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Investigating the Food Supply Chain Issues and Marketing Strategies of Milk Meat and Vegetables in Peri-Urban area of Jhang Pakistan

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Authors' contributions

This work was carried out in collaboration between all authors. Author NAS designed the study, wrote the protocol and wrote the first draft of the manuscript. Author RA performed the spectroscopy analysis. Author MHR managed the literature searches. Author SA analyses of the study. Author TA managed the experimental process. Author BS identified the species of plant. All authors read and approved the final manuscript.

Case Study

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ABSTRACT

Peri-urban areas are situated at the urban margin. The mass migration of people from rural to urban areas makes a high saturation due to industrialization. Hence, there is immense requirement of food commodities like meat, milk and highly perishable vegetables and fruits for feeding the multiplying population. Livestock productions of Peri urban areas fulfill the needs and demands of urban areas but at the same time effect and pollute the environment. Livestock sector of Peri urban areas is not well established due to lack of resources, recommendations and policies. Hence population pressure is increasing day by day in Peri-urban areas resulting in unbalance utilization of available opportunities. In this regard, present research was conducted with main emphasis to explore food supply chain in Peri-urban areas. The study was conducted in the selected Peri-urban areas of Jhang city (Punjab, Pakistan) with total sample size of 120 respondents. Both qualitative and quantitative data analysis techniques were used and findings revealed numerous problems related with Peri-urban food supply chain in study

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area along with immense potential of existing opportunities. Price fluctuation, low income, low land holding capacity, use of low standard food and unhygienic food are the major problems of study area. Price fluctuation was affecting living standard of Peri urban dweller and their economic condition. Price fluctuation was affecting economy and food quality also. The food was available in fewer prices but the quality of food was not up to standard.

Keywords: Per-urban areas; food supply chain; food supply chain in Peri-urban areas.

1. INTRODUCTION

Agriculture is one of the major pillars of growth in the economy of Pakistan. Agriculture sector consists of two sub-sectors i.e. crops and livestock. The share of crops is 31.1% while that of minor crops is 10.9% in agriculture value. The livestock sub sector accounts for 55.1% of agriculture value. Agriculture is the second largest sector which contributes to over 21.4 % in GDP [1]. The Peri-urban places are located within the municipal jurisdiction of cities outside the formal urban area having both agri. and non-agricultural activities though the rural characteristics are step by step put back by urban landscapes and attendant changes in people's lifestyles. Peri urban areas are concerned in a process of change, the migration of people both from the urban area and the rural area results in a difficult social structure [2].

In Pakistan Peri urban farming plays an important role in food supply chain to the people living in the cities. The Peri urban farmers and livestock holders are facing numerous problems. These problems are neglected by politician because their main focus is on the cities [3]. Fast growing population and migration to cities in developing countries require more food and its urgent supply to prevent hard days, famine specific for low income people [4]. Food supply chain systems have observed a dramatic transformation in many developing countries in recent years. Urbanization, in conjunction with rapid growth in incomes, has caused the character of urban diets in these countries to shift away from low quality staple grains towards high quality cereals, then to livestock and dairy products, and vegetables and fruits [5]. There are different points at which our vegetables can be sold like super store, hawkers, whole sale, farm gate and open markets. The choice of sale point depend upon the ability of the farmer, quality of the food, locality and standard of food safety and the previous record of the vegetables sold [6].

[7] reported that food production requires irrigation, manures, chemicals and cultivated land, all above things are limited in Peri-urban areas, therefore polluted water and waste bi-products are often used as inputs. Health is main issue of the day in Peri urban areas because people use contaminated water. The polluted water is due to activities of human being like washing, bathing and poor sewerage facilities. Industries and pesticide also contaminate ground water and soil which ultimately results in health hazards.

Sustainable agriculture is needed for vegetable production in urban and Peri-urban areas because of the shortage of resources and land that is being utilized for housing. The population in cities is increasing day by day because of the people migrating from rural to Peri-urban areas. It is the utmost need for good farming without causing the pollution of air, water and land [8]. Sustainable food supply is key to health and economic well being of any society and can offer healthier outcomes for people commenting on over consumption of bad but cheap food or the under consumption of food altogether leading to malnourishment,

vitamin deficiencies and illness. The health impacts of society of poor access to food is very important, so this study was conducted to assess the food supply chain and marketing strategies of their products which they produce in peri-urban areas from agriculture and livestock sector.

2. MATERIALS AND METHODS

The study was conducted in Peri urban areas of Jhang City. It is situated in Central Punjab, Pakistan. It is the oldest city of the Central Punjab. Its climate is nearly moderate but in summer, it becomes very hot and in winter season, it becomes very cold. About 70% area of district Jhang is under arid distribution. Its local language is typically termed as jangly. Its land is very fertile. It is mostly canal irrigated area. Its area near Layyah and Bhakar districts becomes arid. It is very important district of the Punjab from agriculture point of view. Cotton, wheat, rice and sugarcane are the major crops of this area. Cotton and sugarcane are the major cash crops of this area. Most the people of this area are related with agriculture. Milk is very important commodity of rural and Peri urban areas providing food requirements to the dwellers. Milk produced daily is either used for food in the house or sold to earn some money. The earned money is used to buy other food items and drive family. It significantly enables the milk producers to be prosperous. It is a good sign for women, children and all the population in the country that on small and large scale dairy farming is increasing to meet the needs of food security [9].

Peri-urban boundary has a place that has a large impact on people. It is also zones in which many people of informal completion who are served poorly by infrastructure and services experience the spruces of social prohibiting. Due to the flow of goods, resources, people and capital to Peri urban areas the sustainability of cities and rural areas is affected badly. The Peri urban areas facing the challenge to decrease poverty, hunger, unemployment, pollution and increasing the production ability of natural resources like agriculture which is badly affected by the activates of both urban and rural areas.

The present study was conducted for assessing food supply chain in Peri urban areas of Jhang and to suggest, implications for agriculture research and extension. The peri-urban agriculture is essentially required to feed the relatively dense populated urban areas. Most daily use agricultural commodities like milk, meat and perishable vegetables spoil due to improper storage facilities. The substantial problem concerning low shelf life of vegetables, fruits, milk and meat has transportation losses. Therefore, there is drastic need to produce these commodities in Peri-urban locality. To escape the post harvest losses of vegetables and fruits, it is essentially required to produce these commodities as kitchen gardening and Peri-urban agriculture.

The sample size from population was limited to 120 Peri urban dwellers selected through random sampling technique. The study could be conducted in a large area, but due to restricted time and less resources available to the researcher, the study was confined only to 3 Peri urban union councils of Jhang city. Furthermore form Peri-urban areas of three Peri urban areas randomly selected namely Hasnana, Kotsai Singh and PukayWala in Jhang. From each Peri urban areas 40 Peri urban dwellers were selected as respondents randomly for making sample size of 120. The data were collected through personal interviews with the help of validated interview schedule. The researcher personally visited at their homes or farms and interviewed the dwellers. Although the interview schedule was constructed in English, however, the questions were administered in jangly language for convenience of interviewees to get required information with maximum accuracy. While interviewing, the

researcher tried his best to maintain informal and friendly atmosphere in order to obtain the opinions of the sample respondents.

The data, thus, collected was analyzed by using computer software “statistical package for social sciences” (SPSS) to draw conclusions and make appropriate recommendations. Descriptive analysis such as frequencies and percentages were calculated for the interpretation of the data. The qualitative data were carried out by personal observation and interviews. The main purpose was to study the “Analysis of food supply chain in Peri urban areas of Jhang City: Implications for Agriculture Research and Extension in District Jhang”. In our opinion, this research work offers a new and potentially very interesting aspect to the food security dilemma in the Peri-urban setting with novel data and will make a great contribution to the literature.

3. RESULTS AND DISCUSSION

3.1 Source of Income

In Pakistan Peri urban farming plays an important role in food supply chain to the people living in the cities. The problems are neglected by politician because their main focus is on the cities and the villages for their vote bank and reputation development. Migrated peoples are registered voters from the villages or rural areas. The study was carried out to gather information’s determining constraints and identifying improvements for this farming system. People migrated in Peri urban areas because mostly in villages they face different social and political problems such as feudalism, lack of better and higher schooling in villages, have less working opportunities. In both Peri urban and urban areas because mostly mills and factories present, the sources of income are available. But, the resident of Peri urban areas is facing the problem of rising prices of daily use products. Black marketing has made their life uncomfortable and they are suffering psychological retardation. Due to no proper check and balance over prices, they are mentally disturbed. Their income remains same but prices are increasing by leaps and bounds due the incompetence and in ability of Govt. and the policy makers.

Income of the respondents is defined as the remuneration received periodically for the work or services performed [10]. Agriculture plays an important role in creating job opportunities by boosting the country’s economy [11]. The data regarding this aspect are given in Table 1, which represent the source of income, frequency of family members and percentage of the respondents.

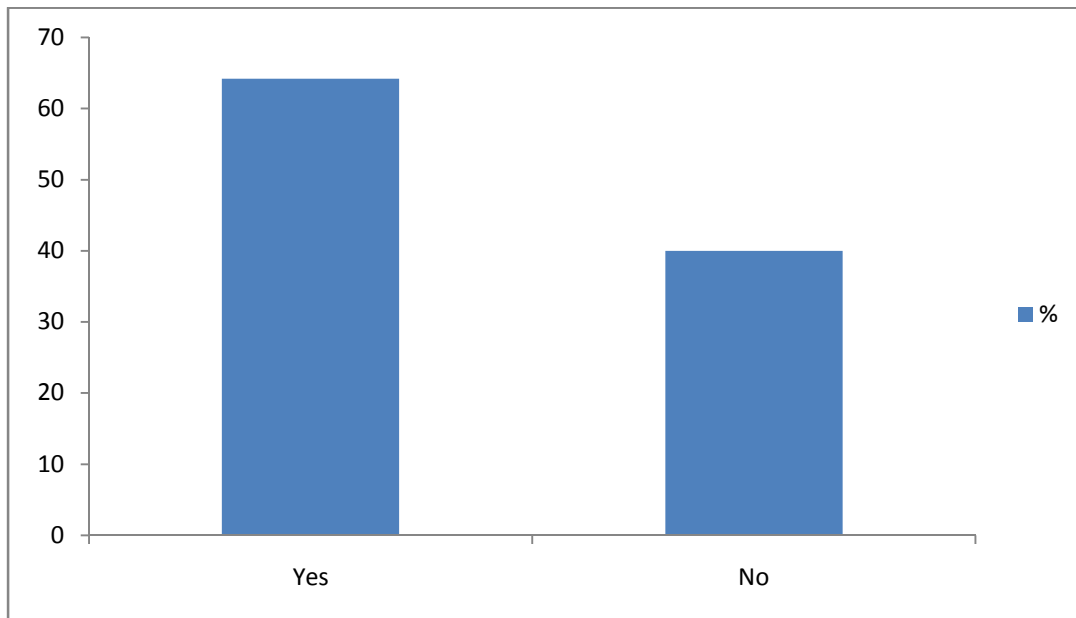
The data given in Table 1 indicates that 8.3% of the respondents had salaried job as main source of income, whereas 2.5 and 1.7 % of the respondents were earning their livelihood from job/Agri and job/shop, however 37.5% of the respondents were farming to drive their families. Whereas 12.5 and 2.5 % of the respondents were deriving their income from Agri/Lab and Agri/shop where as 26.7% respondents were engaged in labor and 8.3% getting their income from their shops. The above results are more or less similar to those of [12] who found that most (52.50%) of the respondents derive their income from farming, while 47.50% of the respondents derived their income from both farming and non-farming. This affects the respondent’s economic “resilience” and overall economic security. The resilience does not exist in the study group for any price, weather or other market related shocks or outliers that may incur but cause considerable demise.

Table 1. Sources of income, frequency and percentage of the respondents

Sources of income	Frequency	Percent
Salaried Job	10	8.3
Job/Agr.	3	2.5
Job/Shop	2	1.7
Farming	45	37.5
Farming./Lab.	15	12.5
Farming./Shop	3	2.5
Labour	32	26.7
Shop	10	8.3
Total	120	100.0

3.2 Role in Production

The Peri urban dwellers are producing crops, vegetable, meat and milk which have a great role in the economy of Pakistan. Respondents were asked about their role in production. This question was constructed having two categories; yes and no is given in Graph 1.



Graph 1. Distribution of respondents in percentage % according to their role in production

About 64.2% of the respondents have positive response regarding their role in production while 35.8 % respondents have no role in the production. Those 64.2 % play role by producing mainly milk while others are producing vegetables wheat and forage for domestic use. In the Peri urban areas different peoples are involved in different activities for earning money. Mostly in these areas peoples are working as daily wages labor. About 50% of the respondents are not doing jobs, related to the agriculture while remaining 50 % are distributed as mostly 9.2% respondents having cart, while 7.5% respondents were engaged

in labor work. About 5.8, 4.2, 4.2, 2.5, 1.7, 1.7, 1.7, 1.7, 1.7 and 0.1% respondents working as brick making, daily wedges, job, driver, brick making/ rickshaw, cart/ rickshaw, rickshaw, watchman, worker and shop keepers respectively.

3.3 Issues Regarding Food Supply Chain

This was open ended question for the data regarding the problem in food supply chain in Peri urban areas

- Firstly their main problem is the low quality of seeds which farmer grows which give low quality of production.
- Transportation of products from farm to market.
- Affect of market and price fluctuation
- Storage is another main issue after production.
- Due to lack of storage facility, mostly food items get spoiled

These are the major issues which affects the food supply chain in these areas

3.4 Pattern for Selling Product

How the Peri urban farming community sell their products and how this system affect their product and their income. Mostly peoples of the Peri urban areas have no agriculture land. But some peoples have small agriculture land so they cannot get good profit from their products. Due to less land holding they cannot use latest machinery and inputs so they cannot get high production. An old man is hoeing in his vegetables field. In the field he has grown okra and chilies. Peri-urban agriculture takes place in the urban margins.

Qualitative data reveals that vegetables producers of Peri-urban areas of Jhang mostly sell vegetables in the market through middle men or commission agents. Commission agent received 6% from the seller and about 1% from the buyer to provide his services in the local markets. It was observed that farmers were unable to preserve their products especially in case of perishable vegetables and so they had no choice but to sell vegetables as soon as possible. Market prices, on the other hand, became low when products were in abundant which results in minimum farmer's profit. Commission agents and middle men sell the vegetables in the vegetable market, from the vegetable market vegetable supply to the retailer and shopkeeper further end user or consumers purchase from retailer or shopkeepers.

The data from the Table 2 reveals that mainly respondents did not sell their product, they utilize 48.3, % their products for their domestic use and in market 40.0 % respondents sell out their product only 9.2 and 2.5% avail the facility of shop and middleman respectively.

Table 2. Method of selling products, frequency and percentage

Sale Method	Frequency	Percent
N.A.	58	48.3
Market	48	40.0
Shop	11	9.2
Middle man	3	2.5
Total	120	100.0

Bank loan is the credit given by different banks to the small land holders as fertilizers loans to facilitate and maximize their production and uplifting their living standard. Improvement is needed for interest free loan system. These credit facilities should be approachable to all farmers. Post harvest training programmes should be started in Peri-urban areas of Jhang so that there should be no loss of food commodities. It is necessary to provide cold storage facilities to the dwellers of Peri-urban areas. There is a need to provide micro credit facilities through different Banks and Non-Government Organizations and training opportunities to the farmers.

3.5 Affects of Price Fluctuation

In this section, we check the impact of price fluctuation on the dwellers of Peri urban areas while buying product and selling their products.

Table 3. Satisfaction regarding Milk, Meat and Vegetable rate

Satisfaction regarding Milk, Meat and Vegetable rate		
Milk	Frequency	Percentage
Yes	16	13.3
No	104	87.7
Meat	Frequency	Percentage
Yes	1	.8
No	119	99.2
Vegetable	Frequency	Percentage
Yes	18	15.0
No	102	85.0

According to the results of Table 3, most of the respondents were not satisfied regarding the market rates milk meat and vegetables. Furthermore these results show that 99% was not satisfied from the meat market rate because meat is only considered as their buying products not selling product. They cannot sell meat directly in the market alternatively they sell their livestock in the different occasion for earning money.

3.6 Affects of Price Fluctuation on Living Standard of Peri Urban Dwellers

This was open ended question for the data regarding the price fluctuation and so important that how this fluctuation affects the living standard of Peri urban dwellers and their economic condition. The affects of price fluctuation is given below.

- They cannot save anything for rainy days.
- Price fluctuation affects their life by degrading their food quality.
- According to their inputs they are not getting their desire output.

Price fluctuation was affecting living standard of Peri urban dweller and their economic condition. Price fluctuation was affecting economy and food quality also. The food was available in fewer prices but the quality of food was not up to standard.

4. CONCLUSION

Per-urban areas are the producers of different agricultural and livestock products but unfortunately they are under the umbrella of problems which they face from long period of time. Most of the community of Per-urban areas has limited resources and they are the poor people, so they can not live a standard life. There is a need to provide micro credit facilities through different Banks and Non-Government Organizations and training opportunities to the farmers and also to improvements in the market infrastructure (Physical) is necessary to increase the effectiveness of marketing. Concerted efforts of dairy farmers, researchers of different disciplines, NGOs and political decision makers at national and local level are necessary to create an economic, ecological and social framework that allows dairy production to serve the entire society.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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