



EFFECTIVENESS OF FARMERS' TRAINING ON THE ADOPTION OF IMPROVED POTATO TECHNOLOGY IN TEHSIL KASUR

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ABSTRACT

A study was conducted at the Institute of Agriculture Extension and Rural Development, University of Agriculture, Faisalabad, Pakistan during 2013-15, to investigate the effectiveness of farmers' training on the adoption of improved potato technology. Tehsil Kasur of Punjab was selected for study being a major growing area of potato. A total sample comprising of 120 farmers was taken who received training by using purposive sampling technique. A comprehensive interview schedule was developed and used as research instrument for data collection. The collected data were analysed with the help of statistical package for social sciences (SPSS) to derive conclusions and formulate recommendations. The results revealed that nearly half of the respondents (46.7%) reported weekly visits made by extension field staff, whereas the rest of respondents told that fortnightly (28.3%) and monthly visits (25.0%) were performed by the extension personnels in the area. Farm visit was the approach or teaching method which was frequently used by extension field staff (EFS). Among all improved production practices seed selection was placed on top of the list (mean 4.14) followed by seed rate (4.04), disease control (3.93), sowing time (3.86) and fertilizer application (3.61). Farmers proposed that EFS should be equipped with proper training techniques regarding different production practices and their knowledge level and communication skills must be upgraded.

KEYWORDS: *Solanum tuberosum*; potato; farmers' training; extension field staff; production methods; teaching methods; communication skills; effectiveness; Pakistan.

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INTRODUCTION

Potato production has vital role in the economy of Pakistan in general and in that of Punjab in particular. It accounts for 5.71% in total vegetable cropped area of the Punjab providing economic benefits. It generates new fields for employment for needy people of rural areas. It provides food energy for growing population at lower prices as compared to the cereals, meat and chicken. It is indicated (FAO, 2007) that potatoes have 75% more food energy per unit area than wheat and 58% more than rice. Potatoes also have 54% more protein per unit area than wheat and 78% higher than rice. Therefore, use of potato as an alternative to grains is the best to maintain caloric intake.

In Pakistan, potato is a valuable crop for both farmers and consumers and the fourth most important crop by volume of production. The area under potato cultivation is 127.7 thousand hectares with an annual production of 3726.5 thousand tones which is fulfilling the needs of whole country. (Abbas *et al.*, 2014). Punjab has the largest share of 83% with respect to area and production. Due to different geographical locations potato cultivation is categorized into three growing seasons such as autumn, spring and summer crop. Major potato producing districts in the Punjab are

Okara, Kasur, Narowal, Lahore, Sahiwal, Jhang and Toba Tek Singh (Panhwar, 2014).

Pakistan is a large potato producing country yet per hectare yield is low as compared to developed countries such as USA and Holland (Abedullah *et al.*, 2006). The main causes of low yield include lack of improved crop management practices and non-availability of disease free certified seed potato. Use of potato for multifarious purposes is gaining importance in Pakistan while production of this crop is not upto the mark and still we are lacking in achieving potential yield. Lack of knowledge on the part of farmers for land levelling and irrigation, pest and disease control and fertilizer application is the major hindering factor to meet the potential yield of potato (Khan and Akhtar, 2006).

In Pakistan, agricultural extension services are being provided by the public sector since independence. Public sector is trying its best to perform this gigantic task (Bajwa *et al.*, 2010). However, Von (2004) disclosed that performance of public sector extension is not upto the mark. Lack of commitment on the part of extension field staff and lower number of extension agents for a large farming community could be the major hindrance in the dissemination of effective training to the farmers.

In this situation, a motivated extension field staff (EFS) equipped with effective communication skills can play a significant role for the increase of per hectare yield of potato crop.

Ahmad *et al.* (2004) observed that majority of potato growers use fertilizer either below or above the recommended level and in improper proportion. This necessitates the role of extension workers. The extension workers should provide information to the farmers about latest production practices such as balanced use of fertilizers and chemicals. They should also provide and motivate the farmers to use seed of high yielding and recommended varieties to get good production of potato crop.

Keeping in view the above scenario, present study was designed to achieve the following specific objectives.

- i. To identify improved practices adopted by respondents as a result of training programs.
- ii. To identify the level of productivity improvement after training.
- iii. To identify the factors/constraints that create hindrance in training programs.

METHODOLOGY

This study was conducted at the Institute of Agriculture Extension and Rural Development, University of Agriculture, Faisalabad during 2013-15, Potato cultivation is concentrated mainly in irrigated districts as compared to arid districts of the Punjab province (Khokhar, 2014). Tehsil Kasur, was selected for this study being an important district of Punjab from agricultural point of view. Potato is one of the major crops of tehsil Kasur. Most of the area in this tehsil is canal irrigated. The climatic conditions of this area are highly suitable for successful production of potato crop. This tehsil comprises 55 union councils (UCs), out of which 11 fall in urban area while remaining 44 belong to rural areas. From 44 rural UCs, a total sample of 120 farmers was taken who had received training from extension field staff (EFS) by using purposive sampling technique. The data were collected through a validated interview schedule and analysed with the help of statistical package for social sciences (SPSS) to draw conclusions. The descriptive analysis was carried out to identify the major improvement areas and constraining factors as a result of training programs.

RESULTS AND DISCUSSION

The data (Table 1) reveal that about 46.7% of the respondents reported weekly visits by extension field staff, whereas 28.3% of respondents reported fortnightly visits while one fourth (25.0%) of the respondents reported monthly visits made by the

extension personnels in their area. If the extension agents had performed more number of visits to the farmers, learning process would have been more timely and effective. Due to small number of extension agents for a large area and lack of transportation facilities have decreased the effectiveness of training programmes.

Table 1. Distribution of respondents according to the regularity of visits performed by EFS.

Visits	F	%
Weekly	56	46.7
Fortnightly	34	28.3
Monthly	30	25.0
Total	120	100.0

These results differ to those of Yasin (2009) who found that about 52% of the respondents reported monthly visits by EFS, 27.5% reported fortnightly while only 10.8% of the respondents reported weekly visits made by extension field staff.

Training methods used by EFS

The data (Table 2) revealed that farm visit was placed on top (mean 3.72) among all other training methodologies adopted by EFS because respondents learnt more through this method. Lectures (3.94) and field trips (3.00) occupied 2nd and 3rd positions, respectively, while audio-visual aids were rarely used by EFS for the training of farmers. These results are more or less conflicted to those of Talib (2012) who found that method demonstration, farm visits and group discussions were ranked at 6th, 7th and 8th position, respectively.

Table 2. Mean, standard deviation and rank order of training methods used by EFS during training.

Training methods	Weighted score	Mean	Std. Dev.	Rank
Farm visits	431	3.72	.541	1
Lectures	429	3.94	.773	2
Field trips	123	3.00	.447	3
Group discussion	72	2.88	.332	4
Demonstration	16	4.00	.000	5
Brain storming	16	4.00	.000	5
Group assignment	12	3.00	.000	6
Audio visual aids				
Multimedia projector	4	4.00	-	7
Charts	1	1.00	.	8
Flip chart	-	-	-	-
White board	-	-	-	-

Improvement in production practices after training

The results (Table 2) revealed that among all production practices seed selection was placed on top of the list carrying a weighted score of 497 (mean 4.14), while seed rate, disease control methods, sowing time, fertilizer application, sowing methods, weeds management, land preparation, and irrigation application were ranked at lower positions based on

their weighted scores and mean values. These results are supported by Ahmad (2008) who reported that an overwhelming majority (89.6%) of the respondents had improved their seed and sowing practices followed by fertilizer application (84.8%) and irrigation application (87.2%) after training.

Table 3. Mean, standard deviation and rank order of improved production practices after training

Improved production practices	Weighted score	Mean	Std. Dev.	Rank
Seed selection	497	4.14	.523	1
Seed rate	485	4.04	.749	2
Disease control methods	472	3.93	.985	3
Sowing time	469	3.91	.698	4
Fertilizer application	463	3.86	.833	5
Sowing methods	433	3.61	.555	6
Weeds management	429	3.58	.774	7
Land preparation	391	3.26	.772	8
Irrigation application	388	3.23	1.075	9

General improvement areas after training

Table 4 indicates the ranking of different improved areas after training in order of their preference. Knowledge level was ranked on top with mean value 3.73 followed by yield (3.497) and skill development (3.48) which were ranked on lower positions on the basis of their weighted scores. Cost/benefit ratio and income from potato crop were least improved areas because of heavy expenditure on import of quality seed and decrease in prices of potatoes in national market. A sharp decline in export of potatoes also negatively contributed to the downfall of prices. Agbebi (2012) stated that those farmers who have access to extension services possess more knowledge than those who do not have.

Table 4. Mean, standard deviation and rank order of general improvement areas after training

General improvement areas	Weighted score	Mean	Std. Dev.	Rank
Knowledge level	448	3.73	.514	1
Yield	419	3.49	.565	2
Skill development	393	3.48	.721	3
Attitude	345	2.88	.762	4
Knowledge about plants growth	323	3.20	.949	5
Crops outlook	318	3.03	.826	6
Area under potato crop	302	3.28	.881	7
Quality of produce	251	3.02	.883	8
Social status	170	2.93	1.024	9
Livelihood	154	2.96	.885	10
Cost/benefit ratio	102	2.83	1.134	11
Income from potato crop	77	2.96	1.483	12

Major hurdles in the extension advisory services

Preference given to the progressive and literate farmers was ranked on top (mean 4.27) of the list among all the major hindering factors followed by lower number of visits made by the EFS (4.10), less motivation of EFS (3.93), less education of farmers (3.89) and lower number of extension agents (3.53) for a large area to cover (Table 5). It was observed that audio-visual aids were rarely used by the extension field staff (EFS) and some of the farmers showed negative behaviour towards these training programmes.

Table 5. Major hurdles in the extension advisory services hindering the effectiveness of training programmes.

Constraining factors	Weighted score	Mean	Std. Dev.	Rank
Preference given to the progressive and literate farmers	512	4.27	.837	1
Low frequency of visits by EFS	492	4.10	.938	2
Less motivation of EFS	472	3.93	1.262	3
Less education of farmers	467	3.89	.924	4
Lower number of extension agents	423	3.53	1.166	5
Less use of audio-visual aids	410	3.45	.890	6
Negative response of potato growers	406	3.38	1.006	7

Some farmers also stated that capital shortage was also a hindering factor in the adoption of modern technologies. Some technologies are not suitable for poor farmers due to high prices and if they borrow money from the bank or middle man to purchase them, they have to pay back it with high interest rates which forces them to adopt the traditional farming pattern (Table, 2012). In order to increase the efficiency of extension services, there is need to introduce in-service training programmes for extension agents that must be designed under subject matter specialists in which modern extension techniques, joint sessions of agriculture officers with farmers and method demonstrations should be the part of training (Chaudhry *et al.*, 2016). Low performance of the extension agents in some areas leads to low productivity and profitability (Agbebi, 2012).

CONCLUSION

Majority of the farmers was satisfied with the regularity of visits made by the EFS while a smaller portion of the respondents showed a little disappointment towards this activity. ICT based tools like mobile and internet were least used by the farmers because of illiteracy and lack of access to the internet in far off places. A large number of respondents indicated a significant

improvement in seed selection, land preparation, use of animal waste, poultry manure, fungicide use, knowledge, attitude, yield per unit area and income after participating in training sessions imparted by the extension field staff. Farmers were found to be extra careful in seed selection because it can give them maximum yield if all the inputs are applied properly. Farm visit was commonly used as teaching method among all other strategies for training.

The study further concludes that mostly the preference was given to the progressive and literate farmers in training programmes thus ignoring the small ones. There is need to improve the access of quality information being provided to the potato growers. Agricultural extension workers in the Punjab should be trained in the vegetable crops production so that increasing demands of rapidly growing population could be dealt with. In this regard the use of ICTs can help farmers and rural people to get innovative ideas and raise their income by enhancing their per hectare yield of crops. Government should provide all means to the extension agents for effective coverage and they should be updated on new production technology for quick dissemination. Farmers too should also be eager to meet the extension agents and should always search for their help.

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