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EFFECT OF FARMERS FIELD SCHOOL ON VEGETABLES PRODUCTION IN DISTRICT PESHAWAR KHYBER PAKHTUNKHWA

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Abstract

The Farmers Field School (FFS) aims at benefiting poor farmers by improving their knowledge of existing agricultural technologies and integrated crop management to become independent and confident in their decision. The study on effect of farmer's field school on vegetables production before and after FFS implementation in district Peshawar in four selected villages on each crop in 2011 was conducted from 80 farmers. The results were compared by using paired t-test. It was observed that 80% of the respondents were satisfied with FFS approach as there was a significant increase in vegetable production. The seed rate of tomato and cucumber decreased from 0.185kg/kanal to 0.1 kg/ kanal and 0.120kg/kanal to 0.01kg/kanal while production of tomato and cucumber were increased from 8158.75kgs/kanal to 1030.25kgs/kanal and 3230kgs/kanal to 5340kgs/kanal, respectively after the activities of FFS. FFS brought a positive effect on vegetable production and technology adoption improving their income, skills and knowledge ultimately lead farmers towards empowerment. The input cost including seed, crop management, FYM, and weedicides for tomato were reduced by Rs.28, Rs. 3170 and Rs.658 and cucumber reduced by Rs.35, Rs.570 and Rs.430. Only fertilizers cost was increased by Rs. 2200 in case of tomato and 465 in case of cucumber. FFS facilitator and coordinator should be more skilled and practical oriented to facilitate poor farmers. In light of the above study, more FFS should be planned so that the more farmers should be benefited.

Key words**:** *Farmer Field School, vegetables production*

INTRODUCTION

Farmer Field School (FFS) is one of the agricultural extensions, group-based and non-formal learning approach that has been used as a tool to bring desirable changes in the behavior of the farmers. It aims at benefiting resource poor farmers by improving their knowledge level regarding existing agricultural technologies as well as their decision making capacity through discovery based learning in the field (Ruttan, 2003). The FFS approach promotes field observation and experimentation based on principles of adult education (Berg and Jiggins, 2007).

FFS provides a first experience platform with a group of 25 or 30 farmer's activities based on technically sound facilitator, participatory training and agro-ecosystem to the farming communities where they can share their experiences and knowledge to improve their existing practices leading towards sustainable agricultural production (Tripp, 2005). The basic principles of FFS is to grow a healthy crop, control natural enemies, and observe crops regularly. Through FFS farmers become powerful decision makers and experts in their respective field (Sulaiman and Hall, 2003).

FFS were introduced by the Government of KPK in 2001 in all the 24 districts of the province on different fruits and vegetables. Vegetables and condiments are the only crops that are grown on small land holdings in all seasons throughout the year. The vegetables are short duration crops which can be grown on uneven small spaces. Diffusing technology on improving the vegetable productivity through FFS will put the prices of vegetables within the reach of urban and rural poor. Vegetables are popular for their freshness, taste and nutritious value (GoP, 2008).

District Peshawar is famous for seasonal and off-seasonal vegetables due to its favorable climatic and soil condition. Vegetable cultivation is a profitable farming activity on the one hand and an essential part of the human diet on the other. Another important feature of the vegetables is that these can be grown on a small land holding for self consumption as well as commercial purposes.

Due to quick turn over the trend to grow more vegetables is increasing in the farming community (Zulfiqar, 2005).

The desired level of agricultural productivity is not achieved at the satisfactory rate because unfortunately in Pakistan there is prevalence of the traditional farming practices, inadequate use of the inputs by the farmers, poor extension services and provision of trainings. There is also a lack of modern agro-technical practices, unawareness about modern technologies and many other constraints that are faced by the farmers (Sinha *et al*., 2001). Vegetable productivity can rapidly be increased through the appropriate application of modern techniques in agriculture so it is necessary that the farming community must be aware with the scientific knowledge, improved practices and techniques (Gibson and Brown, 2003).Most of the countries with agro-based economy had enhanced their crop production by towering (high) crop frequency and surge use of high yielding crop varieties.

The efficiently and effectively transfer of the modern agricultural technologies is necessary to enhance the agricultural productivity including cereals, pulses, vegetables, fruits and cash crops. The available literature suggests that technology transfer is slow and adoption is important. Thus in order to bridge the existed gap, the present study was initiated. The purpose of this study is to investigate the behavior of the farmers, accelerate the capacity building of growers and empowering them in decision making. This will enable them to adopt new technology to enhance vegetable productivity of selected four villages of district Peshawar. Moreover, suggest policy recommendations so that maximum profit can be obtained through application of FFS approach.

The objective of the paper si to study the effect of FFS in vegetables production before and after its intervention.

MATERIALS AND METHODS

The Farmer Field School (FFS) approach evolved from the concept that optimal learning derives from experience-in the case of farmers, from observations in the field. The FFS integrates the domains of ecology and non-formal education to give farmers the opportunity to learn about their crop and to learn from each other. Learning objectives of FFS are; i) grow healthy crop, ii) conduct regular field observations, iii) conserve natural enemies of pests, iv) farmers understand ecology and become experts in their own field. The FFS based IPM approach was institutionalized in Pakistan in 2001.

Farmer Field Schools were established in Peshawar District with the farming communities by Agriculture Extension Department on Tomato and Cucumber vegetables. The initial data was obtained from Agriculture Extension Department Peshawar. Presently study was conducted to assess the impact of FFS on the production technology of vegetables. In order to analyze the effect of FFS on vegetables production, four vegetables growing villages were selected purposively in Peshawar District namely Mathra, Paloosi, Regi and Potwar.

Then from each selected village two FFS were randomly selected and from each FFS ten farmers were selected at random, thereby making a total of 80 farmer respondents. The interview schedule was pretested in the field and was modified accordingly. The data was collected by interviewing the farmers and by filling a questionnaire in the field.

The collected data was analyzed by using computer Software Statistical Package for Social Sciences SPSS and Microsoft Excel. The results so obtained were presented in term of counts and percentage. Paired T-test was applied for comparison among two variables to see the impact of FFS on vegetables production in Peshawar District in comparison to non FFS farmers.

RESULTS AND DISCUSSIONS

Due to Farmer Field School (FFS) intervention there is a significant decrease in seed rate of tomato (Table 1). Before Farmer Field School the seed rate per Kanal was 0.185Kg and but after Farmer Field School the rate decreased to 0.100Kg, so there is a

0.085Kg. Similarly in case of Cucumber a decrease of 0.11Kg/Kanal was noticed.

Table 1. Comparisons of average seed rate (kg/kanal) of tomato and cucumber before and after FFS

Crops	Before FFS	After FFS	Mean Difference	t-ratio	P value
	Seed rate (kg)	Seed rate (kg)	Seed rate (kg)		
Tomato	0.185	0.1	-0.085	8.322	0.00
Cucumber	0.120	0.01	-0.11	4.005	0.00

Confidence level 95%

Due to Farmer Field School intervention in the villages an increase in production was observed (Table 2). In case of tomato an increase of 2143.75Kg/Kanal and in case of cucumber an increase of 2110Kg/Kanal was noticed. The results of production of tomato are in line confirmation with the (Mehmood, 2006).

Table 2.Comparisons of production (kg/kanal) of tomato and cucumber before and after FFS

Crops	Before FFS	After FFS	Mean Difference	t-ratio	P value
	Production (kg)	Production (kg)	Production(kg)		
Tomato	8158.75	1030.25	2143.75	-12.08	0.00
Cucumber	3230	5340	2110	-8.02	0.00

Confidence level 95%

From Table 3 presented below one can see that there is a significant difference of fertilizers quantities used per kanal.
Before FFS farmers use 1 bag of urea, 1 bag DAP, ½ bag NPK, 2 liter of pesticides and 1 trolley of FYM. After the FFS approach farmers of the area use half bag urea, half bag DAP, 1 bag of NPK, 1 liter pesticides and 1 trolley Farm Yard Manure.
Cisizinsky (1981) described the same practices fertilizers in his tomato field to obtain the maximum benefits from this approach.

Table 3. Quantity of fertilizers, pesticides and FYM/ kanal used before and after the FFS interventions

Particulars	Before FFS	After FFS	Mean Difference	t-ratio	P- value
	Quantity used		Quantity used		
Urea	1 bag	½ bag	-0.5	6.223	0.00
DAP	1 bag	½ bag	-0.5	8.44	0.00
NPK	½ bag	1 bag	0.5	7.001	0.00
Pesticides	2 liter	1 liter	-1	11.01	0.00
FYM	1 trolley	1 trolley	0	0.01	0.00

Confidence level 95%

Based on the data from Table 4, it was concluded that the total cost of different inputs for tomato production before Farmer Field School were at higher rates. After FFS interventions, the seed cost reduces Rs 28/-, crop management cost Rs 3170/-, weedicides cost Rs 205/-, and Farm Yard Manure Cost reduces Rs 658/-. These results of the study are in conformity with the findings of Gyali and Salokhe (1997) and Ciszinszky (1981).
After Farmer Field School decrease in seed cost, crop management, Farm Yard Manure

cost and weedicides cost were noticed. It was also observed that there is an increase in cost of Farm Yard Manure and fertilizers which attributes to higher yield. It is also mentioned here that total expenditure on inputs before Farmer Field School was Rs 10373/- and after Farmer Field School the expenditure was Rs 9828, which shows a decrease in cost.

Table 4.Input Average cost/kanal on crop protection for tomato before and after FFS (Rupees)

Variable	Before FFS		After FFS		T-ratio	p-value	Mean Difference
	Mean	Standard Error	Mean	Standard Error			
Seed cost (Rs)	928	393.5	900	223.5	24.541	0.00	-28
Fertilizer cost	4400	281.5	6600	159.7	-76.053	0.00	2200
Crop management cost	3980	563.5	810	310.8	15.421	0.00	-3170
Weedicides cost	415	271.3	210	154.5	11.50	0.00	-205
FYM cost	650	292.8	1308	176.9	-16.156	0.00	-658
Total	10373		9828				

Confidence level 95%

From the data analyzed in Table 5 it was gathered that the total cost of different inputs for Cucumber production before FFS were at higher rates in case of seed cost after FFS. It was depicted that before FFS seed cost is Rs 125/- and after FFS was Rs 90/-, crop management cost reduced from Rs 950/- to Rs 380/-, Pesticides cost decline by Rs 430/- .

Table 5.Average input cost/kanal on crop protection for cucumber before and after FFS (Rupees)

Variable	Before FFS		After FFS		T-ratio	p-value	Mean Difference
	Mean	Standard Error	Mean	Standard Error			
Seed cost (Rs)	125	343.5	90	223.5	20.16	0.00	-35
Fertilizer cost	410	481.5	875	219.7	19.53	0.00	-465
Crop management cost	950	663.5	380	310.8	17.2415/-	0.00	-570
Weedicides cost	640	371.3	210	154.5	13.50	0.00	-430
FYM cost	280	192.8	360	176.9	-16.156	0.00	20
Total	2405		1915				

Confidence level 95%

After FFS, decrease in seed cost, crop management, Farm Yard Manure cost and pesticides cost was noticed. It was also observed that there is an increase in cost of Farm Yard Manure and Fertilizers which attributes to high yield. It is also mentioned here that total Expenditure of inputs before FFS was Rs 2405/- and after FFS the expenditure reduce to Rs 1915/- which shows a significant decrease in cost. The results of fertilizers cost in are in conformation with the findings of Mangan (1997).

CONCLUSIONS

The result shows that introduction of FFS by Agriculture Extension Department KPK brought a positive change in farmers behavior, the farmers empowered through FFS to adopt modern technology of crop production, decision making and crop management and using the integrated Pest management Practices.

It is recommended that:

-Agriculture extension should spread their FFS activities in the rural masses and train the farmers in this technology.

-There should be a close coordination among the FFS facilitator/farmers for achieving the optimal results.
-The capacity of FFS facilitators/farmers is enhanced through trainings.
-The knowledge obtained through FFS should be utilized in the farmer's field in order to enhance their production in vegetables.

REFERENCES

[1]Berg, H. V., Jiggins, J.,2007, Investing in farmers-the impacts of farmer field schools in relation to integrated pest management. World Development. 35(4): 663-686.
[2]Ciszinsky, J. ,1981, Influence of NPK fertilizer on the technological qualities of plant cane. Variety CB. 41-76. Int. Sug. J. 84 (3): 76-82.
[3]Gibson, J.D., Brown, A.S., 2003, Use of managerial proficiencies in agricultural and extension education: An assessment of virgina cooperative. Journal of international agricultural and extension education. 10 (3): 19-24.
[4]Govt. of Pakistan, 2008, Data on fruits and vegetables. Ministry of Food, Agric. and Livest. www.minifal.gov.pk, Last visisted: March 20, 2009.
[5] Gyali, B.K., Salokhe, V.M., 1997, Farmers field schools: a participatory outreach research approach on safe application of agro-chemicals and bio-products. Proc. International Workshop on safe and efficient application of agro chemicals and bio products in south and southeast Asia, Bangkok, Thailand.14 (3): 177-184
[6]Mangan, M.S., 1997,Chinese rice farmers, the new IPM experts. ILEIA Newsletter. 13(4): 14-15.
[7]Mehmood, l, 2006, Effect of farmers field school on rice, sugarcane and tomato productivity in district peshawar. MSc(Hons): Agricultural Extension Thesis, University of Agriculture Peshawar. Pp. 22.
[7]Ruttan, V., 2003, Social science knowledge and economic development an institutional design perspective. Ann Arbar: University of Michigan Press: 14-16
[7]Sinha, M.N., Ramamurthy,R.S., Vinayagam, S.S., 2001, Prosperity of farming community through Krishi vigyan kendrans. Indian J. Dairy Bio. 5(1): 60-64.
[8]Sulaiman, V.R., Hall, A.J., 2003, India: The emergence of extension-pulse-future for extension beyond technology transfer? In W.M. Rivera and G. Alex (Eds.), Extension and Rural Development. Washington D.C: The World Bank. Pp 4-7
[9]Tripp, R., Wijeratne, M., Piyadasa, V.H., 2005, What should we expect from farmer field schools? A Sri Lanka case study, World Development. 33(10):1705-1720.
[10]Zuifiqar, M., Khan, D., Bashir, M., 2005, An assessment of marketing margins and physical losses at different stages of marketing channels for selected vegetables crops of Peshawar Valley. J. App. Sci. 5(9)