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Assessment of knowledge based training needs regarding scientific cattle management practices among cattle owners in Rajasthan

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Abstract

The present study was conducted on randomly selected 320 cattle owners of four districts of Rajasthan i.e. Bharatpur, Kota, Jodhpur and Sri Ganganagar to assess the knowledge based training needs regarding scientific cattle management practices. The results of the study revealed that majority of the cattle owners (71.87%) had moderate followed by low (15%) and high (13.12%) knowledge based training needs regarding scientific cattle management. The findings further revealed that age had positively and significantly correlated ($P < 0.01$) with health care, feeding and management practices while positively but non significantly related with breeding practices, whereas education, land holding, cattle holding, income from cattle rearing and gross annual income had negatively and significantly related ($P < 0.01$) with knowledge based training needs among cattle owners overall scientific cattle management practices.

Keywords: Cattle owners, scientific cattle management practices, knowledge based training needs

1. Introduction

India is mainly an agro based country with more than two third of the population in rural areas depending upon agriculture, animal husbandry and related activities for livelihood (Tanwar and Kumar, 2014) [1]. Livestock forms backbone of the rural economy and an integrated part of agriculture. India has huge livestock population of 536.8 million which includes cattle (36.04%), buffaloes (20.47%), sheep (13.83%) and goats (27.74%) (Anonymous, 2020). Rajasthan stood at 2nd and 6th position in the country in buffalo and cattle with a total population of 136.93 lakhs and 139.37 lakhs, respectively. The Indian dairy farming is basically a small scale production system and approximately 70 per cent of livestock keepers are under landless, small and marginal category characterized by milk production by the masses rather than quantum production and maintained on an average a herd of only 1-3 milch cow/ buffalo (Bhasin, 2012) [3]. The average production of our livestock was low and could be due to lack of knowledge about scientific management (Kumar *et al.*, 2011) [4]. In order to increase the average productivity of the cattle and to make cattle farming more viable and profitable, the cattle rearers have to acquire knowledge and adopt scientific cattle management practices from the field of health care, feeding, breeding and management. In this context, it becomes important to assess the knowledge based training needs of cattle owners, so that the lacuna in the existing knowledge be ascertained and trained them according to their knowledge based training needs (Gour *et al.*, 2015) [5]. In view of the above scenario and facts, present investigation was conducted to study the knowledge based training needs among cattle owners in Rajasthan and its relationship with socio-economic and socio-personal characteristics.

2. Material and Methods

The present study was conducted in purposively selected four districts of Rajasthan i.e. Bharatpur, Kota, Jodhpur and Sri Ganganagar. From these districts, Kumher, Ladpura, Jodhpur and Suratgarh tehsils were selected purposively, as the Pashu Vigyan Kendras of respective districts were situated in these tehsils and functioning under the Rajasthan University of Veterinary and Animal Sciences, Bikaner and working for the welfare of livestock and their owners. Four villages from each tehsil and 20 families from each selected village were randomly selected as respondents. Thus, total 320 families who possessed mainly cattle were selected as the respondents and were interviewed through semi structured schedule to assess the knowledge based training needs among them regarding scientific cattle management practices.

Knowledge based training needs were identified on the basis of knowledge mean scores. The technological sub-areas in which the mean knowledge score of the cattle owners was high, their mean knowledge based training scores obtained was low for those sub-areas and vice-versa. In this manner the technological sub areas were categorized into low, moderate and high knowledge based training needs categories.

The knowledge mean score of one respondent(s) in a sub-area/ areas was calculated by:

$$\text{Knowledge mean score} = \frac{\text{Total score obtained}}{\text{Total obtainable score}}$$

Knowledge based training need mean score= 1- Knowledge mean score

3. Results and Discussion

3.1 Knowledge based training need in different areas of scientific cattle management practices

It was observed from Table 1 that majority of the cattle owners (71.87%) were in moderate followed by low (15%) and high (13.12%) level of overall knowledge based training needs category regarding overall scientific cattle management practices. Majority of them were in moderate level category, this might be because they were in regular contact with the scientists of Pashu Vigyan Kendra of their respective districts, veterinarian of nearby hospital and official from other institutes working for the welfare of the cattle and their owners in the respective district and get solutions of their queries from them and acquired the needed information on various aspects through the training programmes organized by them.

Table 1: Distribution of cattle owners according to their knowledge based training needs in different areas of scientific cattle management practices

N= 320

S. No.	Sub areas	Level	Composite group
1.	Health care	Low (< 0.2)	47 (14.68)
		Moderate (0.2-0.43)	238 (74.37)
		High (> 0.43)	35 (10.93)
2.	Feeding	Low (< 0.26)	55 (17.18)
		Moderate (0.26-0.61)	208 (65)
		High (> 0.61)	57 (17.81)
3.	Breeding	Low (< 0.12)	40 (12.5)
		Moderate (0.12-0.39)	225 (70.31)
		High (> 0.39)	55 (17.18)
4.	Management	Low (< 0.29)	59 (18.43)
		Moderate (0.29-0.57)	212 (66.25)
		High (> 0.57)	49 (15.31)
5.	Over all	Low (< 0.25)	48 (15)
		Moderate (0.25-0.47)	230 (71.87)
		High (> 0.47)	42 (13.12)

Data in parentheses indicate per cent respondents

The data presented in Table 2 to 5 regarding knowledge based training needs from the aspect of health care, feeding, breeding and management practices revealed that the respondents in composite group had highest overall knowledge based training needs regarding management practices (mean score 0.54) followed by feeding (0.45), health care (0.35) and breeding (0.26) aspect. The overall mean score of respondents of composite group revealed that they had highest knowledge based training need regarding management followed by feeding, health care and least regarding breeding practices. The results regarding subareas revealed that they had highest knowledge based training need regarding symptoms of Black Quarter (mean score 0.72), preservation of green fodder (0.88), symptoms of heat (0.45) and debudding (0.80) in health care. Feeding, breeding and management aspect, respectively. It was also observed that

the respondents had least knowledge based training need was about the two most dreadful diseases of cattle against which they do vaccination i.e. FMD and HS (0.05), quantity of green fodder provided to milch cow (0.13), length of estrous cycle and gestation period (0.10) and colostrums feeding (0.33) from the aspect of health care, feeding, breeding and management, respectively. Rokonuzzaman (2013) ^[6] also reported in their study that majority (55%) of the respondents had high training needs compared to 36 per cent of them having medium training needs in livestock rearing in Sherpur district of Bangladesh. Durga Rani and Subhadra (2009) ^[8] in Thrissur taluk, Kerala found that 75.97 per cent of the dairy farmers had needs on housing of milch animal and 64.72 per cent had needs on feeding and management of milch animal and 58.38% of the respondents had expressed needs on health care.

Table 2: Distribution of cattle owners according to their knowledge based training needs in health care practices (rank ordering)

N= 320

S. No.	Sub areas	Composite group	
		Mean score	Rank order
1.	Signs of illness	0.18	IX
2.	Adverse effects caused by internal parasites	0.47	III
3.	Prevention from ectoparasite	0.48	II
4.	Symptoms of ruminal tympany/ bloat	0.38	V
5.	Two most dreadful diseases against which they do vaccination i.e. FMD and HS	0.05	X
6.	Symptoms of Foot and Mouth Disease	0.23	VIII
7.	Symptoms of Haemorrhagic Septicemia	0.35	VI
8.	Symptoms of Black Quarter	0.72	I
9.	Advantages of vaccination	0.40	IV
10.	Quarantine of cattle	0.24	VII
Overall		0.35	

Table 3: Distribution of cattle owners according to their knowledge based training needs in feeding practices (rank ordering)

N= 320

S. No.	Sub areas	Composite group	
		Mean score	Rank order
1.	Quantity of green fodder provided to growing calf	0.34	VI
2.	Quantity of green fodder provided to milch cow	0.13	IX
3.	Preservation of green fodder	0.88	I
4.	Balanced feeding	0.41	IV
5.	Ingredients of a concentrate mixture	0.42	III
6.	Quantity of concentrate provided to milch cow	0.27	VII
7.	Quantity of concentrate provided to cow in dry period	0.37	V
8.	Benefits of mineral mixture	0.17	VIII
9.	Benefits of azola feeding	0.75	II
10.	Benefits of urea molasses mineral block	0.75	II
Overall		0.45	

Table 4: Distribution of cattle owners according to their knowledge based training needs in breeding practices (rank ordering)

N= 320

S. No.	Sub areas	Composite group	
		Mean score	Rank order
1.	Age of heifer at first service	0.20	VII
2.	Length of estrous cycle	0.10	IX
3.	Symptoms of heat	0.45	I
4.	Time of mating after observing heat signs	0.24	VI
5.	Method of breeding	0.17	VIII
6.	Disposal of placenta	0.32	IV
7.	Mating after parturition	0.26	V
8.	Length of gestation period	0.10	IX
9.	Method of drying off the cow	0.40	II
10.	Intercalving interval	0.33	III
Overall		0.26	

Table 5: Distribution of cattle owners according to their knowledge based training needs in management practices (rank ordering)

N= 320

S. No.	Sub areas	Composite group	
		Mean score	Rank order
1.	Cutting and ligature of naval cord	0.38	IX
2.	Colostrum feeding	0.33	X
3.	Weaning practice	0.54	IV
4.	Deworming of calf	0.43	VIII
5.	Age of debudding	0.80	I
6.	Advantages of castration	0.46	VII
7.	Uses of potassium permanganate	0.66	III
8.	Washing the hands and utensils before milking	0.49	VI
9.	Cleanliness of milking place	0.51	V
10.	Maintaining of records	0.75	II
Overall		0.54	

3.2 Relationship between socio-economic characteristics and knowledge based training needs regarding overall scientific management practices

Findings presented in Table 6 revealed that age had positively and significantly associated ($P<0.01$) with overall knowledge based training needs regarding scientific cattle management practices i.e. health care, feeding and management practices whereas positively but non significantly related with breeding practices. The variables like education, land holding, cattle holding, income from cattle rearing and gross annual income had negative and significant relationship ($P<0.01$) with all scientific management practices i.e. health care, feeding, breeding and management. Membership of milk co-operative society had negative and significantly correlated ($P<0.01$) with health care and management practices and negatively and non significantly related with feeding and positively but non significantly correlated with overall knowledge based training needs regarding breeding practices. Socio-economic status, extension contact and mass media exposure had negative and significant relationship ($P<0.01$) with health, feeding and management practices while negative but non

significantly correlated with breeding practices. Finding also revealed that age was the only variable which had positively associated while rest of the variables were negatively associated with overall knowledge based training needs of the respondents. This might be because as the age of the respondents increases, they are more enthusiastic about the latest technology regarding scientific management adopted by nearby cattle owners and ultimately need arises and as the socio-economic status and education level increases, their knowledge level itself improved, than in turns the knowledge based training needs reduces. Rokonzaman (2013) [6] reported that education, farm size and annual income had negatively and significantly correlated correlation but rest of the variables had no significant correlation with training needs regarding livestock rearing. Sharma *et al.* (2020) [7] found that social and extension participation, mass media exposure, had negative and highly significant correlation and education had negative and significant correlation whereas, age, size of family, dairy experience, size of land holding and herd size had non- significant association with training needs of farm women about improved animal husbandry practices.

Table 6: Distribution of cattle owners according to relationship between socio-economic characteristics and knowledge based training needs regarding overall scientific cattle management practices N= 320

S. No.	Variables	Health	Feeding	Breeding	Management
1.	Age	0.206**	0.205**	0.098	0.205**
2.	Education	-0.403**	-0.301**	-0.229**	-0.315**
3.	Land holding	-0.180**	-0.319**	-0.271**	-0.242**
4.	Membership of milk co-operative society	-0.198**	-0.106	0.040	-0.159**
5.	Socio-economic status	-0.162**	-0.260**	-0.061	-0.194**
6.	Cattle holding	-0.502**	-0.480**	-0.286**	-0.459**
7.	Income from cattle rearing	-0.167**	-0.312**	-0.149**	-0.285**
8.	Gross annual income	-0.186**	-0.412**	-0.395**	-0.339**
9.	Extension contact	-0.289**	-0.361**	-0.100	-0.295**
10.	Mass media exposure	-0.281**	-0.301**	-0.083	-0.270**

*. Correlation is significant at the 0.05 level

** . Correlation is significant at the 0.01 level

4. Conclusion

Based on the findings of the present study, it can be concluded that majority of the respondents were under moderate knowledge based training need category regarding overall scientific cattle management practices. A plausible conclusion would be that the cattle owners would require more information on various aspects especially on management followed by feeding, health care and breeding. It is recommended that more emphasis should be given to trained them on cattle management aspect followed by feeding, health care and breeding so that they enrich their knowledge, skill and attitude for better management of their cattle to make the cattle farming more viable and profitable.

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