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IDENTIFICATION AND PRIORITIZATION OF COMPETENCIES POSSESSED BY MANGO GROWERS IN DISTRICT FAISALABAD, PAKISTAN

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Fruits are known to be the primary source of food for human being and fruit gardening can play a significant role in the economic development of any country. The actual yield of mango fruit in Pakistan produced at the farmers' fields is considerably less than its potential yields. One of the major factors causing this huge yield gap is the lack of awareness of fruit growers regarding the modern production technology. This deficiency on the part of the mango growers can be overcome by comprehensive training and extension program for farmers concerning modern mango production techniques. The main objective of this paper is identification and prioritization of competencies possessed by mango garden owners in District Faisalabad. The target population consisted of mango fruit growing farmers of district Faisalabad. A stratified random sample of mango growing farmers was selected. The data were collected through personal interviews. It was found that the most crucial competencies where farmers need training are intercropping in Kharif and in Rabi season in selected mango fruit gardens, insect/pests and diseases and their control measures, time of fertilizer application to mango fruit plants and application of irrigation water in summer and in winter to mango fruit plants, pollination of mango fruit plants, marketing of mango fruits and adoption of recent improved varieties of mango fruits need more training. The Chi-square values for association between age groups, education level, tenancy status, size of land holding and knowledge level, skill, attitude, adoption level showed highly significant positive relationship between the age group, education level, tenancy status, size of land holding of mango growers and knowledge, skill, attitude and adoption level of recommended practices concerning mango production, protection and marketing.
Keywords: Mango growers, competencies, mango garden owners,

INTRODUCTION

Nature has endowed Pakistan with wide range of agro-climatic conditions which permit the production of varieties of both tropical and temperate fruits. Ahmed *et al.* (1993) calculated the cost of production of fruit plants and major crops. They reported that cultivation of fruits resulted in more income per hectare than major crops. Among them mango known as the' king of fruits, and nectar of God being most palatable and rich in sugar, glucose, organic acids, carbohydrates and minerals captures great demand from all walks of life. Pakistan ranked fifth in the world for mango production (GOP, 2008-09). In the year 2007-08 area under all fruits in the Punjab was 400.9 thousand hectares with an annual production of 4562.2 thousand tones and area in Pakistan under all fruits was 853.4 thousand hectares with an annual production of 7178.8 thousand tones. Area under mango fruit in Pakistan was 166.2 thousand hectares with an annual production of 1753.7 thousand tones where as area under mango fruit in the Punjab was 112.3 thousand hectares with an annual production of 1373.1 thousand tones. The share of Punjab is 78-28 percent in the total production of mango fruit in Pakistan. The mango had average yield of 10.24 tones/ha with its potential yield of 20 tones/ha (Shahid, 2006). 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) reported that the training needs of mango growers in different areas were required such as malformation, insect pests and diseases etc. By getting more and more knowledge, farmers can earn a lot of foreign exchange by growing fruits and exporting them to other countries of the world.

Keeping in view the present status of fruit production in comparison with crops, it can be stated that the fruits are of more importance and are economically more beneficial. They are more profitable when grown

according to the recommendations of the experts. The field staff of the Department of Agriculture (Extension), Govt. of the Punjab is responsible for the dissemination of agricultural technology to the farmers but the fruit growers have little access to agricultural information. Partap and Partap (2001) reported that the majority of farmers and institutions in the Hindu Kush Himalayan region have little knowledge about gardening that is limiting the productivity and quality of cash crops like apples and other fruits and vegetables. Alkire *et al*. (1992) pointed out that relevant, reliable and useful information is needed to the garden owners to promote agricultural change. Iftikhar (2009) reported that the constraints for low yield were lack of technical knowledge/training. Memon (1989) had also stated that farmers recognized the need for economic competence related to farming business. They were not competent enough to make their farming business more productive. Kadian (1999) stated that marginal farmers were poor accepters of innovations. One of the reasons of poor adoption**/**acceptance was the low level of knowledge and skill of farmers in growing and managing fruit plants**/**gardens. This study was, therefore, planned to identify and prioritize competencies such as knowledge, skill and attitude of mango growers in district Faisalabad, Pakistan.

MATERIALS AND METHODS

This study used a descriptive research design. The population of this study consisted of mango fruit growing farmers of Faisalabad district of the Punjab. Faisalabad district is consisted of five tehsils. According to Agriculture Extension Department's survey five tehsils consisted of different number of mango fruit growing farmers. Thus there were nineteen hundred and ninety three (1993) fruit growing farmers. A stratified random sampling technique was used for the selection of respondents. The sample for this study consisted of 317 fruit growers calculated by using "Table for determining Sample Size from a given Population" developed by Fitzggibbion and Morris (1987). Stratified random sampling technique was used for the selection of respondents due to five tehsils of Faisalabad district had different number of fruit growers, so that each tehsil represent the proportionate number of respondents, Tehsil Faisalabad had eighty, tehsil Jaranwala had ninty, tehsil Sammundri had one hundred and twelve, tehsil Tandilwala had sixteen and tehsil Chakjumra had nineteen respondents. The data were collected through validated interview schedule through personnel interviews.

The data were analyzed through software statistical package for social sciences SPSS. The data related to biographical information of the respondents from each of the category were analyzed using rank orders, percentages, standard deviations and numbers. The chi-square was calculated to find out the relationship between two variables.

RESULTS AND DISCUSSION

The data was collected from the mango growers regarding their technical competencies for the assessment of their needs concerning the knowledge, skill and attitude level of the growers by using five point likert scale. The results are tabulated in Table 1.

There were 25 recommended practices and the perceptions of farmers regarding knowledge, skill and attitude level indicates that the competencies were ranked according to their mean values considering that the lowest value as one and the highest value as 25. Therefore the competency ranked at number one in which the mango growers need maximum training, Thus the top nine competencies in which mango growers need maximum training were: (1) intercropping in mango gardens in Kharif season, (2) time of fertilization application to mango fruit plants, (3) intercropping in Rabi season in mango orchards (4) control measures of insects/pests and diseases attacked to the mango fruit plants, and (5) pollination of mango fruit plants especially care at pollination time (6) irrigation to mango gardens in summer season, (7) different recent improved varieties of mango fruit, (8) marketing of fruits, (9) irrigation in autumn season to mango orchards. The competency statements need less attention are ranked 20 to 25 had mean score comparatively higher, needs a little bit less training. Weed control (25) in mango orchards, mechanically, chemically or manually had comparatively high mean score. The results of this study are also similar to those of Ahmad (2008) who reported that weed control in mango gardens had high mean score and fell between medium and high categories. Filling of pits (24) with ingredients of fill for transplantation of fruit nursery plants in the field, (23) fertilizer application above ten years of age mango fruit plants, (22) recommended harvesting practices of fruits from the mango fruit plants, (21) fertilizer application from five to ten years of aged mango fruit plants, ranked at the end of all the technical competencies which needs comparatively less training for mango growers.

Martin and Sajilan (1989) identified the teaching competencies perceived to be important to Malaysian Extension personnel in teaching adult farmers concluded that all 53 competency statements were perceived as moderately important and only sixteen

Table 1. Knowledge, skill and attitude levels of recommended practices as reported by the respondents (mango growers)

Practices	Knowledge		Skill		Attitude		Combined (K+S+A)	
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	RO
Intercropping in Kharif season in mango gardens	2.15	0.54	2.06	0.53	1.98	0.62	2.06	1
Time of fertilizer application to mango plants	2.18	0.62	2.13	0.56	2.17	0.56	2.16	2
Intercropping in Rabi season in mango gardens	2.50	0.72	2.36	0.75	2.16	0.83	2.34	3
Control measures of insects/pests/diseases	2.50	0.64	2.27	0.69	2.34	0.63	2.37	4
Pollination in mango plants	2.55	0.75	2.13	0.83	2.52	0.75	2.40	5
Irrigation in Summer to mango gardens	2.53	0.72	2.49	0.68	2.34	0.86	2.45	6
Varieties of mango fruit	2.72	0.76	2.55	0.79	2.11	0.99	2.46	7
Marketing of mango fruits	2.53	0.73	2.40	0.68	2.45	0.75	2.46	8
Irrigation in Autumn to mango plants	2.66	0.55	2.59	0.56	2.24	0.76	2.50	9
Diseases of mango plants and fruits	2.61	0.70	2.36	0.80	2.58	0.72	2.52	10
Irrigation in Spring to mango plants	2.71	0.56	2.64	0.57	2.26	0.81	2.54	11
Layout system of mango gardens	3.01	0.55	2.04	0.85	2.57	0.97	2.54	12
Irrigation method to mango plants	2.82	0.57	2.77	0.52	2.03	0.93	2.54	12
Recommended pruning method of mango plants	2.67	0.72	2.37	0.74	2.65	0.76	2.56	14
Insects/pests of mango fruit and plants	2.65	0.69	2.46	0.79	2.58	0.73	2.56	14
Size of planting pit	2.77	0.63	2.39	0.86	2.59	0.83	2.58	16
Proper Plant to plant distance	2.97	0.49	2.53	0.73	2.36	1.02	2.62	17
Irrigation in Winter to mango plants	2.72	0.65	2.63	0.68	2.51	0.81	2.62	17
Fertilizer application to less than five years of age plants	2.68	0.81	2.65	0.78	2.68	0.81	2.67	19
Preparation of field for mango gardens	2.92	0.64	2.22	0.87	2.94	0.68	2.69	20
Fertilizer application five to ten years of age mango plants	2.75	0.80	2.71	0.76	2.75	0.80	2.74	21
Recommended harvesting practices	2.87	0.59	2.62	0.71	2.77	0.61	2.75	22
Fertilizer application above ten years of age plants	2.82	0.80	2.76	0.78	2.81	0.80	2.80	23
Filling of pits with ingredients of fill	2.90	1.07	2.84	1.03	2.90	1.07	2.88	24
Weed control in mango gardens	3.12	0.97	2.92	1.06	3.09	1.03	3.04	25
Overall Mean	2.70		2.48		2.50		2.56	

Scale: 1 = very low, 2 = low, 3 = medium, 4 = high, 5 = very high

$\overline{X}$ = mean, SD = standard deviation

competency statements were highly important for the transfer of new technologies to the Malaysian farmers. Further they recommended that an assessment program should be arranged in the Malaysion Extension system for training in educational techniques and processes.

CONCLUSIONS

After the analysis and interpretation of the data it is concluded that most of the competencies fall in the low level as ranked at likert scale so the mango fruit growers need immediate attention for their training and education in these competency statements in mango production technology. It is concluded that the most crucial competencies need immediate attention ranked at number 1-9 and were intercropping in Kharief and in Rabi season in mango fruit gardens, time of fertilizer application to mango fruit plants, insect/pests and diseases and their control measures and pollination of fruit plants, irrigation in summer to mango orchards, different improved varieties of mango fruit, marketing of

mango fruits and irrigation in autumn to mango gardens needed more training.

RECOMMENDATIONS

The Department of Agricultural Extension, Govt. of Punjab should immediately arrange training courses for mango growers in the main competency categories identified in the study. Similarly, the department should arrange seminars, workshops regarding mango growing practices such as intercropping in Kharif and Rabi season, fertilizer application, control measures of insects/ pests/diseases and pollination in mango plants etc.

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