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Perception of potato growers regarding plant clinic in Okara District, Punjab, Pakistan

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ABSTRACT

Potato is a well-known vegetable grown in Pakistan and it provides essential nutrients to the human body. The purpose of the study was to assess the perception of potato growers regarding plant clinics. Data were collected randomly from 120 potato growers of District Okara, Punjab, Pakistan. The findings indicated that the majority of the growers had >35-45 years old. Results indicates that 26.7 percent sampled farmers were illiterate, 23.3 percent of the respondents had up to middle level education and 30 percent of the farmers were matriculated. Whereas 40% of the potato farmers were smallholders with an average landholding of 6 to 12.5 acres. Results indicated (58.3 %) of the respondents stated that they used quality seed of potato and 55.8% stated that after the impact of plant clinic on potato productivity they will make improvement in crop varieties.There is a dire need to take some effective steps to improve plant clinics activities for increasing potato production at national level.

INTRODUCTION

Potato (Solanum tuberosum L.) is a well-known vegetable grown all over the world. It is regarded as a valuable supply of nutrients because it provides nearly all necessary nutrients needed for the human body ranging from macronutrients that are considered as a high level of energy to micronutrients like minerals and vitamins. It is considered as 5th largely produced cultivated food commodity just after sugarcane, maize, rice, and wheat in the world (FAO, 2012). In Pakistan, potato ranks 6th among quantity-wise production of any crop (Govt. of Pakistan, 2017).

Potato producers in Pakistan are facing a continued downward trend in potato commodity prices. This is due to some problems like no value addition, no proper system, lack of modern knowledge, higher input costs and low output returns and climate change. It is being warned that climate change tends to severely threaten the agriculture sector in the future (MOE, 2009). The services provided by the public extension sector in mounting countries likewise Pakistan purpose to elaborate crop production as well as a managerial concern (Shah et al., 2010). With the help of the agricultural extension, capacity building of small farmers could be improved by need-oriented teaching (Zhou, 2010). Therefore, the services of extension, not only affect to development of their field and provide a cropping model but also motivate them to apply agricultral practices and implement of the current practices concerning their socio-economic conditions (Khatam, 2011; Khurshid., 2015). Despite a number of extension and rural development programmers being started in the region to mitigate the potao production threats, however, the sector has not seen significant growth. Because of internal departmental competition and political wavering, most programmers have failed; these are the most prominent factors (Saima *et al*, 2005). No doubt all the programmers initiated by the Pakistani government were unable to yield fruitful results that had been anticipated in the past. The government of Pakistan, with the cooperation of Agricultural Extension, is working on various projects to develop agriculture, and make positive decisions for the future. Now a day agricultural extension adopted the latest approach to plant clinic (plant-wise). Almost more than 500 plant clinics have been built in Pakistan. In the province of Punjab, plant clinics operate regularly in districts of Sheikhupura, Gujranwala and Bahawalpur are using with the same plant-wise strategy . The plant clinic is jointly run by Agriculture Officers and Field Assistants. In Pakistan, a data management program is working successfully to help plant clinic doctors for better diagnosis and quality advice. Upgrade this program, medications that are recommended to be registered to plant clinics, monitored for potential emerging pests, diseases, farmers need and certainly also to provide the best advice. Although the agriculture sector is considered the backbone for Pakistan's economy it is still low yield crops compared to international yield rates. Several other factors also make agriculture vulnerable from low productivity and which emphasize upon sustainability perspective, formulation of farmers' pleasant agricultural policies and the development of appropriate production technology (Govt. of Pak., 2010). The government of Pakistan, with the cooperation of Agricultural Extension, is working on various projects such as plant clinic to develop agriculture, and make positive decisions for the future.

Plant clinics are linked to a plant-wise knowledge bank, a portal for getting practical information on plant health online and offline, including diagnostic tools, advice on best practice pest control and even plant clinic data analysis for needed crop protection. They are both plant-wise approach tools intended to help the national plant health program. Stronger the country's plant health program will be encourage supporting farmers and providing secure, continuous food supply and improving their livelihoods.

The available literature has been investigated carefully and no such study has been found, and it is stated that establishment of monitoring and evaluation system at district level is a national challenge for Pakistan to improved local level performance (Plant-wise Annual Report, 2016). So, that the current study was designed to evaluate plant clinics (plant-wise) in Tehsil Depalpur, District Okara.

The main objective of the study was to assess the perception of the poatao growers about familiarity with plant clinics.

MATERIALS AND METHODS

Research area

The name Okara is derived from Okaan, the name of a type of tree. It is the 25th largest city of Pakistan by population. The city is located Southwest of the city of Lahore and Faisalabad was 100 km by passing away Ravi River. It is known for its agriculture-based economy and cotton mills. The nearest major city to Okara is Sahiwal, formerly known as Montgomery. Pakistan military dairy farms, known for their cheese, are situated in Okara. Pul Dhool near Abdulla Sugar Mill is town in district Okara. Pul Dhool is on Hujra Chunian road. From Hujra Shah Muqeem 9 km and from Chunian 17 km.These farms were established before the creation of Pakistan in 1947**.** On the east of District Okara is Kasur district, Sahiwal while on the west are Pakpattan districts, whereas Nankana Sahib and Faisalabad districts on the North and Bahawalnagar district on the South. The total area of district Okara is 4,377 square kilometers and comprises of three tehsils of Okara.

Okara is the largest potato producing district of Pakistan. The share of Okara is 38.44 % and 36.66 % in total potato production of Punjab and Pakistan

respectively which shows that Okara is contributing remarkably in aggregate potato production in Punjab and Pakistan. It is a major root crop produced in Ethiopia and it is short duration crop which matured within 3-4 months (Endale *et al.*, 2008). Potato is an important sources of on-farm income for the growers in Ethiopia. It is rapidly becoming a valuable source of cash income due to an increasing demand of food processing sector to meet demand of fast food, snack and food industries (FAO, 2010). It is the most common marketed vegetables of the marketed products (Bezabih and Hadera, 2007).

Population

All the farmers who visited the advisory services from January 1st to 31st March was population of study. The list of visitors was collected from the office and it was found that there were total 175 farmers who were considered as population.

Sample size

There is no firm lead for test estimate (Wimmer and Dominick ; Best and Kahn, 2006). The "idea of research'' may decide the example measure. The most critical is the method for choice subjects as opposed to the size (Best and Kahn, 2006).

Sample may be defined as the true representative of the universe which has all characteristics of the whole universe. A sample of about 120 farmers was randomly selected to gather information about the underlying research.

The list of last three month (January -March 2020) of visiting farmers was taken from extension office Tehsil Depalpur. The list was recognized according to village wise for contacting with farmers easily.

Data collection instrument

There are assorted tools or instruments for collection of information or data likewise questionnaire. The statistics series through private interview approach presents opportunity to an investigator to solve out the reliable authentic information due to more elasticity, strength, response price and intensive probing (Denscombe, 2003; Khan, 2007).

The researcher used a well-structured questionnaire for collection of data from the farmers taking advisory services. This questionnaire was prepared with great care and with the consultation of the experts.

Pre - testing

The reason behind pre -testing was to evaluate and discover the workability of the estimating instrument. The other reason for existing was to roll out at any critical and essential improvements in the estimation of instrument before initiation of the real information gathering. The pre-test gave the specialist a chance to discover and take care of any unforeseeable issue that may emerge amid the meetings and furthermore proportional the degree to which the respondents were touchy to specific inquiries.

Data collection

The data collection started in commencing of month April. The data were collected by researcher himself and it was the tough and hard experience for researcher because the farmers were not ready to response reaching and contacting them in their native area, lack of time for questionnaire and some other social barrier.

Data Analysis

Just gathering of crude information is of no utilization. It must be in an adequate shape for deducing a type of conclusions. Information examination is basic for smoothening the method for displaying the information in a justifiable and complete way. The crude information were analyzed through PC program SPSS (Social Packages for Social Sciences). Rates, mean and standard deviations were processed. Weighted scores were additionally acquired.

RESULTS AND DISCUSSION

Table 1: Distribution of the respondents according to their age

Age of the respondents (in years)	*f*	%
Up to 35	42	35.0
>35-45	48	40.0
Above 45	30	25.0
Total	**120**	**100.0**

Data presented in Table 1 show that almost one-third (35.0%) of the respondents had up to 35 years of age, while 40.0% of the farmers had >35-45 years and remaining one-fourth (25%) of the respondents had more than 45 years. The results of Muhammad *et al.* (2014) are partially similar to current study who found that the respondents were ranging from 25-75 years old.

Table 2: Distribution of the respondents according to their education

Education of the respondents	Frequency	Percentage
Illiterate	32	26.7
Up to Middle	28	23.3
Matric	36	30.0
Above Matric	24	20.0
Total	**120**	**100.0**

Table 2 indicates that 26.7 percent sampled farmers were illiterate, 23.3 percent of the respondents had up to middle level education while 30 percent of the farmers were matriculated and 20.0 percent farmers had above matric level education. Similarly, the results of Muhammad *et al.* (2014) also partially coincide with those of present study which represents that one fourth (24.2%) of the respondents got education up to matriculation and above matriculation respectively. More than one fifth (22.5%) were up to middle and 17.5% were upto primary. These results are more or less similar to Munawar (2012) who reported that one forth of the respondents (30.5%) got education up to matric, one fifth (20%) were up to primary level and the same were illiterate. It can be deduced from the above results that most of the respondents were educated which interpreted their interest in plant clinics.

Table 3: Distribution of the respondents according to their size of land holding

Size of land holdings (acres)	Frequency	Percentage
Small (Up to 6)	39	32.5
Medium (>6-12.5)	43	35.8
Large (Above 12.5)	38	31.7
Total	**120**	**100.0**

In Table 3 three categorizes of the farmers were made regarding about their land holding size: (i) up to 6 acres of land, (ii)>6-12.5 acres of land, and (iii)>12.5 acres of land. Data in Table 3 depicts that about one-third (32.5%) of the respondents were small farmers and had up to 6 acres of land while more than one-third (35.8%) of the respondents were medium farmers and had >6-12.5 acres of land and 31.7 percent of them were large farmers and they had above 12.5 acres of land.The results were more or less similar to those of Muhammad *et al.* (2008).

Table 4 : Farmers perception about familiarity with plant clinics

Impact of Plant Clinics	Yes		No		Very low		Low		Medium		High		Very high	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*F*	%
Use quality seeds	70	58.3	50	41.7	4	3.3	3	2.5	7	5.8	22	18.3	34	28.3
Improvement in crop varieties	67	55.8	53	44.2	7	5.8	7	5.8	8	6.7	20	16.7	25	20.8
Holes on potato cob	40	33.3	80	66.7	10	8.3	8	6.7	9	7.5	5	4.2	8	6.7
Broken potato plant tip	44	36.7	76	63.3	7	5.8	11	9.2	11	9.2	8	6.7	7	5.8
Holes on potato plant stem	40	33.3	80	66.7	10	8.3	9	7.5	10	8.3	6	5.0	5	4.2
Agriculture trade fairs	57	47.5	63	52.5	5	4.2	8	6.7	9	7.5	13	10.8	22	18.3
Availability and use of internet	27	22.5	93	77.5	4	3.3	10	8.3	5	4.2	5	4.2	3	2.5
Impact of plant clinic on potato productivity	70	58.3	50	41.7	5	4.2	4	3.3	6	5.0	25	20.8	30	25.0

Majority (58.3 %) of the respondents stated that they used quality seed of potato and 55.8% stated that after the impact of plant clinic on potato productivity they will make improvement in crop varieties. 22.5% of the people have availability and they use of internet. However, weighted score, mean value, standard deviation and ranked order are presented in the above Table.

Table 5: Ranking order of farmers familiar with plant clinics

Familiar about plant clinic	W.S.	Mean	S.D.	Rank
Use quality seeds	289	4.13	.64	1
Plant doctorial	281	4.01	.59	2
Improvement in crop varieties	250	3.73	.87	3
Agriculture trade fairs	210	3.68	.98	4
Broken potato plant tip	129	2.93	1.07	5
Holes on potato	113	2.83	1.03	6
Availability and use of internet	74	2.74	1.06	7
Holes on potato plant stem	107	2.68	1.11	8

Scale: 1 = Very Low, 2 = Low, 3 = Medium, 4 = High, 5 = Very high

The Table 5 represents the ranking order of level of farmers' perception about familiar with plant clinics. Farmers using of quality seed (4.13±.64) and plant doctoral (4.01±.59) were ranked as first and second respectively and these mean values are fell in between the high and very high categories but were more inclined toward high category. However, Improvement in crop varieties (3.73±.87) and agriculture trade fairs (3.68±.98) were ranked as 3rd to 4th, respectively. These mean value show that farmers responses fell in between the medium and high categories but were more inclined toward high category. Furthermore, broken potato plant tip (2.93±1.07), holes on potato (2.83±1.03), availability and use of internet (2.74±1.06) and holes on potato plant stem (2.68±1.11) were ranked as 5th to 8th, respectively and mean values fell in between the low and medium categories but were more inclined toward medium category.

CONCLUSIONS

It can be concluded that most of respondents were under middle age, live in rural area, have basic schooling education, small land holding. It may also be concluded that majority of the farmers stated that they used quality seed of potato and 55.8% stated that after the impact of plant clinic on potato productivity they will make improvement in crop varieties. Majority of frmers were were aware with the impact of plant clinic on potato productivity as they were getting awareness about seed, varieties, use of internet and productivity related other aspects.

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