

ROLE OF FARMER FIELD SCHOOLS IN ENHANCING SKILLS OF FARMING COMMUNITY IN KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT:- Farmer Field School (FFS) is a capacity building approach, which provides opportunities to farmers of improving various skills through practicing various techniques by themselves. Considering therefore, the importance of this approach, the study was conducted in 2011 to examine the role of FFS in enhancing skills of farming community in the central region of Khyber Pakhtunkhwa, Pakistan. The data were collected through survey method on various aspects from 280 randomly selected farmer respondents. The data collected were analyzed by applying simple descriptive statistics showing means, scores, ranking order and standard deviations. The results show that skills were highly enhanced in the aspect of nursery raising techniques which was ranked 1st with mean value 3.40 closely followed by timely and balanced use of fertilizers and using recommended seed rate, which were ranked 2nd and 3rd with mean value 3.08 and 3.05, respectively. While, skill improvement in plant protection especially in the area of insect pests identification was ranked 1st with mean value 3.22 closely followed by insect pests control by local recipes and their mass killing which were ranked 2nd and 3rd with mean values 3.03 and 2.84, respectively. Likewise, chemical and manual weed control measures were ranked 1st and 2nd with mean values 2.99 and 2.97, respectively. Correspondingly, farmers' skills in furrow irrigation was ranked at the top with mean value 3.32 followed by flood, border and basin irrigation techniques with mean values 2.98, 2.85 and 2.76, respectively. Hence, it can be concluded that farmers' skills in all the selected aspects were improved as a result of their participation in FFS' sessions.

Key Words: Extension Approaches; Farmer Field School; Improving Agricultural Skills; Capacity Building; Pakistan.

INTRODUCTION

Building capacity of farmers through enhancing agricultural knowledge and skills is the basic aim of agricultural extension services which ultimately improves farm productivity, income and living standard. For achieving this objective Government of Pakistan has tried many extension strategies from time to time but none of them seems to be

effective in serving the farmers for increasing productivity and improving their income (Khatam et al., 2010). Therefore, the Government of Khyber Pakhtunkhwa introduced a new extension approach in the name of FFS to benefit resource poor farmers by developing their capacity for utilization of the existing agricultural technologies. FFS approach encourages learning of farmers in groups optimally from observations of

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field and conducting experimentations (Braun et al, 2005).

This approach was based on the principles of growing a healthy crop, preventing predators; regularly observing the crop and helping farmers become experts at their farms. This approach mainly aims at empowering the farmers through completing various tasks by themselves. FFS is considered as a forum or a school with no walls around which is used for capacity building of farmers to adopt new techniques for sustainable agriculture. In FFS, farmers get together regularly during the whole cropping season to learn new production techniques in groups of 25-30 farmers. FFS aims at improving the capacity of its member participants to apply new technologies in their fields to evaluate its application to their explicit environment, and work jointly with the researchers and extension workers to solve a problem (Khisra, 2003). However, David (2007) concluded that FFS comprises certain social benefits like capability of making group decisions, making management decisions after examining farm situation, improving farmers' capability in making efficient public speeches, improving group working environment, and doing experiments with cocoa and other crops. He further added that FFS can be a starting point for bringing about social change by improving farmers' skill to observe technology, applying new problem solving techniques for solution of their problems, making effective communication, increasing self confidence and organizing community to support cocoa production as well as managing other livelihood ventures.

Correspondingly, Simpson and Owens (2002) concluded that FFS approach provides opportunities to farmers to gain knowledge about new concepts and their relationships. Furthermore, Buyu et al. (2003) stated that FFS helps farmers to understand about their local values especially the social ones that work as a form of social capital. Mutandwa and Mpangwa (2004) concluded that FFS participants had higher scores than non-FFS participants regarding to crops yield income from cotton and increased technical knowledge. Feder et al. (2004) stated that FFS encourage learning of knowledge and approaches regarding crop production which are ecologically sensible, and in specifically those of IPM practices which minimize as well as rationalize the use of pesticides. Braun et al. (2005) found that FFS has improved self-confidence and pride, as well as has considerably impacted in two main areas i.e gains in the reduction of pesticides and, in several crops, yield have substantially increased. In a recent study conducted in Khyber Pakhtunkhwa, Pakistan, Khatam et al. (2010) also concluded that FFS approach improves farmers' knowledge, facilitates them in learning by doing, dishearten the use of pesticides, supports use of local recipes for plant protection, provides systematic training, facilitates member farmers in identifying their problems, encourages balanced use of fertilizers, reduces cost of production, encourages community organization, develops leadership, instills communication as well as farm management skills, develops links among the stakeholders, develops local knowledge, helps farmers in implementing

their decisions, facilitates in assessing various technologies, situation analysis and confidence building, creates positive changes in the attitude of farmers, increases farmers' income and elevates the overall socio-economic conditions of the farming community. Considering the aforesaid importance of FFS approach, the recent study was carried out to examine the role of FFS in enhancing various agricultural skills of participating farmers in Khyber Pakhtunkhwa, Pakistan.

MATERIALS AND METHOD

The population for the study included farmers of the 7 districts in the central region of Khyber Pakhtunkhwa comprising Charsadda, Hangu, Kohat, Mardan, Nowshera, Peshawar and Swabi. Using Table for determining sample size (Fitz-Gibbon and Morris, 1987) a representative sample size of 40 farmer respondents was selected at random from each district from the list of FFS farmers provided by Agriculture Department (Extension) thereby making a total of 240 respondents. The data were collected using a pre-tested and

validated interview schedule. The validity of the research instrument was checked by the experts in the field of agricultural extension. The reliability/validity of the research instrument was checked through test-retest method. The data were analyzed using computer software SPSS. Simple descriptive statistics including mean values and standard deviations (SD) were computed for various variables. To determine the rank order of various aspects included in the study a 5-point Likert scale was used, weighted scores were computed by multiplying the score values with the frequency counts and then adding up the scores against each aspect.

RESULTS AND DISCUSSION

The data revealed that the highest learning took place regarding nursery raising techniques which was ranked 1st with mean value 3.40 (Table 1) closely followed by timely and balanced use of fertilizers and using recommended seed rate, which were ranked 2nd and 3rd with mean value of 3.08 and 3.05, respectively. Learning regarding sowing methods,

Table 1. Ranking of crop production technologies based on farmers' perceptions regarding role of FFS in enhancing various skills

Crop production technologies	Rank order	Score	Mean	SD
Nursery raising techniques	1	951	3.40	1.18
Timely and balanced use of fertilizers	2	862	3.08	1.16
Seed rate	3	853	3.05	1.14
Sowing methods	4	835	2.98	1.19
FYM decomposition	5	824	2.94	1.17
High yielding varieties (HYV)	6	817	2.92	1.13
Soil analysis	7	788	2.81	1.15
Seed bed preparation	8	749	2.68	1.08

Source: Field data n = 280

FYM demonstration, HYV, soil analysis and seed bed preparation were the other areas in which farmers skill were improved but all were ranked between low and medium categories but tending toward medium category.

The rating shows that the highest skill development was perceived in nursery raising techniques, which may be due to the small landholdings and hilly terraces where farmers preferred raising nurseries.

The data depicted that the role of FFS in enhancing crop protection skills, identification of insect/ pests was ranked 1st with mean value 3.22 (Table 2) closely followed by insect pests control by local recipes which was ranked 2nd with mean value 3.03. Mass killing of insect/ pests, manual pest control, seed treatment and insect pest management with bio-control were the once where farmers' skills were enhanced but all were ranked below average.

The mean values indicate that improvement skill in insect/ pests' identification and their control by local recipes ranged from medium to high but tended towards medium. However, the rest of the aspects fell between low and medium but tended towards medium categories.

The highest rating of skill improvement in insect/ pests' identification may be due to the realization by farmers to select the right pesticide and avoid unwanted expenditure on pesticides and also to control environmental pollution.

The present research findings are supported by those of Mancini et al. (2006) who reported that FFS farmers had considerably improved their capability to identify whether cotton insects were pests or predators, to identify the damage caused by the pests or insects and to recognize the predatory habits of beneficial insects after the IPM FFS training.

The data indicated that FFS activity in weed control had relatively higher contribution in enhancing farmers' skills relating to chemical weed control measures closely followed by manual weed control and cultural weed control measures (Table 3). The rating further shows that improvement in skills of all the weed control measures ranged from low to medium with tendency towards medium category. These results are supported by those of Hamidullah et al. (2006) who suggested that weeds should be controlled with the proper chemicals whenever needed.

Table 2. Ranking of crop protection technologies based on farmers' perception regarding role of FFS in enhancing various skills

Crop protection technologies	Rank order	Score	Mean	SD
Insect/ pests identification	1	901	3.22	1.14
Insects pests control by local recipes	2	847	3.03	1.31
Mass killing of insects pests	3	795	2.84	1.23
Manual pest control	4	764	2.73	1.25
Seed treatment	5	740	2.64	1.14
Insects/pests management with bio-control	6	726	2.59	1.21

Source: Field data n = 280

Table 3. Ranking of weed control measures based on farmers' regarding role of FFS in enhancing various skills

Weed control Measures	Rank order	Score	Mean	SD
Chemical	1	837	2.99	1.13
Manual	2	832	2.97	1.07
Cultural	3	740	2.64	1.08

Source: Field data n = 280

The highest rating of chemical weed control measures by farmers may be due to the fact that it saves time that can be utilized for accomplishing other activities, is less laborious than manual or cultural methods and can completely eradicate weeds from the crop.

The data highlighted that among various irrigation techniques furrow irrigation was at the top with mean value 3.32 (Table 4) with regard to skills improvement followed by flood, border and basin irrigation techniques with mean values 2.98, 2.85 and 2.76, respectively. The drip irrigation technique was however, rated at the bottom by the respondents.

The rating clearly indicates that improvement in skills in furrow irrigation technique fell between

Table 4. Ranking of irrigation techniques based on farmers' regarding role of FFS in enhancing various skills

Irrigation techniques	Rank order	Score	Mean	SD
Furrow	1	930	3.32	1.20
Flood	2	835	2.98	1.31
Boarder	3	799	2.85	1.29
Basin	4	772	2.76	1.24
Drip	5	468	1.67	0.76

Source: Field data n = 280

medium and high with tendency towards medium category while all other techniques ranged from low to medium, but tended towards medium except drip irrigation which was ranked between very low to low categories.

The present research findings are supported by those of Khatam (2010a) who reported that FFS farmers got highest benefit by adopting furrow irrigation technique, which saved both the time and water that may be utilized for other crops.

The study concludes that FFS approach has improved skills of participating farmers in various aspects of crop production technologies. Skills involved in learning about nursery raising techniques, timely and balanced use of fertilizer, seed rate, identification of insect/pests and their control by local recipes and furrow irrigation were considerably improved. However the ranking shows that still there is a lot of improvement which could be made. Equally important are the results which show that FFS could improve skills of farmers below medium in most of the aspects included in the study. FFS facilitators and concerned authorities may give due attention to skill development of the participants in the identified areas.

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