COMPARING THE INFORMATION DEFICIENCY AMONG REGISTERED AND NON-REGISTERED VEGETABLES GROWERS IN PERI-URBAN AREAS OF DISTRICT LAHORE

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A R T I C L E   I N F O

A B S T R A C T

Information is augmented as much needed for the farmers in the process of making decisions and adopting recommended production technologies. Therefore, we compared the information deficiency among registered and non-registered vegetable farmers in the peri-urban areas of district Lahore. The study was quantitative and a total of 360 vegetable growers (180 registered and 180 non-registered growers) participated in this study as respondents. The respondents were interviewed face to face on a validated and structured interview schedule. The collected data were analyzed with the help of the Statistical Package for Social Sciences (SPSS). T-statistics were applied to the data to compare the information deficiency. T-statistics indicated that information regarding seed rate, seed section, sowing methods and land preparation had a statistically highly significant mean difference (P=0.000) between the registered and non-registered growers. Nursery raising, irrigation application, fertilizer application and varieties were statistically significant (P<0.05). Whereas, sowing time, transplanting, maintenance of plant population, insect/pests/disease identification, insect/pest management and harvesting were statistically non-significant (P0.05) indicating no mean difference. As for as constraints were concerned, lack of participation of farmers in extension activities, access to resources and lack of motivation were the significant (P<0.05) constraints in wake of accessing information. This study concludes that information deficiency was existing among farmers, which needs to be alleviated through the integration of modern information dissemination tools, increased access to extensions services and giving motivation to the farmers by increasing their involvement in extension activities in particular.

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INTRODUCTION

The increase in agricultural production accelerates the farmers income and also has positive impact on access and food supply in the domestic market (Achterbosch *et al.*, 2014). Therefore, improving the farm production through adoption of different improved and site-specific technologies is deemed important for many reasons. Pakistan is the country where the population has reached over 200 million, asking for mood food and vegetables have special place in this discourse. Agriculture is regarded as lifeline for the national economy and farmers livelihoods in Pakistan (Government of Pakistan, 2020).

Despite the prominent role of agriculture in the national economy and the food security, Pakistan has not been able to fully realize agricultural potential as the

agricultural output is much lower than many other countries of the world (Aldosari *et al.*, 2019). Therefore, advancement and integration of science and technology in the field of agriculture is regarded key in doubling the farm production. In this context, farmers require sufficient information and exposure to the agricultural innovations. Farmers' information exposure was a key factor influencing their adoption behavior as reported by Musingafi and Zebron (2014). Farmers cultivate vegetables mainly to commercialize, and earn capital to sustain their livelihoods (Hassan *et al.*, 2021).

Growing vegetables requires active management from a production standpoint and requires special post-harvest care (Arah *et al.*, 2016). In the process of vegetable production apart from the availability of inputs, access to the information about the recommended production practices is equally important. Unless the farmers are not enriched with timely information, the potential production is hard to be achieved (Ashraf *et al.*, 2015).

Nchanji *et al.* (2017) explored the information deficiency among vegetables growers regarding production practices of vegetables and found that farmers had information deficiency about the major aspects of the production and this impacted the production adversely. Farmers had more inclination towards traditional information sources, and this could be the reason of information deficiency among farmers (Hassan *et al.*, 2021).

Considering the challenges of vegetables production, Government of Pakistan approved and implemented various approaches to train farming communities for the profitable farming and community development. Although, most of them were terminated one after the other with meagre outcomes (Ashraf *et al.*, 2019). To enhance vegetable production, Fruit and Vegetable Development Project (F&VDP) was implemented by Government of the Punjab, Agriculture Department. F&VDP was Farmer Field School (FFS) oriented approach to impart training to the farmers by the Extension Field Staff (EFS). Agricultural extension was the major carrier of agricultural knowledge, speeding up the transfer and sharing of knowledge that can be adopted well by the farmers productivity can be increased to improve the living standards of rural people eventually (Cadger *et al.*, 2016).

Information is the vital component, therefore, in this study we explored the prevailing information deficiency among farmers. This information deficiency was compared between the two groups of farmers, viz registered farmers in F & VDP project and non-registered vegetable growers. The major objectives of the study included exploring those areas in which farmers are information deficient and the constraining factors making farmers information deficient.

MATERIALS AND METHODS

In terms of agricultural production and the population, is the Punjab province is ranked first among all four provinces of Pakistan. This research was conducted in peri-urban areas of district Lahore. Lahore is the capital of Punjab province and for the many other reasons like food, industry, agriculture, peri-urban areas and to some extent tourism, the province is ranked of great worth.

The study was mainly conducted in peri-urban areas of Lahore. Food and Agriculture Organization (2000:10) has defined the peri-urban area as "it is neither entirely urban nor purely rural in the traditional sense; it is the partly urbanized rural area". The Lahore Bypass which is constructed around the city to let through traffic flow without interference from local traffic and is almost 15-20 km away from the main city was considered as the end point of peri-urban area (Figure 1). Therefore, the areas falling between Lahore city and Bypass were selected for the study. Farmers growing vegetables in peri-urban areas of Lahore served as study population.

Simple random sampling technique was used to select the respondents. The list of vegetable growers (Two categories= registered and non-registered) was obtained from the Office of Deputy Director of Agriculture (Extension) Lahore. The registered farmers refer to the vegetable growers who have got training from the office of F&VDP. where non-registered farmers refer to those who did not get training. From each category, 180 respondents were selected randomly thereby making a sample of 360 respondents. A validated interview schedule containing close ended questions was prepared keeping in view the objectives of study. The reliability and validity of research tool was checked before the data collection. The interview schedule was pretested on 30 respondents, which were not the part of the selected sample size. Reliability of interview schedule was checked by Cronbach's alpha getting the value of 0.814. Statistical Package for Social Sciences was used for data analysis. Descriptive statistic was used for socio-economic factors. The "t-test" of comparison was used to compare the means of two groups.
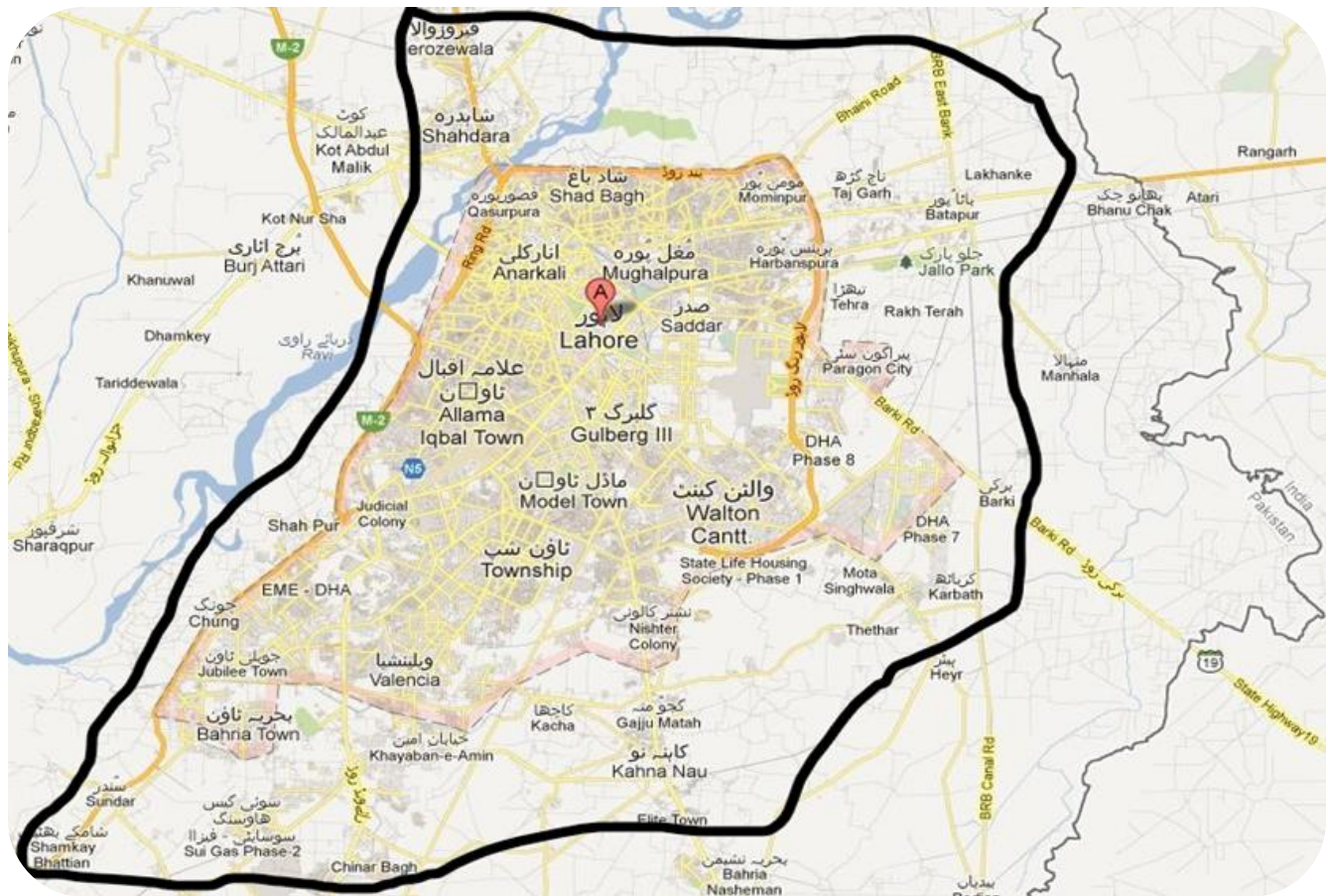
Figure 1. Map of peri-urban areas of Lahore.

RESULTS AND DISCUSSION
Demographic attributes of respondents
Table 1 indicates that within the non-registered farmers, the prominent percentage (41.7%) of respondents were aged between 41-50 years, whereas among registered farmers the farmers falling in age bracket of 30-40 were prominent (43.3%). This indicates that registered farmers comparatively younger as compared to farmers in non-registered category. As for as education was concerned, 31.1% non-registered and 16% of registered farmers were illiterate, pointing a more educational level among registered farmers than the non-registered farmers. This is further endorsed by the 18.3% registered farmers having higher level of education (more than matriculation) a way higher as compared to 7.8% non-registered farmers bearing educational level of more than matriculation.

In context of land size, more than half (55.6%) of registered farmers had land size between 1-10 acres followed by 46.1% of non-registered farmers having the same land size. Furthermore, 9.4% of non-registered and 6.7% of registered farmers had more than 30 acres of land.

Regarding tenancy status, equal percentage (60%) of registered and non-registered farmers was the owner of their lands. Whereas, among non-registered farmers tenants had more contribution (13.9%) as compared to 3.9% registered farmers. One fourth (25%) of non-registered farmers had a farming experience of 1-10 years followed by 13.9% of respondents who had an experience of over30 years. Among registered farmers 28.3 and 9.4% of farmers had 1-10 and more than 30 years of farming experience.

Farming was the prominent income source for the farmers (registered, 7.9%: non-registered, 93.3%). Registered farmers had more reliance (21.1%) on non-farming income sources as compared to non-registered farmers (6.7). This can be deducted those registered farmers based upon their productive age and higher level of education might have inclination towards agricultural diversification.

Table 1. Distribution of respondents according to their socio-economic characteristics.

Demographic attributes	Non-Registered vegetable grower		Registered vegetable grower	
	f	%	f	%
Age (in years)				
30-40	35	19.4	78	43.3
41-50	75	41.7	57	31.7
51-60	39	21.7	19	10.6
61 and above	31	17.2	26	14.4
Education				
Illiterate	56	31.1	30	16.
Primary	29	16.1	36	20.0
Middle	47	26.1	31	17.2
Matric	34	18.9	50	27.8
Above Matric	14	7.8	33	18.3
Land holdings				
1-10 acres	83	46.1	100	55.6
11-20 acres	60	33.3	57	31.7
21-30 acres	20	11.1	11	6.1
Above 30 acres	17	9.4	12	6.7
Tenancy Status				
Owner	108	60.0	108	60.0
Owner-cum tenant	47	26.1	65	36.1
Tenant	25	13.9	7	3.9
Farming Experience				
1-10 years	45	25.0	51	28.3
11-20 years	67	37.2	83	46.1
21-30 years	43	23.9	29	16.1
Above 30 years	25	13.9	17	9.4
Income Source				
Farming	168	93.3	142	78.9
Non-farming	12	6.7	38	21.1

Table 2. Mean Value, standard deviation and rank order of vegetables production practices based on information deficiency among respondents.

Vegetable production practices	Non-Registered growers	Registered growers	T-value
	Mean ± S.D.	Mean ± S.D.	
Land preparation	3.01 ± .906	2.43 ± .813	6.307**
Varieties	2.89 ± .838	2.64 ± .824	2.854*
Seed selection	2.96 ± .883	2.43 ± .934	5.509**
Sowing method	2.91 ± .850	2.54 ± .828	4.145**
Seed rate	2.88 ± .935	2.45 ± .867	4.559**
Sowing time	2.84 ± .883	2.67 ± .826	1.973[NS]
Nursery raising	3.01 ± .939	2.70 ± .921	3.173*
Transplanting	3.09 ± .976	2.84 ± 1.058	2.330[NS]
Fertilizer application	3.18 ± 1.08	2.81 ± 1.047	3.314*
Maintenance of plant population	3.11 ± 1.04	2.92 ± 1.086	1.925[NS]
Irrigation application	3.15 ± 1.07	2.79 ± 1.075	3.282*
Insect/pests/disease identification	3.18 ± 1.07	2.95 ± 1.064	1.727[NS]
Insect/pest management	3.06 ± 1.06	2.85 ± 1.062	2.086[NS]
Harvesting	2.97 ± .942	2.92 ± 1.016	.484[NS]

NS = non-significant   * = Significant   ** = Highly-Significant

Table 2 indicates that for most of the aspects of vegetables production, both groups were statistically different. T-statistics indicated a highly significant mean difference (P=0.000) regarding seed rate, seed selection, sowing methods and land preparation. This implies that there was a great different and dissimilarity in level of information deficiency among registered and non-registered growers. Generally, the outlook of mean values confirm that non-registered farmers had more information deficiency as compared to registered farmers. Regarding other aspects like varieties selection, harvesting techniques, insect/pests' management, application of irrigation, plant population maintenance, irrigation application and transplanting of nursery there was a statistically significant mean difference (P<0.05) between the two groups. Sowing time, transplanting,

maintenance of plant population, insect/pests/disease identification, insect/pest management and harvesting were statistically non-significant (P>0.05) indicating no mean difference and showing the similarities between two groups.

Findings are endorsed with those of Hassan *et al.* (2021), as they found that vegetables growers in district Faisalabad had high level of information deficiency on the aspects especially application of fertilizers, seed rates and insects' pests' identification. Meitei and Devi (2009) found that farmers were deficient in information regarding seed, fertilizers and sowing methods. Considering these issues, Ahmad *et al.* (2007) had the suggestion that farmers should have been imparted with the trainings regarding different production practices of the vegetables.

Table 3. Usefulness of trainings as perceived by the vegetable growers.

Aspects of vegetable production	Non-Registered growers	Registered growers	T-value
	Mean ± S.D.	Mean ± S.D.	
Seed Selection	3.84 ± 0.754	3.06 ± 1.018	8.357**
Land preparation	3.71 ± 0.647	2.99 ± 0.829	9.143**
Sowing method	3.75 ± 0.727	3.18 ± 0.763	7.128**
Nursery raising	3.64 ± 0.729	2.98 ± 0.835	7.69**
Transplantation	3.44 ±0 .862	3.02 ± 0.875	4.230**
Seed rate	3.46 ± -0.713	2.93 ± 0.503	7.87**
Sowing time	3.28 ± 0.818	3.13 ± 0.787	1.70[NS]
Fertilizer application	3.53 ± 0.765	2.97 ± 0.573	7.794**
Maintenance of plant population	2.89 ± 1.527	3.09 ± 0.692	1.638[NS]
Irrigation application	3.51 ± 0.859	3.09 ± 0.812	3.96**
Insect/pests/disease identification	3.50 ± 0.522	3.14 ± 0.867	3.75**
Insect/pest/disease management	2.96 ± 0.776	3.21 ± 0.787	-1.929[NS]
Harvesting	3.45 ± 0.778	3.10 ± 0.873	3.99**

NS = non-significant　　* = Significant　　** = Highly-Significant

Table 3 indicates that that all the contents discussed in training appeared effective for the farmers to varied levels. T-statistics indicated that effectiveness of training for vegetable growers regarding seed selection, land preparation, sowing methods, nursery raising, transplantation and seed rate had a statistically highly significant mean difference (P=0.000) between the registered and non-registered growers. Training imparted regarding seed selection in non-registered growers while insect/pest disease management in registered growers appeared most effective with mean value of 3.84 ad 3.21. Insect/pest/disease identification, irrigation application, fertilizer application and

harvesting were statistically highly significant (P=0.000). Whereas, sowing time, maintenance of plant population and insect/pest management were statistically non-significant (P>0.05) indicating no mean difference between the registered and non-registered vegetable growers. Training regarding maintenance of plant population among non-registered while training regarding seed selection among registered growers were perceived effective to an average extent.

Table 4 is about the constraining factors faced by the vegetable growers. As for as constraints were concerned, lack of motivation was statistically significant (P<0.05) constraints in wake of accessing information between

registered and non-registered vegetable growers. Data indicated mean values of constraints being faced by registered and non-registered growers fell between medium and high categories but more inclined towards medium category. T-statics indicated lack of interest, education, resources and busy schedule were statistically non-significant (P>0.05) indicating no mean difference. This implies that the constraints were similar for registered and non-registered vegetable growers. These findings are supported with those of Gupta *et al.* (2017) as they argued that for vegetables growers, lack of education and lack of motivation were the major

constraints faced by the farmers. In a study conducted by, Kshash (2019) identified that lack of technical knowledge, high cost of production and poor advisory services were the leading constraints faced by the vegetable growers. According to Azad *et al.* (2014), inadequate technical knowledge and lack of technical assistance to farmers were key constraints faced by the vegetable growers. Current study further indicated that association of both categories (registered and non-registered farmers) regarding busy schedule and lack of participation was found statistically non-significant (P>0.05).

Table 4. Constraining factors associated with vegetable growers.

Constraints	Non-Registered grower	Registered grower	T-value
	Mean ± S.D.	Mean ± S.D.	
Lack of interest	3.09 ± 1.146	2.78 ± 1.165	2.506[NS]
Lack of education	3.02 ± 1.127	2.75 ± 1.134	2.217[NS]
Lack of participation	2.85 ± 1.085	2.73 ± 1.119	0.996[NS]
Lack of resources	3.06 ± 1.147	2.79 ± 1.143	2.171[NS]
Local conflicts	2.74 ± 1.110	2.49 ± 1.056	2.065[NS]
Lack of motivation	2.93 ± 1.084	2.53 ± 1.130	3.292*
Busy schedule	2.96 ± 1.098	2.92 ± 1.128	0.369[NS]

NS = non-significant * = Significant   ** = Highly-Significant

CONCLUSION AND RECOMMENDATIONS
This study aimed at exploring the information deficiency among the registered and non-registered vegetable growers regarding different aspects of the vegetable's cultivation. This study found that farmers were having information deficiency of varied level, and this information deficiency could be associated with the low yield of vegetables in per-urban areas of the district Lahore. Registered and non-registered growers had different information deficiencies regarding seed rate, seed section, sowing methods and land preparation. Farmers were also dissimilar regarding information about the nursery raising, irrigation application, fertilizer application and varieties selection. Lack of participation of farmers in extension activities, access to resources and lack of motivation leading constraints impeding the access to information and ultimately the production of vegetables. This study concludes that registered growers had less information deficiency as compared to non-registered growers. This implies that by increasing the number of registered farmers in the project F & VDP, the information deficiency can be reduced. This study concludes that information

deficiency was existing among farmers, which needs to be alleviated through the integration of modern information dissemination tools, increased access to extensions services and giving motivation to the farmers by increasing their involvement in extension activities. Whereas, for non-registered farmers, extension field staff should arrange farmers meetings to boost the information access among farmers. Integration of new devices from Information Communication Technologies (ICTs) could be beneficial for effective communications among farmers.

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