

Constraint Analysis of Dairy Farmers along Rural-Urban Interface of Bengaluru North

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ABSTRACT

The present study attempts to analyse the major constraints faced by the dairy farmers along the Rural-Urban interface of Bengaluru North. For the study, 90 dairy farmers were selected randomly from rural, transition and urban regions. The distinction of the three layers into rural, transition (semi-urban) and urban area was made based on the percentage of built-up area and its linear distance from the centre of Bengaluru city. Data was collected from the dairy farmers using the pre-tested schedule and analysed using Garrett's ranking technique. The unavailability of green fodder throughout the year was the major infrastructural constraint in all three transects. The high cost of fodder seeds was the major economic constraint in rural areas. The delay in the payment of milk was the major economic constraint in transition and urban regions. Inadequate access to training programmes was the major communication constraint observed in all three transects. Inadequate knowledge of diseases, their prevention and control was the major technical constraint faced by the rural farmers whereas the disposal of old / disabled cows was the major technical constraint faced by dairy farmers in transition and urban regions. Less knowledge about marketing strategies was the major marketing constraint in all three regions. Poor decision making in the management of feed and fodder was the major socio-psychological constraint in all the three regions of Bengaluru North.

Keywords : Constraints, Dairy farming, Garrett's Ranking technique

INDIA has vast resources of livestock, which play an important role in the socio-economic development of millions of rural households and ultimately the economy as a whole. India has one of the largest stocks of cattle and buffaloes, more than 20 per cent of its cattle and 50 per cent of the world's buffaloes. The Indian dairy sector contributes a large share of the agricultural Gross Domestic Product (GDP). India is currently the largest producer of milk in the world with an annual production of 132.4 million which is 16 per cent to the world milk production, overwhelmingly thanks to the output of million tonnes of small holders. The Indian livestock sector is the largest in the world contributing 11.6 per cent of the holdings.

There is a steady growth rate in the livestock sector *i.e.*, around 4-5 per cent despite receiving less investment compared to the manufacturing and service sectors. The livestock sector contributes 25.60 per cent of the total agricultural sector. The interrelation between poverty and the value of livestock output is significantly inverse (Abedulla *et al.*, 2009). The states with higher livestock share have a low level of poverty and vice versa.

More than 70 per cent population of India lives in rural areas, consequently, there is more pressure on land as the highest part of the village population depends on agriculture, resulting in an unequal land man ratio. Owing to the increase in the population over the years, agriculture alone cannot employ all the population of

the rural areas. Therefore, allied activities like livestock enterprises will have to be seen as an effective catalytic agent for supplementing the income by providing gainful employment to the weaker sections in the rural areas. Animal husbandry is popularly known as 'live banks', are the major source of our national wealth and thus helps to improve the income of poor people living in rural areas.

Nowadays, dairy productivity is also decreasing due to various constraints faced by dairy farmers and there is a need to consider these constraints while implementing policies for the dairy farmers.

METHODOLOGY

The whole Bengaluru city conglomerate was separated into two transects namely, Northern Bengaluru and Southern Bengaluru taking the Vidhana Soudha as a reference point which is located in the centre of the Bengaluru city. Each Northern and Southern transect were further divided into three layers namely rural, transition (peri-urban) and urban areas. The distinction of the three layers into rural, transition (peri-urban) and urban areas were made based on the percentage of built-up area and its linear distance from the centre of Bengaluru city.

The study was conducted in the rural, urban and transition regions of Bengaluru North. A total of 90 farmers were selected *i.e.*, 30 each from each transect. To address each objective of the study, primary data was collected from the selected dairy farmers. The data was collected from a pre-tested schedule by personal interview method.

To capture the constraints in the production of fodder across different categories of farmers, the Garrett ranking technique was used, where the farmers were asked to rank the constraints as per their opinion. Sample farmers' rankings were converted into percentages and scores based on Garrett's table (Dhanavanan, 2016).

Garrett's formula used for this analysis is outlined below.

$$\text{Per cent position} = \frac{100 (R_{ij} - 0.50)}{N_j}$$

Where,

R_{ij} = Rank given for i^{th} item in j^{th} factor

N_j = Number of items ranked in j^{th} factor

The per cent position of each rank was converted into scores by referring to the table given in Garrett and Woods Worth (1969). Then for each factor, scores of individual sample respondents were summed up and divided by the total number of respondents. The mean scores for all the factors were ranked, following the decision criterion, the higher the value, the more important the factor.

RESULTS AND DISCUSSION

1. Infrastructural Constraints Faced by Dairy Farmers in Bengaluru North

The major infrastructural constraints are shown in Table 1. The unavailability of green fodder throughout the year is the major constraint because of the uneven distribution of rainfall and also due to reduction in agricultural land owing to scattered agricultural practices. Most of the farmers in the rural areas were not having enough land to grow fodder crops. Lack of improved equipment was the second major infrastructural constraint as most of the farmers were unaware of the improved equipment and also due to inadequate credit facilities. Other infrastructural constraints faced by the dairy farmers were irregular and inadequate supply of cattle feed, lack of training facilities, unavailability of emergency veterinary services, occasional availability of semen at the artificial insemination centre, infrequent visit of veterinary staff and unavailability of vaccines which ranked third, fourth, fifth, sixth, seventh and eighth in the rank order.

The major infrastructural constraint in the transition region as perceived by the dairy farmers was also the unavailability of green fodder. The second major constraint was the lack of improved equipment whereas irregular and inadequate supply of cattle feed, lack of training facilities, unavailability of emergency veterinary services, occasional availability of semen at the AI centre, infrequent visit of veterinary staff and

TABLE 1
Infrastructural constraints faced by the dairy farmers in the rural, transition and urban

Transects of Bengaluru north	Rural		Transition		Urban	
	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank
Lack of improved equipment	65.33	II	66.23	II	70.37	II
Irregular and inadequate supply of cattle feed	60.07	III	61.07	III	61.13	III
Inadequate availability of emergency veterinary services	37.47	V	38.40	V	46.23	V
Insufficient visits of veterinary staff	33.60	VII	33.64	VII	36.13	VI
Inadequate availability of vaccines	33.27	VIII	32.25	VIII	30.63	VIII
Occasional availability of semen at the AI centre	36.07	VI	34.07	VI	32.07	VII
Lack of training facilities	57.67	IV	55.62	IV	57.57	IV
Inadequate availability of green fodder throughout the year	76.53	I	75.66	I	79.22	I

unavailability of vaccines ranked third, fourth, fifth, sixth, seventh and eighth respectively.

The unavailability of green fodder throughout the year is the major constraint in urban also. The second major constraint was the lack of improved equipment whereas irregular and inadequate supply of cattle feed, lack of training facilities, unavailability of emergency veterinary services, infrequent visit of veterinary staff, occasional availability of semen at the artificial insemination centre, and unavailability of vaccines ranked third, fourth, fifth, sixth, seventh and eighth, respectively. Singh and Sharma (2008) reported infrastructural constraints as the major constraint in dairy farming.

2. Economic Constraints Faced by Dairy Farmers in Bengaluru North

The major economic constraints are shown in Table 2. High cost of fodder seeds was the major economic constraint faced by dairy farmers in the rural transect of Bengaluru North (Nataraju *et al.*, 2016). The rural farmers could not afford to buy the fodder seed due to their low financial status. The second major constraint was the high cost of crossbred cows like HF and Jersey. High charges of emergency

veterinary services, low price of milk offered, high cost of veterinary medicines, high cost of cattle feed and mineral mixtures (Mohapatra *et al.*, 2012), the high premium for cattle insurance (Freeman *et al.*, 1998), delay in payment and low provision of loan in the co-operative societies or Government institutions for purchasing cattle are the other constraints in rank order as indicated by the farmers.

Delay in the payment for milk was the major economic constraint faced by the dairy farmers in the transition region of Bengaluru North. This is because they usually sell milk to the nearby houses, restaurants and apartments as there are no Milk Producers' Co-operative Society (MPCS) in the urban regions. The high cost of fodder seeds was another constraint faced by many of the farmers in these areas. High charges of emergency veterinary services, low price of milk offered, high cost of the crossbred cow, high charges of emergency veterinary services, high cost of cattle feed (Manoharan *et al.*, 2003) and mineral mixtures, high cost of veterinary medicine and low provision of loan in society or government for purchasing cattle were the other economic constraints faced by the urban dairy farmers in the order of their priority.

TABLE 2

Economic constraints faced by the dairy farmers in the rural, transition and urban regions of Bengaluru North

Transects of Bengaluru north Economic constraints	Rural		Transition		Urban	
	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank
The high cost of fodder seeds	80.87	I	69.87	II	28.37	IX
Delay in payment for milk	34.60	VIII	76.77	I	78.67	I
The low price of milk offered	55.93	IV	63.77	III	68.57	II
The high cost of crossbred cow	63.53	II	51.90	IV	60.90	III
The high cost of veterinary medicines	46.13	V	38.13	VIII	38.63	VI
The high cost of cattle feed and mineral mixtures	44.93	VI	42.30	VI	43.63	V
Less provision of loan in society or government for purchasing cattle	29.53	IX	34.83	IX	34.83	VIII
High charges of emergency veterinary services	60.83	III	44.20	V	47.26	IV
Higher premium for cattle insurance	44.70	VII	36.70	VII	35.63	VII

The major economic constraint faced by the farmers in the transition region was the delay in the payment for milk. This was because they usually sell milk to the nearby houses, restaurants and apartments, as there are no MPCs in the urban regions. Low price of milk, high cost of the crossbred cows, high charges of emergency veterinary services, high cost of cattle feed and mineral mixtures, high cost of veterinary medicine, higher premium for cattle insurance and low provision of loan in society or government institutes for purchasing cattle were the other economic constraints faced by the dairy farmers in the urban region. The cost of fodder seeds was not a constraint in the urban region because all the respondents were landless.

3. Technical Constraints Faced by Dairy Farmers in Bengaluru North

The major technical constraints are shown in Table 3. Inadequate knowledge of diseases, their prevention and control (Uddin *et al.*, 2012) is the major technical constraint faced by the rural farmers of north Bengaluru. The second major constraint in the rural region is the problems in the disposal of old/disabled cows. Non-availability of veterinary hospitals and non-availability of AI (Artificial Insemination) facilities

(Quddus, 2002) and timely veterinary services are the third and fourth constraints respectively.

The technical constraints quoted by the urban and the transition dairy farmers were similar. They also faced the problem of the disposal of the old / disabled cows which was the major constraint followed by the inadequate knowledge of diseases, their prevention and control. The non-availability of veterinary hospitals nearby was also one of the constraints expressed by the dairy farmers in rural and urban areas.

The disposal of old /disabled cows was the major technical constraint in the urban region. Inadequate knowledge of diseases, their prevention and control, non-availability of artificial insemination, as well as timely veterinary services, were the other constraints expressed by the urban farmers.

4. Marketing Constraints Faced by Dairy Farmers in Bengaluru North

The major marketing constraints are shown in Table 4. Less knowledge about marketing strategies was the major marketing constraint faced by rural farmers as they were unaware of the modern and profitable marketing strategies (Dehinet *et al.*, 2014). The

TABLE 3

Technical constraints faced by the dairy farmers in the rural, transition and urban regions of Bengaluru North

Transects of Bengaluru north	Rural		Transition		Urban	
	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank
Inadequate knowledge of diseases, their prevention and control	64.20	I	60.53	II	61.13	II
Non-availability of Artificial Insemination facility and timely veterinary services	39.83	IV	31.53	IV	32.47	III
Non-availability of veterinary hospitals	47.77	III	39.47	III	31.53	IV
Problems in the disposal of old/ disabled cows	50.70	II	68.47	I	67.43	I

second major constraint was the inability to market value-added products. Irregular supply of milk and lack of time for marketing are the other constraints faced by the rural dairy farmers.

The response related to the marketing constraints was the same in the urban and the transition transects. Less knowledge about marketing strategies and low risk-taking behaviour were the two major constraints followed by other constraints like less provision for advance payment for milk by society or vendors and irregular supply of milk (Rajendran and Mohanty, 2004).

The dairy farmers of urban areas opined that less knowledge about marketing strategies and low risk-

taking behaviour as major constraints related to marketing followed by other constraints like less provision for advance payment for milk by society or vendors and irregular supply of milk.

5. Communication Constraints Faced by Dairy farmers in Bengaluru North

The communication constraints faced by the farmers in all the regions are shown in Table 5. It is the same in all the three transects. The farmers of all the three transects expressed that inadequate access to the training programmes and inadequate information about government schemes related to dairy enterprise as the major constraints followed by poor rapport with

TABLE 4

Marketing constraints faced by the dairy farmers in the rural, transition and urban regions of Bengaluru North

Transects of Bengaluru north	Rural		Transition		Urban	
	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank
Irregular supply of milk	52.70	III	44.47	IV	43.87	IV
Lack of time for marketing	32.97	VI	37.43	VI	37.75	VI
Less knowledge about marketing strategies	78.23	I	61.13	I	60.23	I
Low risk-taking behaviour	49.53	IV	57.97	II	56.33	II
No provision for advance payment for milk by society or vendors	42.23	V	55.27	III	55.75	III
Lack of marketing facilities for value-added products	54.33	II	43.73	V	42.37	V

TABLE 5
Communication constraints faced by the dairy farmers in the rural, transition and urban regions of Bengaluru North

Transects of Bengaluru north	Rural		Transition		Urban	
	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank
Inadequate access to training programmes	77.50	I	75.00	I	74.73	I
Poor transport and communication facilities	39.67	IV	38.83	IV	38.67	IV
Poor rapport to extension agencies	47.67	III	46.00	III	46.67	III
Low social mobility of dairy farmers	34.83	V	33.50	V	33.23	V
Inadequate information about government schemes pertaining to the dairy enterprise	58.67	II	56.67	II	56.33	II

extension agencies, poor transport and communication facilities and low social mobility of dairy farmers.

6. Socio-psychological constraints

The major socio-psychological constraint is shown in Table 6. Non-availability of green fodder throughout the year (Tailor *et al.*, 2012 and Abdalla *et al.*, 1999), poor purchasing power and lack of time due to busy domestic/agricultural work were the major socio-psychological constraints faced by the farmers in the rural, urban and transition regions.

From the study, it can be concluded that the non-availability of green fodder throughout the year was the major infrastructural constraint faced by the respondents in all three transects (Malathesh *et al.*, 2009). The high cost of fodder seeds was the major economic constraint in the rural area, whereas a delay in payment for milk was the major constraint in the urban transect because of the local vending. Inadequate knowledge of diseases, their prevention and control are the major technical constraints faced by the respondents in the rural are as whereas, problems in disposal of old/disabled cows was the major

TABLE 6
Socio-psychological constraints faced by the dairy farmers in the rural, transition and urban regions of Bengaluru North

Transects of Bengaluru north	Rural		Transition		Urban	
	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank	Mean Garrett's Score	Garrett's Rank
Non-availability of green fodder throughout the year	77.50	I	75.00	I	76.37	I
Poor purchasing power	62.00	II	49.33	III	49.53	III
Lack of time due to busy domestic/agricultural work	47.33	III	58.67	II	62.00	II
Lack of cooperation and coordination among members and society staff	25.83	V	25.00	V	24.33	V
Poor acceptability of crossbred cow milk among family members.	41.33	IV	41.67	IV	41.87	IV

technical constraint observed in the transition and urban regions. Lack of knowledge about marketing strategies was the major marketing constraint observed in all three transects.

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