RESEARCH ARTICLE

Assessment of Information Needs of Dairy Farmers about Dairy Farming in Karnataka

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Abstract

The present study was conducted to determine the information needs of dairy farmers about dairy farming with a sample size of 200 respondents from Karnataka. Purposive and random sampling method was adopted. The statistical techniques used were frequency, percentage, weighted mean score, ranking, index value, mean index value and independent student t test. The study revealed that there was a significant difference ($p<0.05$) between North and South Karnataka dairy farmers with regards to information needs on the following major areas, *viz.,* breeding and reproduction, housing management etc., Information on marketing and finance was ranked first by majority of North region farmers, whereas, information on health management and disease control was ranked first by farmers of South region. Overall index value indicated that, information on marketing and finance was ranked first, by all the dairy farmers. The current study emphasizes the importance of information need assessments studies and also need to develop relevant strategies, particularly before developing any ICT based web modules.

Key words: Dairy farmers, Information needs, Karnataka, Livestock productivity.

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Introduction

Livestock sector is a significant subsector of the agriculture in Indian economy. As per National Sample Survey Organization (NSSO) survey conducted in 2003, only 5.1% of the farmer households in India were able to access any information on animal husbandry as against 40.4% on crop farming. For dairy farmers, a variety of trainings are provided, but they are primarily based on the requirements set forth by institutions or organizations at a specific time. Various studies about training needs of farmers have been conducted till date, but very negligible studies have focused on the needs of dairy farmers (Chander *et al.,* 2010; Balaraju *et al.,* 2013).

Hence, assessing the information needs and then imparting need-based information on scientific dairy animal rearing practices through a variety of extension methods, such as training, demonstration, through ICTs (development of web modules) etc., is essential for achieving sustainable livestock productivity. Understanding the needs of farmers is crucial for the efficient spread of technologies, and it also helps scientists to prioritize their research based on farmers needs. With this background, the current study was conducted to determine the information requirements of dairy farmers about dairy farming in North region (Bidar and Gadag district) and South region (Shivamogga and Hassan district) of Karnataka, India.

Materials and Methods

The study was conducted in four districts of Karnataka, *i.e.,* Bidar, Gadag, Shivamogga and Hassan, each from Kalburgi, Belagavi, Bengaluru and Mysuru administrative divisions, respectively. Among these four districts, two districts belong to North region (Bidar and Gadag) and two districts belong to South region (Shivamogga and Hassan). One district from each administrative divisions of Karnataka was purposively selected due to presence of veterinary colleges in these districts. Random sampling method was followed to select 50 dairy farmers rearing dairy cattle/buffalo and possessing an android smart phone, from each district, thus making a final sample size of 200 respondents from four districts of Karnataka. A pretested structured interview schedule was constructed in local language (Kannada), for data collection from dairy farmers.

Information needs of dairy farmers were assessed in ten main areas along with subareas like selection criteria of dairy cattle breed, identification of quality dairy animals etc. The respondents were asked to identify different aspects of the areas of dairy farming in which they felt there was

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need for information. Dairy information needs were then prioritized on the basis of the responses and categorized as 'most needed', 'needed' and 'least needed', and were given the scores 3, 2 and 1, respectively. The total score for a single item was calculated by summing the scores provided by all the respondents for that particular item.

The Weighted Mean Score (WMS) was calculated by dividing the total scores by number of respondents, and the results were ranked according to the WMS values to find the priorities of the information needs. This WMS prioritized the information needs of the dairy farmers to determine the overall preferences (rank) for the different areas in dairy farming.

The extent of Information needs was calculated based on the "Information Need Index (INI)" formula, *i.e.,* by dividing total obtained score by maximum obtainable score, multiply by 100. It was calculated individually on each sub-area. The independent t-test was used on INI values to find out significance in perceived information needs.

As the priorities regarding information needs for dairy farmers of North Karnataka and South Karnataka were different, index values were calculated for each of the main areas or categories of dairy farming by multiplying the WMS of North Karnataka and South Karnataka region dairy farmers in order to perform overall prioritization of information needs of both the region dairy farmers (Singh *et al.,* 2019).

Results and Discussion

The information needs of dairy farmers were assessed in ten major areas, each major area was categorized into several relevant sub-areas (Table 1). Table 2, depicts the 't' values for ten major areas of dairy farming which was calculated by comparison of mean information need index value of dairy farmers of both North and South Karnataka region.

Information Needs of North Karnataka (Bidar and Gadag) Region Dairy Farmers

Within the sub-area of breed selection and identification of quality dairy animals, majority of the dairy farmers (56.00%) of North Karnataka region perceived that, information on identification of quality dairy animals was most needed by them, followed by sources/nearest market for quality dairy animal (52.00%). The probable reason for such distribution might be due to the fact that production performance of dairy animals is dependent on the type of breed and its quality. The findings are in confirmatory with the reports of Subash *et al.* (2015) and Singh *et al.* (2019). With regards to breeding and reproduction, majority of the dairy farmers (54.00%) perceived that information on breeding age and infertility problem was most needed. The study also indicated that within housing management, information on housing layout and design and construction of low cost scientific animal shed was most needed by 34 % of dairy farmers. In a similar study, Subash *et al.* (2015) found that information on housing and sanitation was given second priority by dairy farmers under general management area.

With regards to feeding and nutrition, majority (70.00%) of the dairy farmers perceived, that information on balanced ration and its composition was most needed. Scientific feeding practices helps to overcome the existing shortage of good quality feed problem. The results are in agreement with the findings of Balaraju *et al.* (2013). Under health management and disease control, information on science of common diseases was most needed by majority of dairy farmers (56.00%). Further, under calf management, information on vaccination of calves was most needed by majority of the dairy farmers (52.00%). Proper vaccination and deworming are crucial management factors for health of all animals including calves.

Under clean milk production and value addition, information on sources of contamination of milk was most needed by majority of dairy farmers (52.00%). Awareness about sources of contamination of milk helps in preventing contamination and facilitates in achieving clean milk production practices. It is interesting to note that, cent percent of the north Karnataka region dairy farmers perceived that they mostly needed information on different marketing channels under marketing and finance. In a similar study Mishra (2019) reported that majority of dairy farmers prioritized information on distribution and marketing management as fifth priority. Under bio-security, majority of dairy farmers (48.00%) perceived that they need information on movement and visitor entry restrictions. Under general management area, information on methods of cattle farming was perceived as most needed by majority of dairy farmers (46.00%).

Information Needs of South Karnataka (Shivamogga and Hassan) Region Dairy Farmers

The information needs perceived by South Karnataka dairy farmers within the sub-area of breed selection and identification of quality dairy animals included that selection criteria of dairy cattle breed was most needed information and was ranked first, followed by identification of quality dairy animal (Table 1). With regards to breeding and reproduction, majority of the dairy farmers (78.00%) perceived that information on breeding age was most needed. The study also indicated that within housing management, information on housing layout and design was perceived as most needed (46.00%). Further, with regards to feeding and nutrition, 64 % of the dairy farmers perceived, that information on feeding of lactating buffalo and Information on milk replacer for young calves was most needed. This could be attributed to the fact that, feeding all the category animals in a similar way is unprofitable, and feeding should be done based on animal age, sex, and weight in order to achieve better productivity per animal.

Within health management and disease control, information on signs of common diseases was most needed

by majority of dairy farmers (92.00%). The dairy farmers of South Karnataka region expressed that signs of some common disease should be known to them, so that they can get alert soon and contact veterinarian accordingly. In a similar study, Gangil *et al.* (2019) reported that majority of the dairy farmers expressed that they need information on knowledge about infectious diseases. Subash *et al*. (2015) reported that majority of the dairy farmers perceived the information on vaccination schedule followed by knowledge about disease as most needed under health care management area.

Under calf management, 52 % of the dairy farmers perceived that, information on Management of calf immediately after birth was most needed by them. In a similar study, Bhuyan *et al.* (2018) reported that majority of dairy farmers were lacking knowledge on deworming of calf. Further, under clean milk production and value addition, information on procedure for clean milk production was most needed by majority of dairy farmers (92.00%) of South Karnataka (Shivamogga and Hassan) region. Ninety four per cent of the South region dairy farmers perceived that they mostly needed information on different marketing channels under marketing and finance. The results are in partial agreement with the findings of Mishra (2019). Further, under bio-security, majority of dairy farmers (42.00%) required information on movement and visitor entry restrictions. Under general management area, information on Management during summer was perceived as most needed by majority of dairy farmers (30.00%).

Table 1: Information needs perceived by North and South Karnataka dairy farmers in different sub-areas of dairy farming (n=200, Mean %)

Areas		North Karnataka (Bidar and Gadag) (n=100)	South Karnataka (Shivamogga and Hassan) (n=100)
Breed selection and identification of quality dairy animals	Selection criteria of dairy cattle breed	14.00	64.00
	Identification of quality dairy animal	56.00	62.00
	Sources/nearest market for quality dairy animal	52.00	58.00
Breeding and Reproduction	Breeding age	54.00	78.00
	Breeding Weight	48.00	76.00
	Infertility Problems	54.00	54.00
Housing Management	Housing layout and design	34.00	46.00
	Construction of low cost scientific animal shed	34.00	40.00
Feeding and Nutrition	Grazing management	64.00	28.00
	Balanced ration and its composition	70.00	46.00
	Feeding of lactating buffalo	42.00	64.00
	Information on milk replacer for young calves	40.00	64.00
Health management and disease control	Signs of common diseases	56.00	92.00
	Important diseases affecting dairy cattle	50.00	88.00
	Precautions when animal are sick	44.00	88.00
	Preventive measures against different diseases	52.00	80.00
Calf management	Management of calf immediately after birth	50.00	52.00
	Disease affecting calves	38.00	48.00
	Vaccination of calves	52.00	40.00
Clean milk production and Value addition	Sources of contamination of milk	52.00	90.00
	Procedure for clean milk production	36.00	92.00
	Milking methods	40.00	50.00
Marketing and Finance	Different marketing channels	100.00	94.00
	Sale of dairy cattle	94.00	92.00
Bio-Security	Movement and visitor entry restrictions	48.00	42.00
	Insect and rodent control	44.00	36.00
General Management	Management during Summer	40.00	30.00
	Methods of cattle farming	46.00	22.00

Calf management area, got highest 't' value of 1.00 followed by General management (0.57), Biosecurity (0.47), Breed selection and identification of quality dairy animals (0.19) and Breeding and reproduction (0.02). The statistical analysis (t test) revealed that there was a significant difference ($p<0.05$) between North (Bidar and Gadag district) Karnataka and South (Shivamogga and Hassan district) Karnataka dairy farmers with regards to information needs on the following major areas, *viz.,* breeding and reproduction, housing management, feeding and nutrition, health management and disease control, clean milk production and value addition and marketing and finance (Table 2). This implies that, there is a marked difference between the information needs of North and South Karnataka region dairy farmers. Further Table 2 also revealed that, there is no significant difference ($p>0.05$) between North and South Karnataka region dairy farmers with regards to information needs on breed selection and identification of quality dairy animals, calf management, bio-security and general management.

Index values were calculated for ranking various categories of information needs and establishing order among them. Table 3 indicates that information on marketing and finance was ranked first by North (Bidar and Gadag) Karnataka region dairy farmers, followed by health management and disease control. With regards to dairy farmers of South (Shivamogga and Hassan) Karnataka region, information on health management and disease control was ranked first followed by marketing and finance (Table 3). Overall index value was calculated to know the overall prioritization of information needs and it was observed that information on marketing and finance was ranked first, followed by health management and disease control in the study area.

Table 2: Difference in Information needs of North and South Karnataka region dairy farmers

Sl. No.	Areas	Mean Information need Index		t value
		North Karnataka (Bidar and Gadag) dairy farmers (n=100)	South Karnataka (Shivamogga and Hassan) dairy farmers (n=100)	
1	Breed selection and identification of quality dairy animals	75.42 ± 1.16	79.00 ± 2.27	0.19
2	Breeding and Reproduction	*76.27 ± 0.71	*79.73 ± 1.22	0.02
3	Housing Management	*58.29 ± 0.46	*67.62 ± 1.00	0.00
4	Feeding and Nutrition	*73.94 ± 1.05	*80.03 ± 0.86	0.00
5	Health management and disease control	*78.13 ± 0.43	*87.67 ± 1.29	0.00
6	Calf management	72.58 ± 1.01	72.58 ± 1.24	1.00
7	Clean milk production and Value addition	*62.67 ± 0.97	*84.85 ± 2.27	0.00
8	Marketing and Finance	*92.58 ± 0.88	*87.29 ± 1.37	0.00
9	Bio-Security	67.47 ± 1.42	69.07 ± 1.59	0.47
10	General Management	68.38 ± 3.07	70.29 ± 0.87	0.57

*Significant at 5% level of significance

Table 3: Overall proritization of information needs of both North (Bidar and Gadag) and South (Shivamogga and Hassan) Karnataka dairy farmers

Areas	North		South			
	WMS	Ranking	WMS	Ranking	Index value	Overall ranking
Breed selection & identification of quality dairy animals	2.26	4	2.37	6	5.36	IV
Breeding and Reproduction	2.29	3	2.39	5	5.47	III
Housing Management	1.75	10	2.03	10	3.55	X
Feeding and Nutrition	2.22	5	2.40	4	5.33	V
Health management and disease control	2.34	2	2.63	1	6.16	II
Calf management	2.18	6	2.18	7	4.74	VII
Clean milk production and Value addition	1.88	9	2.55	3	4.79	VI
Marketing and Finance	2.78	1	2.62	2	7.27	I
Bio-Security	2.02	8	2.07	9	4.19	IX
General Management	2.05	7	2.11	8	4.33	VIII

The probable reason for dairy farmers expecting more information on marketing and finance as highly required might be due to the fact that most of the dairy farmers perceived that a credible information on marketing and finance would facilitate them to enhance their economic status with efficient marketing strategies. Sharma *et al*. (2018) reported that majority of the dairy farmers faced the constraint of lack of regulated marketing. In a similar study, Mishra (2019) reported that dairy farmers prioritized information on distribution and marketing as fifth priority. Further, effective marketing and finance information helps the farmers to increase their income on timely basis.

The probable reason for ranking the information on health management and disease control as first rank by majority of dairy farmers of South region might be due to the fact that, health management and disease control ensures the best possible care and wellbeing for dairy animal while minimizing productivity losses due to illness. Improvement in animal health will continue to contribute to increasing potential production and further efficiency and genetic gains (Thornton, 2010).

Conclusion

Information on marketing and finance ranked first, followed by health management and disease control as the most needed in the study area. This also indicates that dairy farmers of Karnataka had different information needs which may be addressed through effective extension service delivery for a profitable and sustainable dairy farming. Information on scientific dairy farming practices is very essential to assess the information needs of dairy farmers regularly and provide them credible and updated information regularly through development of different modules (for effective technology dissemination). This will help dairy farmers in improving their knowledge level, economic status and also enhances their livestock productivity by facilitating them in implementing scientific dairy farming practices.

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