

Impact Assessment of Mango Production Technology Among Mango Growers with Special Reference to Various Extension Methods and its Implementation

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Abstract

It is rather difficult to boost up the per hectare yield, without giving a devoted attention to the dissemination of latest mango production and protection technology to the growers. It is important to note here that unless the research achievements are conveyed to the farmers in the most suitable and understandable manners, the desired goals of enhancing quality production of mango in the country cannot be achieved to meet the growing demands of global market. The present study was designed to analyze the increase in knowledge level of the mango growers regarding latest mango production technology. The study was conducted in tehsil Rahim Yar Khan, which consists of 40 Union Councils, out of which 31 are rural and 9 are urban. Out of 31 rural Union Councils, 5 were selected at random and from each selected Union Councils, 3 villages were selected randomly. A sample of 150 respondents was selected by using simple random sampling technique. The data, thus, collected were statistically analyzed by using computer software Statistical Package for Social Sciences (SPSS). The farm visit extension method was the most prominent method used in the technology transfer by the extension personnel which constitute about 75%. On the other hand 44% of the respondents found improvement in their knowledge regarding fertilizer application, 37.3 % regarding high yielding varieties. While, knowledge level about irrigation, insect pest control, disease control improved as reported by 32.7%, 31.7%, 16%, of respondents respectively.

Keywords

Mango Production Technology, Technology Transfer, Mango Growers, Knowledge Level, Agricultural Extension.

Introduction

Pakistan is an agricultural country. The agriculture sector continues to play a central role in Pakistan's economy. It is the second largest sector, accounting for 21 percent of GDP, and remains by far the largest employer, absorbing 45 percent of the country's total labor force. Nearly 62 percent of the country's population resides in rural areas, and is directly or indirectly linked with agriculture for their livelihood. The agriculture sector's strong linkages with the rest of the economy are not fully captured in the statistics. While on the one hand, the sector is a primary supplier of raw materials to down stream industry, contributing substantially to Pakistan's exports, on the other, it is a large market for industrial products such as fertilizer, pesticides, tractors and agricultural implements. Mango is the second major fruit of Pakistan after citrus and ranks second in the world for its production. Its per hectare yield is very low due to non-adoption of recommended cultural practices by mango growers, who in turn are influenced by a number of factors (Zakaria, 2002). The actual yield of mango fruit produced at the farmers' fields is considerably less than that of potential yield of this fruit. One of the major factors causing this huge yield gap was the lack of

knowledge, skill and attitude of mango growers regarding the modern production technology. This deficiency on the part of the fruit growers can be overcome by comprehensive training and extension program for farmers concerning modern fruit production techniques (Abid, 2004). The gap in yield is due to poor management practices and post harvest losses as the farmers lack technical knowledge to the mango growers and the mango production in Pakistan is low as compared to the other major mango production technologies so a need (Khushk & Smith, 1996). The EFS (Extension Field Staff) training aimed to affect farmers knowledge, which was interpreted broadly to include the possession of analytical skills, critical thinking and ability to make better decisions, as well as familiarity with agricultural practices, adoption of new technologies and understanding of interaction within the agriculture ecosystem. Improved knowledge was, input decisions crop yields (Haider, 2006). The mango production has been declining indicating the need for farmers' training in production as well as protection technologies. Due to lack of knowledge, skills, proper guidance and training growers do not give attention to production and protection practices (Kazmi *et al.*, 2007).

For producing best quality of mango, the farming community needs training in different technical aspects of mango production. Approximately 50% of mango loss occurs due to mismanagement, mishandling, and improper post harvest facilities (Baloch *et al.*, 2006). The adoption of new varieties and recommended cultivation practices can increase the productivity of the mango fruits. NGOs and the government institutions are making efforts to disseminate the new production and improved technologies to the farmers. This might help farmers to improve their production and to increase the overall production of the countries. Knowledge is the 1st step towards the adoption. So awareness of the farmers is very necessary factor for the adoption of the new technology (Dapoli *et al.* 2008).

MATERIALS AND METHODS

A sound research design provides a baseline for obtaining trustworthy findings (Bechhofer and Paterson, 2000). Survey research provides the researcher an opportunity to collect facts for getting solution of the research problem (Singh and Nath, 2005). The present study was designed to analyze the increase in knowledge level of the mango growers regarding latest mango production technology.

The study was conducted in tehsil & district Rahim Yar Khan, which consists of 40 Union Councils, out of which 31 are rural and 9 are urban. Out of 31 rural Union Councils, 5 were selected at random and from each selected Union Councils, 3 villages were selected randomly. A sample of 150 respondents was selected by using simple random sampling technique. The data, thus, collected were statistically analyzed by using computer software Statistical Package for Social Sciences (SPSS).

RESULTS AND DISCUSSION

The extension methods being followed in the dissemination of latest mango production technologies

The mango production has been declining indicating the need for farmers' training in production as well as protection technologies. Due to lack of knowledge, skills, proper guidance and training growers do not give attention to production and protection practices. Respondents were asked about the techniques which were being followed by the extension personnel in the dissemination of latest mango production technology. Data collected were given in the following table

Table 1: Distribution of the respondents according to the extension methods used by the extension personnel of their area for the transfer of mango production technology.

Extension methods	Response			
	Yes		No	
	Freq.	%age	Freq.	%age
Farm Visits	113	75.3	37	24.7
Office calls	13	8.7	137	91.3
Telephone calls	16	10.7	134	89.3
Group meetings	95	63.3	55	36.7
Method demonstration meeting	95	63.3	55	36.7
Result demonstration meetings	76	50.7	74	49.3
Lecture meetings	35	23.3	115	76.7
Field tours & trips	67	44.7	83	55.3
Lay out demonstration plots	31	20.7	119	79.3

Hold exhibitions	98	65.3	52	34.7
Use of printing material	113	75.3	37	24.7

Table 1 reveals that farm visit was the most prominent method used in the technology transfer by the extension personnel which constitute about 75% and office call constitute about 8.7%, telephone calls have a share of 10.7%, group meetings constitute about 63.3 % in the technology transfer programme, method demonstration, result demonstration, lecture meetings, field tours and trips, layout demonstration plots , exhibitions and printed material contributed 63%, 50.7%, 23.3%, 44.7%, 20.7%, 65.3%,and 75.3% respectively. Similarly Shoukat *et al.* (2011) reported that effectiveness of communication, overall, it was considered a weakness of the private extension system by the farmers. So, in communication

process, it is the most important to communicate message effectively which was lacking in private extension system. It is, therefore, suggested that private extension system should focus on the effectiveness of information delivery process. As well as Hassan *et al.* (2007) narrated that to enhance performance in agricultural operations, the professional education and improvement in skills is need of the hours and Extension Agencies/Organizations are responsible to provide such technical guidance to them so that they can develop their abilities to perform different agricultural activities effectively and efficiently for the achievement of Green Revolution objectives.

Table 2: Distribution of the respondents according to the change in their knowledge regarding latest mango production technologies

Name of technology	Response							
	Not improved		Unchanged		Improved		NA	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
High yielding varieties	54	35.3	3	2.0	56	37.3	37	24.7
Nursery raising	60	40.0	27	18.3	13	8.7	50	33.3
Nursery transplanting	49	32.7	21	14.0	7	4.7	73	48.7
Fertilizer application	39	26.0	2	1.3	66	44.0	43	28.7
Irrigation	33	22.0	7	4.7	49	32.7	61	40.7
Weed control	40	26.7	13	8.7	15	10.0	82	54.7
Insect-pest control	30	20.0	14	9.3	47	31.7	59	39.3
Disease control	42	28.0	15	10.0	25	16.7	68	45.3
Harvest and post harvest technology	26	17.3	13	8.7	23	15.3	88	58.7
Marketing of produce	7	4.7	26	17.3	18	12.0	99	66.0
Package & Storage	8	5.3	10	6.7	27	18.0	105	70.0
Processing & value addition	4	2.7	3	2.0	13	2.7	109	72.7

Table 2 depicted that 44% of the respondents found improvement in their knowledge regarding fertilizer

application, 37.3 % of the respondents reported improvement in their knowledge regarding high yielding

varieties. While, knowledge level about irrigation, insect pest control, disease control improved as reported by 32.7%, 31.7%, 16%, of respondents respectively. Nursery raising, nursery transplanting marketing of produce,

package and storage, weed control not improved the knowledge level of the respondents as reported by the respondents by 40% and 32.7%, 4.7%, 5.3%, 26.7% of the respondents respectively.

Table 3: Mean Standard Deviation and rank order of change in their knowledge regarding the mango production related technologies by using.

Scale: 1 = Not improved, 2 = Unchanged, 3 = Improved

Area of knowledge	Weight score	Mean	Std. Deviation	Rank
Fertilizer application	241	2.25	.96	1
Insect-pest control	199	2.19	.91	2
Irrigation	194	2.18	.95	3
High yielding varieties	224	1.98	.99	4
Harvest and post harvest technology	121	1.95	.89	5
Package & Storage	83	1.84	.93	6
Disease control	147	1.79	.89	7
Marketing of produce	86	1.69	.73	8
Weed control	111	1.63	.83	9
Processing & value addition	65	1.59	.89	10
Nursery raising	138	1.45	.65	11
Nursery transplanting	112	1.45	.66	12

It is evident from the above Table 3 that fertilizer application ranked 1st with respect to the change in knowledge about the agricultural technology introduced by the project staff. Its mean value was high and towards improvement in the knowledge of the respondents. Insect pest control, irrigation, high yielding varieties ranked 2nd, 3rd, and 4th with respect to its mean value. While, harvest and post harvest technology, packaging and storage, disease control, marketing of produce, weed control, processing and value addition, nursery raising and nursery transplanting ranked 5th, 6th, 7th, 8th, 9th, 10th, 11th and 12th respectively according to their mean value regarding the change in knowledge of the respondents regarding the mango production technologies introduced by the project personnel. The results are in line with the findings of Iftikhar *et al* (2007) that farmers needed training in proper

selection of variety, gap filling, plant protection measures, irrigation techniques etc

CONCLUSIONS AND RECOMMENDATIONS

Positive response has been observed after data analysis, the majority of respondents agreed that they get the latest mango production technology from the extension and that is useful for them. Majority of the respondents were of the view that with the said information provided by extension increases their knowledge regarding mango production. In order to gain maximum income and returns, the pure pedigree fruit plants should be provided by the government nurseries to the mango growers at reasonable price.

The link between project staff and the farmers should be improved and the extension personnel should provide the technical assistance to the mango growers regarding latest agricultural technologies through effective extension methodology.

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