey

### Venue of contact with field assistants and agriculture officers before FFS

The prerequisite condition for appropriate communication was accessibility of suitable place. Usual place of contact used were farm, home/Hujra, mosque and office as presented in Table 9. Data regarding the venue of contact show that majority respondents(79) were contacted at their farm, followed by 39 respondents in the office, 18 at home/Hujra and only 14 were contacted in Mosque in district Charsadda.

**Table: 9** Venue of contact with field assistants and agriculture officers before FFS

Venue	Frequency	Percentage
Farm	79	52.7
Home/Hujra	18	12
Mosque	14	9.3
Office	39	26

Source: Field survey

### **Activities being implemented by Extension personnel in FFS**

Agricultural extension workers offer many and different types of services to farmers by using a range of strategies to encourage farmers to adopt and implement agricultural innovations (Oladosu and Okunade, 2006).

Nowadays all agricultural operations need technical skills and information, and without the use of technology agriculture cannot be developed (Pervaiz, 2009). The respondents of district Charsadda responded positively regarding activities and services provided and implemented by extension personnel. The farmers of the study area reported that activities knowledge regarding about modern agriculture practices like proper land management, crop rotation, cropping pattern and land preparation were arranged. Use of improved technology such as quality seed, fertilizers and its proper use and time, understanding of plant protection measures such as biological, chemical, mechanical and cultural practices. Identification of useful and harmful insects and management of pests and diseases, insect rearing and their life cycle and know how to manage insect pests and diseases easily and how the cost of insecticides and pesticides decreases and also awareness about marketing. In this regard the proper method of picking, grading and packing was learned in farmer field school and the groups of farmers were established to perform activities in a group form.

### **Effectiveness of present extension services and farmer field school activities**

The Farmer Field School under different agro-ecosystems is extremely valuable and attracted all the participants to whom these techniques are transferred. As the number of participants increases, attention focus is put on FFSs in particular and on extension in general. Now a days, more and more attention is on that best fit the local circumstances and situations and to provide sensible and smart solutions instead of blanketing areas with a one size fits all extension practice (Birner *et al.*, 2006 and Davis, 2006). The FFS program has proven itself to be effective and fruitful in different conditions and situations.

Table 10 shows that the present extension services and farmer field schools were effective in district Charsadda as 120 respondents stated the level of effectiveness as high while 30 respondents reported medium level of effectiveness.

**Table: 10** Respondents perception regarding effectiveness of present extension services and farmer field school activities

Level of effectiveness	Frequency	Percentage
High	120	80.0
Medium	30	20.0
Lower	0	0.00

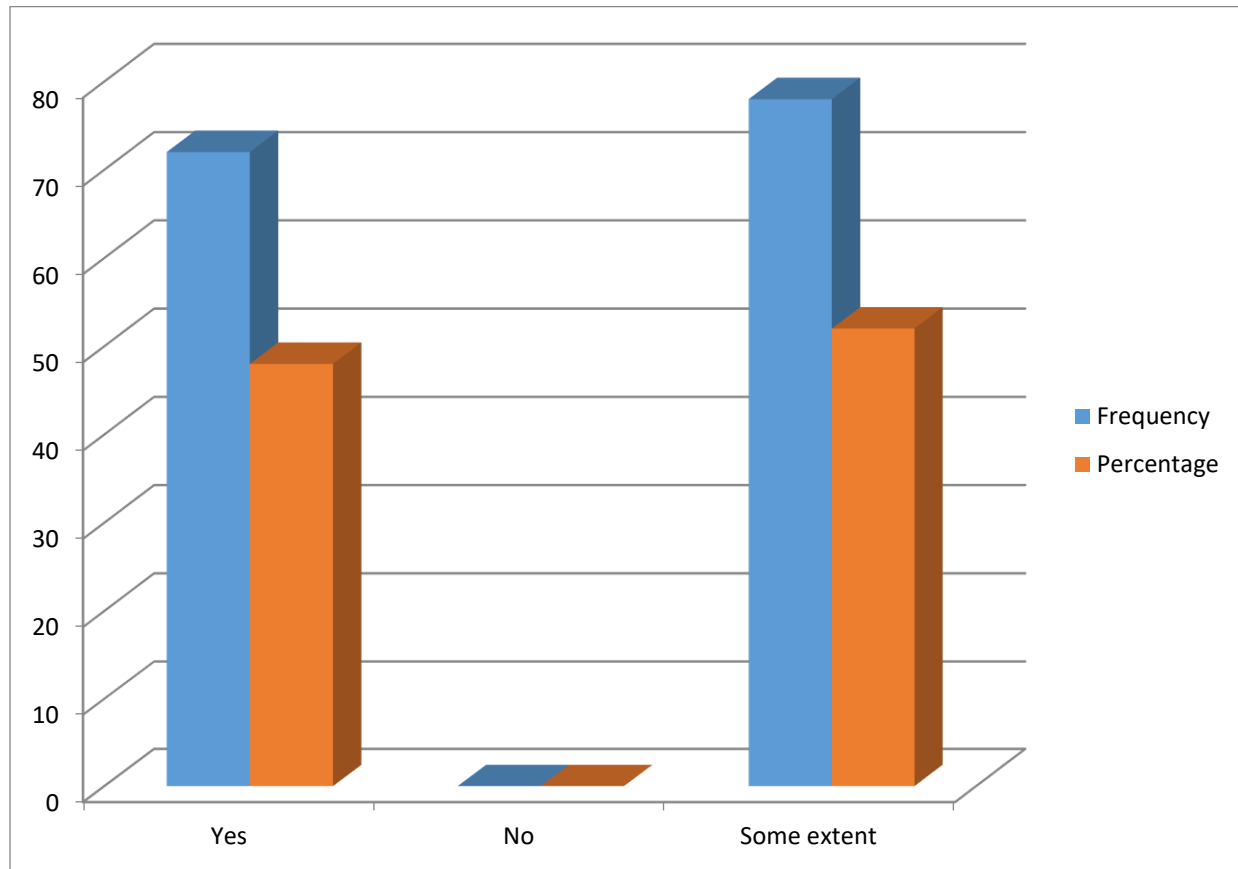
Source: Field survey

**Adoption and implementation of FFS activities in future**

The ever growing populations of the country always pose challenges to the agricultural scientist of the country. To feed the huge population of the country, we need to design a comprehensive program which goes beyond the mere dissemination of agricultural technologies to the farmers. Farmers need to be educated to use these technologies, marketing aspects and to enable the farmers to seek solution to their problems (David, 2007). FFS approach can help these farmers to achieve different objectives by performing different experiments in the fields (Van den Berg, 2004).

Figure 2 shows farmers perception regarding the implementation and adoption of FFS activities in future. In the study area 72 farmers were interested in adopting FFS approach in future, while, 78 respondents mentioned adoption of FFS activities to some extent in future. The results are in agreement to Van Den Berg, (2007) and Muhammad *et al.* (2013).

**Figure: 2** Respondents perception regarding adoption and implementation of FFS activities in field in future



Source: Field survey

## CONCLUSIONS AND RECOMMENDATIONS

- It is concluded that interaction of extension agents with farmers not only helps to increase awareness among the farming community but it also propagates new approach as a useful tool namely FFS. Through FFS approach the interaction of farmers and extension personnel becomes stronger; the extension personnel regularly visited the farming community for their problems' solution. The response of farmers was highly effective towards the FFS approach as respondents claimed to continue FFS activities in future.
- Simplification of the FFS program content will not only help improve the performance of participants but also enhance the possibility of diffusion of new knowledge among other farmers. Diffusion can also be increased by employing dissemination approaches.

## Recommendations

- FFS should be established to create awareness and enhance the knowledge of the majority of farmers in Khyber Pakhtunkhwa.
- The facilitator should be practical oriented and more skilled so that the farmers are able to fully adopt FFS approach.
- Farmer Field School approach should be made a part of the mandate of agricultural extension.
- Facilitator should conduct a follow up to address farmers' problems in order to get higher quality production.

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