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Constraints Perceived by Dairy Farmer of Arid Zone of Rajasthan in Adoption of Improved Animal Husbandry Practices

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Abstract

The aim of the present study to identify constraints perceived by livestock owners in the Adoption of Improved Animal Husbandry Practices in arid zone of Rajasthan state of India. The study was carried out in Pokaran region of Jaisalmer district of Rajasthan. The quantitative and qualitative data were collected through interview schedule, discussion, observation and available secondary sources. The respondents were asked to assign rank to each of listed constraint according to perceived intensity. On the basis of rank assigned by all of the respondents to each constraint, Rank Based Quotient for individual constraint was calculated. Results of study showed that low education level of family, lack of knowledge about balanced feeding, lack of knowledge about improved breed of animals, lack of knowledge about animal diseases and poor productivity status of animals were considered as major constraints reported by dairy farmers having RBQ values 80.40, 89.54, 80.71, 78.73 and 86.80 respectively. Whereas, less transportation and communication facility, high cost of feed/fodder, inadequate knowledge to detect heat signs in dairy animals, not knowing about services and facilities provided by the government and lack of dairy cooperative society in village were considered as minor constraints having RBQ values 60.12, 70.00, 52.10, 61.76 and 60.43 respectively.

Keywords: Arid Zone, Constraints, Livestock, Productivity, Management

Introduction

Livestock is an important remunerative source of income and employment in the rural sector of India. The livestock products demand is more income elastic, as income rises in relation to the cost of living. Now days consumers generally tend to spend more on protein products of animal origin. Availability of livestock population is vast in number but not in front of productivity which affects in meeting out the huge demand of consumer. The productivity enhancement can be made by adoption of improved animal husbandry practices and also by providing the systemic approach to generate empirical data on various socio-economic factors and constraints associated with the adoption of scientific animal husbandry techniques. Adoption of any improved animal husbandry technique involves a process in which awareness is created, attitude is changed and favorable conditions for adoption are provided (Minhaj *et al* 2018; Dhaka *et al* 2017). This makes a strong case for regional strategies to be planned, to pursue the goal of higher milk production, for the elevation of economic condition of this community and to make them self-sufficient in milk production. Increasing the animal productivity through adoption of improved animal husbandry practices in arid areas would help to amplify the overall economic and social benefits to community from the livestock sector (Meena *et al* 2016; Yadav *et al* 2014). As far as Rajasthan state is concerned where livestock rearing is an integral part of mixed farming system in its arid zone. Scientific livestock management helps the dairy farmers to channelize his limited resources to maximize returns from his dairy farm in the arid zone such as Jodhpur, Pali, Jaisalmer, Nagaur and Badmer districts.

Despite widespread availability, adoption of these improved technologies in the dairy farming has been relatively sparse so far. In spite of serious efforts made to transfer the scientific dairy management technologies to the farmers, various studies indicate that farmers have adopted only 30 percent of the technologies that too by resourceful farmers (Meena *et al.*, 2012). Feed and fodder scarcity is identified as the most limiting constraint accounting for half of the total loss followed by problems in reproduction and health (Anonymous, 2011). The low animal productivity in arid areas results due to reasons that the farmers do not adopt improved dairy management practices at the desired level. On the basis of above background, the present study was planned to identify the constraints perceived by dairy farmers in the arid zone of Rajasthan state with the objective to analyze and document the constraints which obstruct the adoption of improved animal husbandry practices.

Materials and Methods

The present study was carried out in Pokhran region of Jaisalmer district of Rajasthan. The constraints in adoption of improved dairy farming practices were identified through a pilot study. Total 140 farmers randomly selected from various adjoining villages of Pokhran region and interviewed with the help of a well-structured and pre-tested interview schedule. Interview schedule was developed by keeping in view the objective and variables of study. Background information of the study area was obtained through personal interview, observation, consultation with officials and available reports. Quantitative and qualitative data were collected through observation, interactive dialogue, detailed discussion with key informants, aged persons and housewives. Departmental documents, records, reports, books, newspaper reports and other available literature were also consulted to collect secondary data on different parameters. The data were collected, compiled, tabulated and analyzed using rank-based quotient (RBQ).

RBQ-rank based quotient

For calculating RBQ value a list of constraints was prepared after informal discussion with respondents. Once the constraints were identified, each respondent was asked separately to assign a rank against each of listed constraints according to its perceived severity. Rank Based Quotient (RBQ) was calculated on the basis of rank assigned by each respondent to each constraint. The problem having highest RBQ value emerged as most serious constraint reported by the respondents. Thus, each respondent had his own independent opinion regarding the seriousness of the problem faced by him. On the basis of ranks provided by the respondents, rank based quotient (RBQ) for each problem was calculated by using following formula:

$$RBQ = \sum_{i=1}^{n} \frac{f_i(n+1-i) \times 100}{Nn}$$

Where,

fi = the frequency of respondents for the ith rank of the problem
N = the total number of respondents
n = the number of ranks

Results and Discussion

Socio-economic and Environmental Constraints

Major constraints faced by the livestock owners in their socio-economic and environment category are presented in Table 1 with their RBQ as well as ranks. The analysis reveals that major socio-economic constraint perceived by respondents was low education level of family having RBQ value 80.40. Extreme climatic condition and poor economic condition of family in village were considered as moderately severe constraints having RBQ value above 70, while lack of marketing facilities, low rainfall and less transportation and communication facility in village and low education level were considered as less severe problems having RBQ value below 70. In arid region, lack of education, extreme temperature and low rainfall in village was big hindrance for livestock production. Thus, environmental constraints discouraged them to utilize proper potentiality of their animals. Similar findings have earlier been reported by Yadav *et al.* (2014) and Dhaka *et al.* (2017) who concluded that in bundi district of Rajasthan, major constraints were low education level and poor economic condition of family perceived by livestock owners.

Table 1: Socio-economic and environmental constraints perceived by respondent (n=140)

Constraints	RBQ	Rank
Low education level	80.4	I
Poor economic condition of family	70.64	III
Lack of marketing facilities in village	61.3	IV
Less transportation and communication facility	60.12	V
Extreme climatic condition	75.2	II
Low rainfall	65.3	VI

Feeding Practices Related Constraints

Perceived constraints of respondents pertaining to feeding practices were presented in Table 2. The results indicates that lack of knowledge about balanced feeding and non-availability of green fodder were most severe constraint with RBQ value 89.54 and 85.33, while lack of irrigation facilities for green fodder production (75.30) and lack of knowledge about preservation of fodders in village (74.20) considered as moderate problems with respective RBQ value.

Table 2: Perceived constraints of respondents in improved feeding practices (n=140)

Constraints	RBQ	Rank
Lack of knowledge about balance feeding	89.54	I
Non availability of green fodder	85.33	II
Non availability of dry fodder	74.42	IV
High cost of feed/fodder	70	IX
Lack of irrigation facilities for green fodder production	75.3	III
Scarcity of Improved fodder seeds	71.61	VII
Lack of drinking water sources for dairy animals	72.5	VI
Lack of knowledge about preservation of fodders	74.2	V
Lack of knowledge about importance of mineral mixture	70.42	VIII

Lack of drinking water sources for dairy animals, scarcity of improved fodder seeds, lack of knowledge about importance of mineral mixture and high cost of feed/fodder were considered as less serious problems having RBQ values 72.50, 71.61, 70.42 and 70.00 respectively. Minhaj *et al.* (2018) also reported that lack of knowledge about balance feeding, and scarcity of fodder, non-availability of green fodder and water scarcity were the major constraints perceived by farmers in the adoption of improved animal husbandry practices in Doda district of Jammu and Kashmir. Continued decline of ground water and grazing area emerged as most serious problem for dairy farmers in Jodhpur and Jaisalmer districts of Rajasthan reported by Meena *et al.* (2017). Tanwar (2011) reported that the main constraints were lack of knowledge about balanced feeding, high cost of feeds and fodder in feeding management in semi-arid region of Rajasthan. While non-availability of green fodder throughout the year and inadequate knowledge about scientific feeding of dairy animals were faced by tribal farmers as major problems in the study at Udaipur district of Rajasthan by Tailor *et al.* (2012).

Breeding Practices Related Constraints

As evident from Table 3, major constraint in animal breeding practices were lack of knowledge about improved breed of animals and repeat breeding problem in animals with RBQ value 80.71 and 77.65 respectively. This might be due to non-descripting animals and lack of balanced feeding to the milch animals. Lack of knowledge about cross breeding and non-availability of improved sire/ breeding bull were found to be the third and fourth constraints having RBQ values 76.23 and 73.45, respectively. Whereas distant location of A.I. center in village and inadequate knowledge to detect heat signs in dairy animals were found to be less severe constraints with respective RBQ values 71.60 and 52.10. In line of study, Yadav *et al* (2014) reported that, lack of good breed-able bulls, ill equipped A.I. centres and distant location of veterinary hospital were repeated complaints by tribal farmers of Banswara district. Further in study on farmers of Narmada valley of Gujarat Patel *et al.* (2013) found that repeat breeding in cows was major constraint followed by low conception rate through artificial insemination. Varaprasad *et al.* (2013) reported that high incidence of repeat breeding were the major problems in Chittoor district of Andhra Pradesh. Tanwar (2011) observed non-availability of improved breed as major constraint in semi-arid region of Rajasthan.

Table 3: Perceived constraints of respondents related to improved breeding practices (n=140)

Constraints	RBQ	Rank
Inadequate knowledge to detect heat signs in dairy animals	52.1	VII
Non-availability of improved sire/breeding bull in village	73.45	IV
Lack of knowledge about improved breed of animals	80.71	I
Distant location of A.I. centre	71.6	V
Lack of knowledge about cross breeding	76.23	III
Repeat breeding problem in animals	77.65	II

Health Care Related Constraints

Table 4 describes that lack of knowledge about animal diseases was found major health care constraint having RBQ value 78.73. This might be due to lower literacy rate of dairy farmer as well as lack of participation in government diseases awareness program. Minhaj *et al.* (2018) also reported that lack of knowledge about animal diseases was major constraint in husbandry practices in Doda district of Jammu and Kashmir. Patel *et al.* (2013) observed that lack of knowledge about disease control and high cost of veterinary treatment was the major problems in dairying in the tribal households of Gujarat.

Further lack of staff and distant location of veterinary health center and high cost of animal disease treatment were considered as moderately serious constraints among livestock owners of study area having RBQ value 74.36 and 73.49, respectively. High cost of treatments not been afforded by famers may be due to high fees of for doorstep service charged by veterinary officers. Present finding is fully agreement with the result of Dhaka *et al*. (2017). High incidence of diseases, lack of door step service provider and not knowing about services and facilities provided by the government to the livestock owners were found to be less serious constraints having RBQ value 68.12, 67.31 and 61.76 respectively.

Table 4: Perceived constraints of respondents related to health care practices (n=140)

Constraints	RBQ	Rank
High incidence of diseases among livestock	68.12	IV
Lack of staff and Distant location of veterinary health centre	74.36	II
High cost of animal disease treatment	73.49	III
Lack of knowledge about animal diseases	78.73	I
Lack of door step service provider	67.31	V
Not Knowing about services and facilities provided by the govt.	61.76	VI

Management Constraints

Poor productivity status of animals and lack of proper knowledge of livestock production economics were considered as more severe constraints among management constraints with respective RBQ value 86.80 and 81.66 (Table 5). This might be due to non-descript animals, local breeds and unproductive animals maintained by dairy farmers in arid zone of Rajasthan. While, lack of knowledge of cheap and scientific housing system, high cost of raw materials for dairy animal shed, lack of finance for dairy management practices through scientific methods, lack of proper knowledge of milk production records, lack of proper knowledge of sanitation and hygiene, considered as moderately severe problems having RBQ value 76.13, 72.72 and 70.78, respectively. Present finding collaborates with the result of Yadav *et al.* (2014). Inadequate housing system of animals, lack of knowledge about government schemes, lack of finance for dairy management practices through scientific methods, lack of clean water in sufficient quantity around the year and lack of dairy cooperative society in village were considered as less severe constraints with respective RBQ value 67.92, 66.32, 65.30, 64.83 and 60.43. Thus, lack of dairy cooperative society and lack of clean water in village discouraged them to rear costly and improved breeds of livestock. Meganathan *et al.* (2010) found that in hilly areas of Tamil Nadu, lack of scientific knowledge on livestock farming was the major constraint perceived by the tribal livestock farmers.

Table 5: Perceived constraints of respondents in improved management practices (n=140)

Constraints	RBQ	Rank
Inadequate housing system of animals	67.92	VI
Lack of proper knowledge of milk production records	70.78	V
Lack of knowledge of cheap and scientific housing system	76.13	III
High cost of raw materials for dairy animal shed	72.72	IV
Poor productivity status of animals	86.8	I
Lack of proper knowledge of livestock production economics	81.66	II
Lack of dairy cooperative society in village	60.43	XI
Lack of finance for dairy management practices through scientific methods	65.3	VIII
Lack of proper knowledge of sanitation and hygiene	61.91	X
Lack of clean water in sufficient quantity around the year	64.83	IX
Lack of knowledge about government schemes	66.32	VII

Conclusion

It can be concluded that in adoption of improved animal husbandry practices, socio-economic and environmental constraints such as scarcity of water, extreme climatic condition and poor economic condition of family were most serious constraints perceived by dairy farmers in arid zone. Further high cost of dry fodder and non-availability of green fodder for feeding practices were perceived as second serious constraint. Further in breeding practices, repeat breeding problem in dairy animals was perceived as most serious followed by poor conception rate of A.I. and lack of availability of breeding stock. Likewise, high cost of treatment was perceived as third constraint for health care practices by the respondents. To overcome these constraints there was need to relook on the existing livestock resources of the people, provide the facilities such as health care, establishment of breeding center, packages of

dairy loans, livestock insurance and other schemes like kisan credit cards at grass root level, provision of technical help, extension efforts and facilities for improving the breed of the animals at the reasonable cost.

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Conflict of Interests

There is no conflict of interest.

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