International Journal of Livestock Research, Vol. 11 (4) Apr' 2021
http://www.ijlr.org
eISSN: 2277-1964

Original Research

Challenges and Opportunities Faced by Urban and Peri-Urban Dairy farmers of Uttar Pradesh

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How to cite this paper: Singh, S., Singh, A., Singh, S., Kumar, M., & Swain, D. (2021). Challenges and Opportunities faced by Urban and Peri-Urban Dairy farmers of Uttar Pradesh. *International Journal of Livestock Research,* 11(4), 63-68. https://dx.doi.org/10.5455/ijlr.20201222120934

Received : Jan 14, 2021
Accepted : Feb 22, 2021
Published : Apr 30, 2021

Abstract

The present study was undertaken to assess the challenges and opportunities faced by the respondents involved in dairy production in Urban and Peri-Urban areas of Uttar Pradesh. Urban and peri-urban dairy production systems are the emerging forms of dairy production systems as it involves the production, processing and marketing of milk and milk products that are directly marketed to consumers in urban areas. It involves direct marketing of fresh milk directly to the consumers and thus it adds value for both farmers and urban neighbors in reducing the distance between producers and consumers. Thus, for a sustainable production it is necessary to know about the opportunities and challenges faced by dairy farmers in urban and peri-urban areas. The study was conducted in Urban and Peri-Urban area of selected Agra Division of Uttar Pradesh and primary data was collected from 120 respondents through pretested structured interview schedule and group discussion method. The list of opportunities and challenges were identified as remunerative prices of milk, high demand of milk during festival season are major opportunities and illiteracy of dairy farmers leads to lack of knowledge that prohibit adoption of modified skills, limited availability of credit for establishment of dairy farms, remunerative price of milk due to unorganized market are major challenges urban & peri-urban areas.

Keywords: Challenges, Dairy Farmers, Dairying, Opportunities, Peri-Urban, Urban, Uttar Pradesh

Introduction

India being the seventh largest country by area and second most populous country in the world with nearly one fifth of the world's population (1210.19 million) as per 2011 census. The country population had grown by 17.64 percent during 2001 to 2011. The rural population (83.3 million) is residing in more than 6 lacs villages, while in urban area only 37.7 million populations is residing. The rural-urban distribution is 68.84 percent and 31.16 percent respectively. Population and economic growth has fostered urbanization in the country. There are numerous factors at play that have led to the urbanization like industrialization, population growth, social growth, employment opportunities and modernization. The growing population is putting tremendous pressure on the agriculture as there is sudden need to double the agriculture production to feed the growing population. It is expected that demand of milk will increase day by day due to rapid increase in demand of milk and milk products and it might be dream for anyone to capitalize this fact growing milk and its product market. So, the dairying has taken a new turn by venturing itself on commercial basis leading to the growth of milk production activities in and around urban and peri-urban areas (Rajashekhar, 2017). India has made remarkable strides in the area of dairy development and become the largest milk producer in the world with 187 million tons of production (NDDB, 2018-19). The Urban and peri-urban dairy production has been developed in response to the fast-growing demand for milk and milk products. The prospectus for local dairy production in urban and peri-urban area have recently become more favorable as it provides opportunity to develop their own milk industries, primarily through small scale production, which will have a major impact on different levels of cash income. To enhance productivity in the future, we need to know about the opportunities and challenges faced by dairy farmers in urban and peri-urban areas. Therefore, the present study was undertaken to analyze opportunities and challenges that accelerate and hinders milk production in urban as well as peri-urban areas.

Materials and Methods

Uttar Pradesh is the rainbow land where the multi-hued Indian Culture has blossomed from times immemorial and Agra division is one of the eighteen divisions of the state. So overwhelming is the exquisite beauty and presence of this marble mausoleum that centuries later today, even the very land where it has been located - Agra - has been immortalized as the City of the Taj. Agra division was purposively selected as Agra is one of the 100 smart cities of India (Pradhan Mantri Yojna, 2015) and has significant population in its urban area and its fringes come under Peri-urban areas making it suitable for study. Agra division had significant population of cattle and buffalo in the state. Among four district of Agra Division, two districts were selected by using simple random sampling method. A total 120 respondents (Forty dairy farmers from urban and 80 dairy farmers from peri-urban area) were selected to assess the opportunities and challenges of urban and peri-urban dairy farming. The primary data were collected through pretested structured interview schedule and group discussion method. The list of opportunities and challenges were first identified by a pilot study and there after the intensity of these identified opportunities and challenges were measured to prove their validity and to find out the extent to which they were perceived by dairy farmers and were ranked accordingly. The main opportunity towards dairy farmers is focused in two opportunities viz. augmenting income and milk demand and five challenges viz. socio-economical challenges, reproductive disease challenges, feeding challenges, milk marketing and management practices for understanding the real situations in dairy production which were useful to find out the suitable solutions for overcoming the challenges and promoting dairy production. The quantification of data was done by first ranking the opportunity and challenges based on the responses obtained from the respondents and then calculating the Rank Based Quotient (RBQ) (Sabarathnam, 1988), which is as follows:

$$\mathrm{RBQ} = \frac{\sum(\mathrm{Fi})(\mathrm{n} + 1 - \mathrm{i})}{\mathrm{Nn}}_{\mathrm{i}=1} \times 100$$

Wherein,

fi = Frequency of farmers for the ith rank of the technological need
N = number of farmers
n = number of opportunity and challenges identified

Results and Discussion

Challenges

The result of practices followed by the respondents in the area of management, feeding and reproduction were presented in Table 1. It was observed that lack of knowledge and awareness about the scientific practices in dairy production (87.08%) prohibits adoption of modified knowledge and skills by the respondent. This constraint is also affecting the farmers in peri-urban areas. It may be due to faith of respondents in traditional practices and inadequate dissemination of the animal husbandry practices in the area. Progressive attitude of farmer's for acquiring new skill and technology is must to deal the challenges (Meena *et al.*, 2016). It was also revealed that crises of manpower in dairy farms due to labour scarcity are perceived as major challenges in the urban dairy farming. The reason being due to better availability of employment in other sector limited people are interested to work in dairy sector. Dairy sector is a labour-intensive enterprise as labour are required for feeding, drinking and watering of animals, care of pregnant and milch animals required greater attention by labour in compare to other work (Rameswar and Rajashree, 2018).

Table 1: Challenges regarding the practices in Urban and Peri-urban dairy production

S. No.	Indicators	Urban RBQ	Rank	Peri-urban RBQ	Rank	Overall RBQ	Rank
A.	**Management practices**						
1	Following traditional management practices	44.37	3	72.18	2	62.92	2
2	Lack of knowledge about the practices	78.75	2	91.25	1	87.08	1
3	Crises of manpower in dairy farms due to labour scarcity	83.75	1	48.12	3	60	3
4	Water scarcity problems faced by dry areas	41.87	4	36.87	4	38.54	4
B.	**Feeding**						
1	Seasonal availability of feed	35	4	37.19	4	36.46	4
2	Feed shortage in dry season	74.38	2	64.38	3	67.71	3
3	High cost of concentrate	83.13	1	67.19	2	72.5	2
4	Limited availability of land for feed fodder production	60	3	82.19	1	74.79	1
C.	**Reproduction and production diseases**						
1	Higher frequency of disease in dairy animals	66.88	3	65	2	67.71	1
2	Low productivity of dairy animal after diseases	34.38	4	79.06	1	64.17	2
3	Higher rate of reproductive problems repeat breeding and anoestrous	80	1	53.75	3	62.5	3
4	Low success rate of AI	69.38	2	51.31	4	56.67	4

It was also observed that limited availability of land for establishment of dairy farms as well as for feed & fodders production is another major challenge faced by dairy farmers which is higher in peri-urban (82.19%) than urban (60.00%) areas. Feeding of dairy animals, alone constitute 60-70 percent of milk-production costs and is an important in deriving profitability. The high cost of concentrate in urban (83.13%) and peri-urban areas (67.19%) is considered as constraint in getting the higher profit from the sector. Rathva *et al.* (2019) also referred that among feeding constraints that high cost of feed was a major constraint (4.75±0.07) followed by lack of availability of green fodders round the year (4.18±0.11) faced by the farmers of urban and peri-Urban areas. Apart from these shortage of feed as well as seasonal availability of feed are another major constraints faced by the farmer. Similar constraints were indicated by Ravi *et al.*, (2016) and Asrat *et al.* (2016).

Result of reproduction and production (table 1) disease revels that the higher frequency of disease in dairy animals

is foremost problem faced by dairy farmers that is higher in urban (66.88%) than peri-urban areas (65.00%). Lombebo and Wosoro, (2019) also stated that poor reproductive performance of dairy cows, poor availability of AI technician and a shortage of semen are the constraints frequently mentioned by dairy farmers in the urban areas. Gunaseelan *et al.* (2018) also stated that due to difference in knowledge level regarding the breeding practices as 43.33 per cent of the dairy farmers had complete knowledge on cross breeds of cow / buffalo followed by partial (20.83 %) and no knowledge (35.83 %) were major factors influencing the constraints. The production potential of dairy animals as low production of milk, whose incidence is higher in peri-urban (76.06%) than urban areas (34.38%) are the results of combined factors of feeding, breeding and management practices. Guadu and Abebaw (2016) and Kashish *et al*. (2013) also have similar findings. It could be visualized from Table 2 that limited availability of the credit for establishment of dairy farm viewed as major problem by dairy farmers. This challenge was higher in peri-urban area (91.46%) than urban area (65.42%). The findings are almost similar with Asrat *et al*., (2016) and Gaudu and Abebaw (2016). Dairy farmer faced inadequate land for establishing dairy farm as second problem that is higher according to urban farmers (84.17%) than peri-urban farmers (70.42%). Apart from this inadequate extension and training services was perceived as challenge that is higher in peri-urban (48.96%) than urban areas (47.92%). Sathisha *et al.* (2018) also stated that there was average adoption of environmental practices by the farmers involved in dairy farming.

Table 2: Policies and Marketing challenges in urban and peri-urban dairy production

S. No.	Indicators	Urban RBQ	Rank	Peri-urban RBQ	Rank	Overall RBQ	Rank
A.	**Policies**						
1	Shortage of land for fodder cultivation and production	66.67	2	75.63	2	72.64	3
2	Improper disposal of waste arises pollution in environment and surrounding areas	53.33	4	31.25	5	38.61	5
3	Inadequate land for establishing dairy farm	84.17	1	70.42	3	75	2
4	Limited availability of credit for establishment of dairy farms	65.42	3	91.46	1	82.78	1
5	Inadequate extension and training services	47.92	5	48.96	4	48.61	4
B.	**Marketing**						
1	Higher unorganized market	60	2	36.67	3	44.44	3
2	Proper storage and processing facilities for milk	45	3	79.58	2	68.06	2
3	Remunerative price of milk due to unorganized market	93	1	83.75	1	86.94	1

It is evident from the Table 2 that remunerative price of milk due to unorganized market is major challenge that is higher in urban (93.00%) than peri-urban areas (83.75%) which was also stated by (Yadav *et al.,* 2018 and Kashish *et al*., 2013). Milk marketing is mainly unorganized and there is inadequate storage and processing facilities of milk which is higher in peri-urban (79.58%) than urban areas (45.00%). Inadequate cold storage facilities available for milk were also stated by Lokhande *et al.* (2012).

Opportunities

The result presented in Table 3 presents the opportunities in dairy farming. It was still observed that dairy farming as a mean of augmenting income in which major opportunity is remunerative prices of milk by selling directly to the consumer as fresh milk (71.46 % in urban and 72.81 % of peri-urban respondents). This factor is also correlated to increase in milk and milk products demand (71.25 %) due to urbanization. Higher market opportunity in urban & peri-urban areas (55.83%) perceived as third opportunity that is higher in urban (79.37%) than peri-urban (44.06%) and boosting income of dairy farmers improves the standard of living and education through their dairy farms (52.29%) comes under fourth rank in which peri-urban (54.43%) is higher than urban (50.00%) Guadu and Abebaw (2016).

Table 3: Opportunities of Urban and Peri-urban dairy production

S. No.	Indicators	Urban RBQ	Rank	Peri-urban RBQ	Rank	Overall RBQ	Rank
A.	**Augmenting income**						
1	Urbanization results in increase milk and milk products demand	53.75	3	80.31	1	71.25	2
2	Higher market opportunity in urban & peri-urban areas	79.37	1	44.06	4	55.83	3
3	Remunerative prices of milk in urban & peri-urban areas	68.75	2	72.81	2	71.46	1
4	Boosting income of dairy farmers improves the standard of living and education through their dairy farms	50	4	54.43	3	52.29	4
B.	**Demand of milk**						
1	Continues increase in demand of milk	64.17	2	67.08	2	66.11	2
2	High demand of milk during festival season	84.17	1	60	3	68.06	1
3	Introduction of Cross breed had increase production and its provide additional source of income	51.67	3	72.92	1	65.83	3

It was also observed that (Table 3), the demand of milk as well as price is high during festival seasons (urban 84.17% in urban and 60.00% in peri-urban) which is seen as one of the major opportunities in this sector. It was also observed that there is continues increase in demand of fresh milk from the consumers making the business a lucrative enterprise among the farmers in urban and peri-urban areas. Crossbreed animal contribute about 26.00% of total milk production (2018-19), and thus the cross breed animal poses advantages in increase in milk production and per capita of milk availability, lactation length and decrease in age at puberty as well as in age at first calving.

Conclusion

Increase in the urbanization is creating opportunity as there is increase in demand for quality food and milk in cities, which is mostly depending upon the farming in the peri-urban areas which are nothing but the fringes of towns and cities. Urban and peri-urban dairy production systems of farming have several opportunity and challenges among which remunerative prices of milk, high demand of milk during festival season are major opportunities and illiteracy of dairy farmers leads to lack of knowledge that prohibit adoption of modified skills, limited availability of credit for establishment of dairy farms, remunerative price of milk due to unorganized market are major challenges urban & peri-urban areas. Therefore, to make dairy enterprise more profitable enterprise in urban and peri-urban areas, it is necessary to address the technology awareness, adoption and risk-management strategies by enhancing the knowledge level of the farmers on improved dairy farming practices.

Acknowledgement

The authors thank the Vice Chancellor, DUVASU, Mathura for providing financial assistance and infrastructure to carry out the research work. First author also thanks the young farmers for freely sharing their viewpoint about the dairy farming.

Conflict of Interests

There is no conflict of interest.

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