



Perceived Constraints of Farmers in Indigenous Cattle Dairy Farming in Rajasthan, India

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Abstract | Indigenous cattle play a major role in income generation and livelihood security of millions of farmers especially in drought prone regions. Rajasthan state has nine recognized indigenous cattle breeds and further, more than 60 percent of the cattle are nondescript. These indigenous cattle breeds are highly suitable in adverse climatic condition but with less milk yield. In this context, the present study was carried out to elicit the major constraints faced by the dairy farmers of Rajasthan in rearing of Sahiwal, Tharparkar and Rathi indigenous cattle. The results indicated that majority of the respondents (86.1%) were lack of knowledge about improved indigenous cattle dairy farming practices. 80.35% of them reported low milk productivity of indigenous cattle and 74.4% expressed non availability of exclusive marketing facilities for indigenous milk and its products as their major constraints in indigenous cattle farming. These results indicated the urgent need to formulate the specific policies and programmes to develop the potential of native breeds and resolve the farmers' issues to ensure the sustainable agriculture in the region.

Keywords | Indigenous cattle, Constraints, Sahiwal, Tharparkar, Rathi, Rajasthan

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INTRODUCTION

Rajasthan state consists 12 percent of country's geographical area and comprised of 61 percent of India's total arid zone i.e., western part of Rajasthan known as Thar desert, where animal husbandry is not merely a subsidiary to agriculture but it is a major economic activity specially in arid and semi-arid areas, thus providing the much needed insurance against prominently occurring scarcity conditions. Parallel to crop production, animal husbandry is the most important activity in Rajasthan state (Kumar et al., 2017). Income from livestock sector accounts for 30 to 50% of the rural household's income, with wide variation in region to region. Because of the limited water resources, most of the agriculture production is rain-fed and as such, the livestock sector assumes more importance. Animal husbandry enhances the economic viability and sustainability of farming systems particularly in rain fed areas. In arid

western region, livestock farming essentially works as an insulating factor against vagaries of drought and famines, and provides a kind of stability and sustenance livelihood to the rural poor (Kumar et al., 2017; Ishfaq et al., 2017). In Rajasthan, income from livestock averages 22.5 percent of the total household income, whereas in arid region the contribution of livestock sector is even more than 50 percent of the total household income (Kumar et al., 2017).

Livestock sector has also the highest potential for rural self-employment generation at the lowest possible investment per unit. The animal husbandry sector is harbouring a fabulous livestock wealth having very significant role in providing subsidiary to major sources of income to the large numbers of cultivators, small farmers, marginal farmers and agricultural labourers. Milk enterprise generates income on regular basis as against the crop enterprise, which is mostly seasonal and is more prone to droughts.

The provision of assured market for the milk leads to their increased participation and the availability of cash income encourages them to take up to social development programmes (Bilegjargal et al., 2017). As per the livestock census 2012, there are 577.32 lacs livestock, which include cattle, buffalo, sheep, goat, pig, camel, horse and donkey. Among all livestock, cattle play a major role and it has about 7% of country's cattle population in which about 87 percent are indigenous cattle. Almost 60% of all cattle are nondescript. A total of nine recognized breeds of indigenous cattle viz., Rathi, Kankrej, Nagouri, Tharparkar, Harjana, Malvi, Gir, Sanchori and Mehwati are spread across the state of Rajasthan. These breeds play a significant role in the livelihood security of farmers, especially in desert area of Rajasthan. Rajasthan contributes over 10% of total milk production and third in milk production. It ranks first in producing more than 93% of cow milk from indigenous cows, and ranked second in total milk produced from indigenous cows in the country. Hence the indigenous cattle play a major role in livelihood security of farmers in desert region of Rajasthan (Kumar et al., 2017). Indigenous cattle support the livelihood of farmers through supply of milk/ manure / draught /breeding animals etc. The indigenous cattle populations are diverse with unique genetic attributes such as adaptation to heat and drought, tolerance to diseases and utilization of low-quality forages. However, despite this immense diversity, majority of the indigenous cattle are the local types considered to be of low genetic potential in terms of milk production. Low productivity and very large numbers of unproductive animal holding are major developments constraints facing the sector across the state (Kumar et al., 2017; Kumar et al., 2013). The objective of the current study was to identify the constraints faced by farmers in indigenous cattle dairy farming in Rajasthan region of India.

MATERIALS AND METHODS

STUDY DESIGN AND DATA COLLECTION

The study was conducted in western part of Rajasthan state which comprised of Bikaner, Sri-Ganganagar and Jodhpur districts, that were selected purposively for collecting the data from indigenous cattle dairy farmers. From each district two blocks were selected and two villages from each block and thirty indigenous cattle holder-farmers were selected from each village randomly. Thus, a total of 180 respondents were contacted to elicit the major constraints faced by the farmers in indigenous cattle dairy farming. The selected respondents were interviewed personally with the help of a semi-structured interview schedule in order to get relevant information. The collected data were tabulated and analysed using Garrett ranking technique to interpret the obtained result.

GARRETT'S RANKING TECHNIQUE

To find out the most significant factor which influences the respondent, Henry Garrett's (1969) ranking technique was used. As per this method, respondents have been asked to assign the rank for all factors and the outcome of such ranking has been converted into score value with the help of the following formula:

$$\text{Percent position} = 100 \frac{(R_{ij} - 0.5)}{N_j}$$

Where;

R_{ij} = Rank given for the i th variable by j th respondents

N_j = Number of variable ranked by j th respondents

With the help of Garrett's table, the percent position estimated is converted into scores. Then for each factor, the scores of each individual are added and then total value of scores and mean values of score is calculated. The factors having highest mean value is considered to be the most important factor. For the purpose of prioritizing the factor, Garrett ranking method was used. After calculating the percent position of ranks of the already factors transmutation of order of merit was done following Garret (1981) method. The final ranking of the factor in order to fix their relative priority was done on the basis of their mean score.

RESULTS AND DISCUSSION

The major constraints faced by the farmers in indigenous cattle farming in Rajasthan have been presented in Table 1. The study revealed that, lack of knowledge about improved dairy farming practices was ranked as a major constraint faced by the farmers (86.1%), as most of the herd type in the study area was indigenous cattle and respondents were not aware of most of the management practices for management of indigenous cattle. Mahla et al. (2015) and Singh et al. (2016) also found that lack of knowledge about improved dairy farming practices like clean milk production etc. in the area of Rajasthan state was a major constraint associated with indigenous cattle farming.

Furthermore, in our study, low milk productivity of indigenous cattle was perceived as a second important constraint by a large majority (80.5%) of the respondents as it has the direct implications to the economic returns from cattle farming. Non-existence of exclusive marketing facilities for indigenous milk and milk products was reported as another major constraint and perceived by 74.4 percent of the respondents in the study area. Due to large scattered area and lack of transportation facilities respondents was not able to sell indigenous milk and its products directly in the market at a premium price. Kumar et al. (2017b) and Shinde et al. (2011) also reported that lack of exclusive marketing facilities for indigenous milk and milk products

Table 1: Major constraints faced by the respondents in indigenous cattle farming

S. No.	Constraints	Frequency*	Percentage	Ranking**
1	Inadequate knowledge about improved indigenous cattle dairy farming practices	155	86.1	1
2	Low milk productivity of indigenous cattle	145	80.5	2
3	Non-availability of exclusive marketing facilities for indigenous milk and its products.	134	74.4	3
4	Non-availability of pasture or grazing land in village	133	73.8	4
5	Late maturity of indigenous cattle	132	73.3	5
6	Long dry period in indigenous cattle	130	72.2	6
7	Lack of development Programmes/policy support/incentives for indigenous cattle rearing	121	67.2	7

*Multiple responses were collected.

**Calculated as per Garrett's ranking technique.

was a major constraint perceived by the respondents. For indigenous cattle rearing, pasture land plays a major role in meeting out the feed requirement through intensive grazing. Non availability of pasture land in their locality for grazing of cattle is continuously decreasing therefore lack of pasture land for indigenous cattle grazing was felt as a major constraint by 73.8 percent of the respondents and ranked fourth in order. In addition to this, late maturity of animals and long dry period of indigenous cattle were the other major constraints perceived by more than 70 percent of respondents and ranked as fifth and sixth in order, respectively. Patil et al. (2013) and Kumar et al. (2017b) also reported that low milk productivity, late maturity of animals and long dry period of indigenous cattle are the major constraints in indigenous cattle rearing. Even though it is widely agreed by all the stakeholders that much emphasis needs to be given for promotion of indigenous cattle in our country. Inadequate policy support particularly for indigenous cattle development, specific programmes for indigenous cattle development and lack of training programmes for preparation of various by-products from indigenous cattle dung and urine was a major constraint as perceived by 62.7 percent of the respondents in the study area.

CONCLUSION

The study concluded that, majority of the farmers in the study area would like to continue their farming along with indigenous cattle breeds as they perceive that these breeds are most suitable to their regions and besides its milk, it's unique by-products viz., dung and urine has great potential for higher economic returns to the farmers. Hence it is the need of the hour to initiate a specific-policy and programmes to develop the potential of our native breeds and encourage the indigenous cattle farming among the farmers for the sustainable agriculture.

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CONFLICT OF INTEREST

The authors have declared no conflict of interest.

AUTHORS CONTRIBUTION

All authors contributed equally in constructing the experimental study, collection, analyzing data and preparing Manuscript.

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