

Identifying the Problems of Apple Production from Viewpoint of Apple Growers in West Azerbaijan Province, Iran

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Abstract: Apple is one of the most widely cultivated of the fruit trees in the world. It is importance of food value being wealthy in vitamins, calcium, phosphorus, potassium and organic acids. The mission of Agricultural extension systems is transfer and delivery knowledge to farmers. Need assessment have special importance role in educational programs. The main Goal of this research was identify and analysis problem of apple growers in West Azerbaijan Province of Iran. The validity of the questionnaire was approved by the judgment of expert panel. Reliability index of the questionnaire was calculated through alpha in SPSS software which was 0.83. The population of this study was apple growers in West Azerbaijan that by randomized technique 381 people selected. The results indicated that apple growers have serious problem in the stage of planting, harvesting, warehousing and marketing. Awareness of apple growers about apple production was in average level. Results indicated that an apple grower is interested in practical educational methods. Therefore agricultural extension educators must pay attention to this serious problem and have special program to solve this educational problem in their educational course.

Key words: Apple • Problems • Apple growers • West Azarbayjan • Iran

INTRODUCTION

Agricultural sector is considered as an effective factor in economic development of countries [1]. Achieving food security and agricultural development is possible only by cultivated and use of new technologies in farm land. Today in most parts of the world, like Iran, due to limited land and water this important (increase production level) isn't possible by increasing under cultivated area. Therefore the use of technology and knowledge in the production is inevitable. Agricultural technology and methods were continuously changing and farmers need to be aware of how to use these technologies in their farms [2, 3]. Knowledge and technology transfer process from production centers to farmers were done by agricultural extension and education system [4].

Jalilian [5] states, determining the needs assessment have special important role in designing and implementation of training programs. During this process extension agents could determine the knowledge, attitudes, skills and aspirations of stakeholders (KASA) of audience. According to available statistics, the world level of apple orchards were 5697758 hectares and its total

annual production of apple was 57982584 tones. In Iran the amount of apple orchards under cultivation was 148,353 hectares and 186,000 Iran households have occupations related to apples and related industries [6]. Iran is one of the top ten horticultural producers. However, harvest losses in Iran are several times greater than the world's average loss. Even after establishing an Agricultural Extension Service, Iran still experiences great problems in reducing post-harvest losses [7].

Ugata [8] in his report points to the status of apple production in the world. He states that Iran producing two million tones has the seventh rank after China, USA, Turkey, Italy, Germany and France. West Azerbaijan province with special climatic conditions is a suitable climate region for apple production in Iran. Apple variables that are produced in the west Azerbaijan province, including the Golden Delicious and Red Delicious, Mashhad, Urmia, Urmia Summer Jonathan (GareYapraq) and Meshkin Apple variables. West Azerbaijan province having a variety of horticulture products is considered as one of the important centers for agricultural exports abroad in Iran. In west Azerbaijan province, despite having first place in the apple producing in Iran, the produced apples quality is not desirable. This

problem caused to the loss of world markets. Head of West Azerbaijan grower's union states that of 43000 hectares cultivated apple in 2010 only the amount of 1650000 tons of apples was produced. He said that average apple production in the west Azerbaijan province was 20 tons per hectare and also the expressed that the average of global apple production is 60 tons per hectare. This gap is due to some problems for apple growers and lack of knowledge required to produce apples, the growers are facing to it. Monie [9] states that there was existed a significant problems in apple production in Iran. Many of these problems were refer to the lack of proper management by apple growers. Panahi and Chizari [10] in their study state that the lack of access to apple experts for gain new information to apple production was the major problems for apple growers in Iran. Therefore, it is necessary to provide sufficient information for apple growers to enhance their production level.

Needs assessment is a primary step in developing any new technology [11]. Educational and extension activities have been established based on identify operational problems of farmers [12, 13]. The growers in training course unfortunately don't pay attention to these issues and problems that faced. The educational content that is provided isn't based on real needs of apple growers. Ignored to the issues and challenges were the cause of many obstacles in agricultural sector. The needs assessment study is an integral part of the Technology Transfer and Extension project [14]. A large number of experts state that educational and extension programs could have efficiency, if these courses based on stakeholders needs [3, 4, 9, 15-21].

Gholifar and his cooperators [7] express that a great number of Iranian farmers had low technical competencies at many stages of farming activities such as planting, harvesting, protecting plants and operating agricultural machinery.

Shirmohammadi [22] finding shows that for being more successful in agricultural cooperatives, managers should identify community needs and then separated to the educational and non-educational needs. Panahi and Chizari [10] in their findings state that most of farmers have many problems in products. Ziyee-Najafabadi [23] and Rasouliazar *et al.* [24] finding research shows that the most important step in training programs is determining needs of the audience. When training courses are designing based on audience needs, program has more effective results. This research tries to identify and analyze the educational needs of apple growers and to determine challenges of apple production in West Azerbaijan province of Iran.

Research Questions:

- What ear problems and issues encountered by apple growers in West Azerbaijan province?
- What is the educational need of apple growers in West Azerbaijan province?
- What are apple growers should do in marketing process in West Azerbaijan province?
- What is the necessary guidelines to solve problems of apple growers in West Azerbaijan province?

Research Methods: The research in terms of a nature is a kind of quantitative research and in terms of a goal is an applied research. And in terms of controlling the variables is descriptive and correlation kind, which has been carried out in a survey way. The survey was conducted between 1 September 2010 and 4 October 2010. The research population included of apple growers in west Azerbaijan Province (N = 17439). Sample size was determined by Krejcie and Morgan [25]. Therefore, sample size was determined 381 (n=381).

Data were collected by using structured questionnaires that addressed by consultants to the questions. A questionnaire was developed based on interviews and relevant literature. A 5-point Liker scale ranging from 1 (very low) to 5 (very high) was used as a quantitative measurement. Content and face validity were established by a panel of experts consisting of faculty members and experts in horticulture in the agricultural organization in west Azerbaijan province. A pilot study was conducted with 30 apple growers who had not been interviewed before the earlier exercise of determining the reliability of the questionnaire for the study. Computed cronbach's alpha score was 0.83 which indicated that the questionnaire was highly reliable. The data were coded and analyzed by using the Statistical Package for the Social Science (SPSS16) for windows. Descriptive statistics (frequencies, means, standard deviations, range, minimum and maximum) were used to describe analyzed data. Respondents' view point about the necessary knowledge regarding in apple production were determined as described in the methodology section (ISDM). For the purpose of characterization, the scores were labeled as: "weak", "mediate", "good" and "excellent".

A = Weak: $A < \text{Mean} - \text{SD}$

B = Mediate: $\text{Mean} - \text{SD} < B < \text{Mean}$

C = Good: $\text{Mean} < C < \text{Mean} + \text{SD}$

D = Excellent: $\text{Mean} + \text{SD} < D$

RESULTS

The mean age of respondents was 44 years and average experience of apple production was 17 years. Also 73 percent of the respondents were illiterate. 54.8 percent of respondents said, they have high communication interaction with extension centers. 69 percent of respondents have private ownership garden. The average yield was 23 tons per hectare. Respondents were having two apple varieties (Golden Delicious and Red Delicious). Table 1 shows other characteristics of respondents (Table 1).

Awareness of Respondents about the Various Processes of Apple Production: These are very suitable areas for the apple crop production. The farmers need to be trained on appropriate agronomic practices (such as pruning)

for better yield to be realized. Because of the low yield and poor harvest, the apple crop cannot compete well in the market for both local and export. It is recommended that the farmers should be trained on apple management aspects, particularly dormancy breaking [26]. Grouping respondents with the necessary knowledge regarding in apple production were done by using ISDM methods. Results show the respondents' awareness in issues such as planting, feeding, the apple harvest and marketing issues were in the intermediate level (Table 2).

Growers still haven't necessary and sufficient knowledge about cases that were expressed. So extension educational organizations must redesign in their training programs and need to have point to these cases carefully.

But in relation to other issues such as application of pesticides, the level of awareness of respondents was in high level. The important finding was achieved during

Table 1: Characteristics of Respondents

	Mean	Sd.	Min.	Max.
Age	44.2	9.8	21	65
Experience in horticulture	17.2	9.9	2	50
income	8.2	11.0	1	60
Average of production Level	22.0	9.8	8	25
Distance garden from Extension center (Km)	10.8	5.7	1	45
Distance from city (Km)	14.7	9.9	5	40

Table 2: Respondents awareness about apple production

	Weak		Average		Good		High	
	f	%	f	%	F	%	f	%
Awareness about planting apple trees	47	12.5	155	40.6	103	27.1	76	19.8
Awareness about care of apple trees	128	33.7	76	20.0	137	35.8	40	105.0
Awareness about nutrition of apple trees	83	29.1	107	28.1	140	36.5	51	13.5
Awareness about pests and diseases of apple	40	10.5	160	42.1	128	33.7	53	13.7
Awareness about proper use of pesticides and familiarity with sprayed of apple trees	84	21.9	99	26.0	135	35.4	63	16.7
Awareness about apple harvest	44	11.5	170	44.8	95	25.0	72	18.8
Knowledge about the issues of storage and marketing of apples	48	12.5	182	47.9	59	15.6	92	24.0

Table 3: Knowledge and awareness of respondents about storage and marketing

	Very low		Low		Average		High		Very High		Mean	Sd.	CV
	%	F	%	f	%	f	%	f	%	f			
Recognition regarding to the storage principles	14.6	55	29.2	112	28.5	146	11.5	44	6.2	24	2.65	1.06	0.400
Recognition of storage pests and diseases	20.8	80	41.7	158	19.2	74	16.1	61	2.1	8	2.24	1.03	0.440
Recognition how the cleaning	12.5	48	41.7	158	22.9	88	18.8	71	4.2	16	2.6	1.06	0.407
Recognition necessary points during warehousing	15.6	60	37.5	142	39.2	111	13.5	51	4.2	16	2.53	1.04	0.411
Recognition of product collection centers	10.4	39	37.1	103	36.5	139	22.9	87	3.1	12	2.81	1	0.350
Knowledge about the proper time to market	4.2	16	14.6	56	53.1	202	22.9	87	5.2	20	3	0.86	0.280
Standardization and grading of apple products	14.6	55	37.5	143	31.3	119	12.5	47	4.2	16	2.54	1.02	0.401
Proper transferring of apple products	2.1	8	13.5	52	38.5	147	35.4	134	10.4	39	3.38	0.92	0.270

1=very low, 2=low, 3=medium, 4=high and 5=very high

Table 4: Effective teaching methods from the viewpoint of respondents

	Very low		Low		Average		High		Very High		Mean	Sd.	CV
	%	f	%	f	%	f	%	f	%	f			
Visit on farm	8.3	31	2.1	8	12.5	48	14.6	56	62.5	238	4.20	1.24	0.31
Contact to Consultants Experts	2.1	8	6.3	24	10.4	40	28.1	107	53.1	202	4.23	1.01	0.23
Extension classes	2.1	8	9.4	36	24.0	91	18.8	72	45.8	174	3.96	1.12	0.28
Practical training course	1.0	4	4.2	16	12.5	47	15.6	60	66.7	254	4.42	0.93	0.21
TV and radio programs	4.2	16	21.1	80	24.2	93	36.8	140	13.7	52	3.34	1.08	0.32
Printed materials	19.8	75	28.2	107	34.0	92	14.6	56	13.5	51	2.78	1.30	0.47

1=very low, 2=low, 3=medium, 4=high and 5=very high

interviews, this is that unfortunately farmers don't use the mechanical and biological methods to control pests and diseases and do not have the necessary knowledge in this area (Table 2).

Knowledge and Awareness of Growers in Storage and Marketing of Apple Production: One of the major problems that most apple growers in West Azerbaijan province, faced with it, was the stage after harvest. This stage was including issues of storage and marketing of products. Results shows that knowledge of apple growers about the principles of apples storage, were in medium level. Lack of knowledge about pests and diseases in storage stage, causes many problems for growers. The findings indicate that only a small percent (2.1 percent) of the respondents had sufficient knowledge regarding the recognition of pests. Cleaning and grading issues in apple produced weren't used by the apple growers. The findings show that only a small percentage of respondents (about 2 percent) have sufficient knowledge in this field.

In related to other issues and items that related to the process after apples harvesting, growers were having serious problems. Failure to understand the importance of marketing and after harvest by growers was reduce in farm economic performance (Table 3). Thus, according to the findings, educational extension systems (private, public) should be provided sufficient information in the process of harvesting to the apple growers, to be solved the important problems of apple producers.

Effective Teaching Methods from the Viewpoint of Apple Growers: Providing the effective education is one of the most goal of educational organizations. There are various methods for making effective educational methods to farmers. Results indicated that growers were interested in participation learning methods in learning techniques in education. The highest priorities (CV=0.21) were practical methods from the viewpoint of growers. Other

teaching methods that apple growers pointed, were the using specialized expert technical contact for providing technical advice for them (CV=0.23). Technical supervisor are effective to apple growers. These caused the farmers welcomed to the increase of private consultants. Lowest priority for growers was the Printed materials (CV=0.47). The low literacy level caused not to use information in the form of publications and written channels (Printed materials) to respondents. Other findings show in Table 4.

CONCLUSION

Insufficient apple production knowledge has particularly been identified as a major constraint to apple growing in west Azerbaijan Province. Lack of suitable cultivars and knowledge on management techniques has also caused low production thus necessitating importation to meet the demand. The basis to effective educational and extension programs has been established based on farmers needs. Educational organizations were responsible for providing necessary training for the educational problems of stockholders. Unfortunately, due to the conventional system of agricultural extension these content programs don't to their needs. This issue caused to waste of financial resources and lack of farmers welcomed from training of the extension programs.

But if extension planers have a better plan and interact with farmers in designing programs, enforcement programs will increase. Considering the problems of farmers and its reflection in the training course could have solved many of the challenges of farmers. The results indicated that growers were having many problems in matters before the planting, harvesting apples and even acts of production process (marketing and storage). In the introduction was expressed the highest level of apple cultivated in the West Azerbaijan province. Unfortunately this is not used properly from this capacity. These problems were caused a waste of resources produced.

Extension organizations (private and public sector) must pay attention to the needs of growers. Even as research results showed, as if the training course as practical training, have the highest effectiveness.

Guidelines necessary to reduce the problems and challenges in apple production in West Azerbaijan province:

- Move towards knowledge-based production and knowledge in producing apples.
- Using graduates' horticulture student in the form of supervisor and technical advisers.
- Establishment information centers present market prices and identify target markets for apple growers.
- Establishment and strengthening apple cooperative organizations.
- Introduce benefit the combined methods of pest and disease control likes IPM methods.
- Extension organization should use field classes (FFS approach: farmer field school) and practical methods to apple growers.

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