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Perceived Training Needs of Farmers about Dairy Farming in Karnataka : A Perspective of Farmers and Veterinarians

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ABSTRACT

An ex-post-facto and exploratory study was conducted to assess the training needs of dairy farmers as perceived by them and field veterinarians with a sample size of 120 dairy farmers and 66 field veterinarians in Davangere district of Karnataka state. The training needs of dairy farmers in major six areas *viz.* breeding, feeding, health care, housing and management, marketing & finance and dairy products preparation of dairy farming were assessed from the perspective of farmers and veterinarians. In major areas of dairy farming, farmers perceived higher training needs in health care followed by feeding and breeding while veterinarians perceived feeding as 'most important' area followed by health care and breeding. Independent 't' test values indicate that veterinarians perceived higher extent of training needs for farmers in dairy products preparation, feeding and health care. The study concluded that farmers and veterinarians perceived higher extent of training needs in health care, feeding and breeding. Hence, the public and private extension agencies have to plan effective extension strategy based on the perceived training needs of the farmers for improving the livestock productivity.

Key words: Training needs, dairy farming, dairy farmer, field veterinarian

INTRODUCTION

Indian livestock sector is blessed with largest bovine population leading to higher milk production in the world. This higher milk production is mainly because of increased number of livestock rather than improved productivity (Patil *et.al, 2009)* which is of great concern in the current scenario. Hence, for sustainable milk productivity, there is an urgent need to impart need based knowledge and skills on scientific and economically viable dairy animal rearing practices through various extension methods like training, demonstration etc. In this context, Rajput *et. al (2012)* stated that trainings can boost up dairy knowledge, skill, attitude and value for making a better livelihood. Training is a "systematized tailor made programme to suit the needs of a particular group for developing certain attitudes, actions, skills and abilities in individuals irrespective of their functional levels" (Bhattacharyya, 2006).

Although various trainings are conducted for dairy farmers, they are mostly based on the mandates of institutes or organizations at a particular period of time. However, in many instances, the training needs of farmers and the experts vary to a greater extent. Various studies about training needs of farmers have been conducted till date, but very negligible studies have focused on the needs of dairy farmers with the perspective of field veterinarians and farmers themselves. Hence, with this theoretical background, the authors have made an effort to focus on the fact that training needs of farmers and the field veterinarians vary based on various factors like age, education *etc.* This study has also emphasized on the needs of farmers which can be helpful in framing effective strategies for dairy farmers.

METHODOLOGY

The present study was conducted in purposively selected Davangere district of Karnataka since this district has nearly 10 per cent of bovine population in Karnataka state, but contributes only 1.75 per cent to the milk pool of the state (GOK, 2010). Simple random sampling technique was followed to select four blocks among a total of 6 blocks. Further, from each block, two gram panchayats were selected and a total sample size of 120 dairy farmers at the rate of 15 farmers per gram panchayat were selected in consultation with veterinary officers, para-veterinarians and key informants *etc*. A sample of 66 field veterinarians working in State Department of Animal Husbandry from Davangere district were considered for the study. The study used pre-tested, semi-structured interview schedule for dairy farmers and semi-structured questionnaires for field veterinarians to collect primary data in the study area. The training needs of farmers as perceived by farmers and field veterinarians were ascertained in six major areas *viz*. breeding, feeding, health care, housing & management, marketing & finance and preparation & preservation of dairy products and were assessed on five point continuum *viz*., most important, important, somewhat important, less important and least important, with the scores of 5, 4, 3, 2

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and 1 respectively. Further, the major areas were classified to sub-areas and the training needs of dairy farmers were ascertained at three point continuum *viz*., most needed, needed and least needed, with the score of 3, 2 and 1 respectively. Frequency and percentage for each major area were calculated and ranking was done for each category based on the total weight mean score. The summation of scores achieved by the respondents constituted the level of perceived training needs. The extent of training needs was calculated based on the "Training Need Index (TNI)" formula, calculated individually on each sub-area. The independent t-test was used on TNI values to find out significance in perceived training needs. The summation of scores was further categorized as low, medium and high level training needs as perceived by farmers and field veterinarians. The total weighted mean score and TNI were calculated using the following formula:

$$\text{Total weighted mean score (TWMS)} = \frac{\text{Total score obtained in each major area}}{\text{Total number of respondents}}$$

$$\text{Training Need Index (TNI)} = \frac{\text{Total Obtained Score}}{\text{Maximum Obtainable Score}} \times 100$$

RESULTS AND DISCUSSION

Training needs perceived by dairy farmers in dairy farming

It is cleared from Table 1 that, majority of the dairy farmers perceived training needs in health care as most important, followed by feeding and breeding with ranks I, II and III respectively. Areas like health care, feeding, breeding, housing & management and marketing & finance, majority of the farmers' perception was in between 'most important' to 'somewhat important' while preparation & preservation of dairy products were responded as 'somewhat important' to 'least important' by majority of the farmers. This finding in the study region may be due to the fact that dairy farmers were aware about the importance of health care and prevention of diseases in dairy farming. These results are in line with findings of Nikam and Rajmane (1995), Pharate *et al.* (2010) and Singh *et al.* (2013). Since nearly 60-70 per cent of the investment in dairy enterprise is for feed and fodder (GOI, 2012), farmers felt this information as most essential to make dairy farming more profitable and feasible. The farmers also desired training in breeding aspect to improve genetic potential for production in dairy farming.

Table 1: Perceived training needs of dairy farmers in major areas of dairy farming.

n=120

Major areas in dairy farming	Training needs of dairy farmers as perceived by them (%)					Total Score	TWMS	Rank
	MI	I	SI	LI	LS			
Breeding	34.17	45.00	20.00	0.83	00	495	4.13	III
Feeding	45.00	43.33	11.67	00	00	520	4.33	II
Health care	57.50	30.00	9.170	1.67	1.67	528	4.40	I
Housing & management	12.50	39.17	40.83	6.67	0.83	427	3.56	IV
Marketing & finance	4.17	30.83	20.00	44.17	0.83	352	2.93	V
Products preparation	1.67	3.33	5.83	4.17	25.00	255	2.13	VI

MI - Most Important, I - Important, SI - Somewhat Important, LI - Less Important, LS - Least Important, TWMS - Total Weighted Mean Score. % - Percentage

Training needs perceived by dairy farmers in different sub-areas of dairy farming:

The training needs of farmers were ascertained in six major areas *viz.* breeding, feeding, health care, housing & management, marketing & finance and preparation & preservation of dairy products and further, each major area was categorized into sub-areas as mentioned in Table 2. The training needs perceived by dairy farmers within the sub-area of breeding included that estrous cycle & time of insemination was the most needed information followed by breed selection, identification of infertility problem, estrous detection, Artificial Insemination and pregnancy diagnosis. The findings are in line with Rokonuzzaman (2013). With regards to animal feeding, majority (56.67%) of the farmers perceived urea treatment of straw as most needed area for training followed by nutritional management of breeding problem, importance of colostrum feeding, balanced ration and its economical composition. The present study results are supported by findings of Rajput *et al.* (2012). The study indicated that, within health care, majority of the respondents perceived training needs in zoonotic diseases & their transmission as most needed, followed by common disease & preventive measures, vaccination, ectoparasite control, deworming and first aid treatment with rankings I, II, III, IV, V and VI respectively. Almost similar findings were reported by Durggarani and Subhadra (2009).

Within housing and management category, care of new born followed by clean milk production & milking methods, construction of low cost scientific housing, animal shed sanitation, care & management of productive animal and record keeping were the perceived training needs in the study area which are in conformity with the reports of Patil *et al.* (2009). In the areas of marketing and finance, the study depicted that, 59.17 per cent of the dairy farmers perceived training in banking & insurance followed by purchase of animal & inputs and sale of animal & its products as the information needed areas with the ranks of I, II and III respectively. This was mainly due to the fact that respondents were not aware of

livestock insurance scheme, credit facility and subsidy for purchase of animal and farmers perceived the banking procedures as time consuming and complicated. The farmers were also eager to know about purchase of dairy animals and locally available feed resources for balanced ration preparation for profitable dairying. The results are in concurrence with findings of Durggarani and Subhadra (2009)

Table 2: Training needs perceived by dairy farmers in different sub-areas of dairy farming

n=120

Training needs	MN	N	LN	TS	TWMS	Rank
Training needs in breeding (%)						
Selection of breeds	46.67	50.00	3.33	292	2.43	II
Estrous detection	24.17	64.17	11.67	255	2.13	IV
Estrous cycle & time of insemination	52.50	39.17	8.33	293	2.44	I
Artificial Insemination	20.83	65.83	13.33	249	2.08	V
Pregnancy diagnosis	21.67	61.67	16.67	246	2.05	VI
Identification of infertility problem	35.83	55.83	8.33	273	2.28	III
Training needs in feeding (%)						
Balanced ration & its economical composition	34.17	59.17	6.67	273	2.28	IV
Feeding of different age groups	6.67	58.33	60.00	236	1.97	VIII
Nutritional management of breeding problem	55.00	34.17	10.83	293	2.44	II
Importance of clean feed and water	22.50	61.67	15.83	248	2.07	VII
Importance of colostrum feeding	45.83	44.17	10.00	283	2.36	III
Mineral mixture supplementation	26.67	57.50	15.83	253	2.11	VI
Urea treatment of straw	56.67	40.83	2.50	305	2.54	I
Fodder varieties & their cultivation	34.17	53.33	12.50	266	2.22	V
Preservation of fodder (silage & hay)	8.33	55.00	36.67	206	1.72	IX
Training needs in health care (%)						
Deworming	47.50	42.50	10.00	285	2.38	V
Vaccination	57.50	30.00	12.50	294	2.45	III
Ectoparasite control	51.67	37.50	10.83	289	2.41	IV
Common diseases and preventive measures	57.50	35.83	6.67	301	2.51	II
First aid treatment	30.00	61.67	8.33	266	2.22	VI
Zoonotic diseases and their transmission	56.67	39.17	4.17	303	2.53	I
Training needs in housing and management (%)						
Construction of low cost scientific housing	45.00	47.50	7.50	285	2.38	III
Animal shed sanitation	20.83	63.33	15.83	246	2.05	IV
Identification & isolation of sick animals	26.67	20.83	52.50	209	1.74	VIII
Weaning	4.17	56.67	39.17	198	1.65	IX
Record keeping	20.83	54.17	25.00	235	1.96	VI
Manure management	19.17	53.33	27.50	230	1.92	VII
Clean milk production & milking methods	65.83	30.00	4.17	314	2.62	II
Care of new born	52.50	43.33	4.17	298	2.48	I

MN - Most Needed, N - Needed, LN Least Needed, TS - Total Score, TWMS - Total Weighted Mean Score. % - Percentage

The training needs in preparation and preservation of dairy products in dairying indicated that, for milk & milk product preparation training, majority of the farmers perceived 'needed' and 'least needed'. Further for meat products preparation, majority of the respondents perceived as least needed. Although, common milk products in the study area were curd, butter, ghee and butter milk, majority of the farmers were not aware of other milk products like paneer, channa, kulfi, flavored milk *etc*. due to regional variations in food preferences.

Training needs of dairy farmers in major areas of dairying as perceived by field veterinarians

Table 3 depicts that field veterinarians perceived, feeding as 'most important' followed by health care and breeding as the major training need areas. The other categories *viz.*, housing & management, marketing & finance and preparation & preservation of dairy products received responses ranging from 'important' to 'least important'. Interestingly, a comparison between Table 1 and Table 3 depicts a marked variation in farmers and veterinarians' perception with respect to major areas of dairy farming.

Table 3: Training needs of dairy farmers in major areas of dairy farming as perceived by field veterinarians

n=66

Major areas in dairy farming	Training needs of dairy farmers as perceived by field veterinarians (%)					Total Score	TWMS	Rank
	MI	I	SI	LI	LS			
Breeding	48.48	39.39	12.1	00	00	288	4.36	III
Feeding	75.76	22.73	1.52	00	00	313	4.74	I
Health care	53.03	43.94	1.52	1.52	00	296	4.48	II
Housing & management	43.94	39.39	13.64	3.03	00	280	4.24	IV
Marketing & finance	31.82	34.85	22.73	7.58	3.03	254	3.85	V
Products preparation	22.73	37.88	24.2	7.58	7.58	238	3.61	VI

MI - Most Important, I - Important, SI - Somewhat Important, LI - Less Important, LS - Least Important, TWMS - Total Weighted Mean Score. % - Percentage

Training needs of dairy farmers as perceived by field veterinarians in different sub-areas of dairy farming

The perception of veterinarians about training needs of farmers was ascertained in six major areas *viz.* breeding, feeding, health care, housing & management, marketing & finance and preparation & preservation of dairy products. Later, each major area was categorized into sub-areas as mentioned in Table 4. The study depicted that estrous cycle and time of insemination ranked top followed by estrous detection, selection of breed, identification of infertility problems, artificial insemination and pregnancy diagnosis as the important training need area perceived by veterinarians in animal breeding category. Further, within animal feeding category, balanced ration and its economical composition was perceived to be a major need followed by importance of colostrum feeding, mineral mixture supplementation, importance of clean feed and water and nutritional management of breeding problem. Table 4 reveals that, within the sub-area of health care, veterinarians perceived that trainings in vaccination was most needed for the farmers followed by deworming, ectoparasite control and importance of zoonotic diseases and its transmission in the study region.

Table 4: Training needs of dairy farmers as perceived by field veterinarians in different sub-areas of dairy farming

n=66

Sub-group areas of dairy farming	MN	N	LN	TS	TWMS	Rank
Training needs in breeding (%)						
Selection of breeds	54.55	43.94	1.52	167	2.53	III
Estrous detection	59.09	36.36	4.55	168	2.55	II
Estrous cycle & time of insemination	69.70	28.79	1.52	177	2.68	I
Artificial Insemination	46.97	40.91	12.12	155	2.35	V
Pregnancy diagnosis	15.15	54.55	30.30	122	1.85	VI
Identification of infertility problem	43.94	48.48	7.58	156	2.36	IV
Training needs in feeding (%)						
Balanced ration & its economical composition	78.79	21.21	0.00	184	2.79	I
Feeding of different age groups	39.39	56.06	4.55	155	2.35	VI
Nutritional management of breeding problem	57.58	37.88	4.55	167	2.53	V
Importance of clean feed and water	59.09	37.88	3.03	169	2.56	IV
Importance of colostrum feeding	74.24	24.24	1.52	180	2.73	II
Mineral mixture supplementation	63.64	34.85	1.52	173	2.62	III
Urea treatment of straw	28.7	62.12	9.09	145	2.20	VIII
Fodder varieties & their cultivation	33.33	62.12	4.55	151	2.29	VII
Preservation of fodder (silage & hay)	24.24	62.12	13.6	139	2.11	IX
Training needs in health care (%)						
Deworming	83.33	16.67	0.00	187	2.83	II
Vaccination	86.36	13.64	0.00	189	2.86	I
Ectoparasite control	71.21	27.27	1.52	178	2.70	III
Common diseases and preventive measures	56.06	37.88	6.06	165	2.50	V
First aid treatment	37.88	54.55	7.58	152	2.30	VI
Zoonotic diseases and their transmission	63.64	33.33	3.03	172	2.61	IV
Training needs in housing and management (%)						
Construction of low cost scientific housing	48.48	42.42	9.09	158	2.39	IV
Animal shed sanitation	43.94	51.52	4.55	158	2.39	V
Identification & isolation of sick animals	36.36	45.45	18.18	144	2.18	VI
Weaning	15.15	71.21	13.64	133	2.02	VIII
Record keeping	31.82	54.55	13.64	144	2.18	VII
Manure management	16.67	65.15	18.18	131	1.98	IX
Clean milk production & milking methods	74.24)	24.24	1.52	180	2.73	II
Care of new born	74.24	25.76	0.00	181	2.74	I

MN - Most Needed, N - Needed, LN Least Needed, TS - Total Score, TWMS - Total Weighted Mean Score. % - Percentage

With regard to housing and management, field veterinarians perceived that care of the new born ranked major training need for farmers followed by clean milk production & milking methods, care and management of pregnant/productive animal, construction of scientific housing and animal shed sanitation. Within marketing and finance category, banking and insurance was considered important by veterinarians followed by purchase of animals & inputs and sale of animals & its products. The field veterinarians perceived that within preparation and preservation of dairy products category, milk and milk products preparation ranked first followed by meat and meat products preparation in the study area.

Overall extent of training needs as perceived by farmers and veterinarians

Table 5 depicts that majority of the dairy farmers had 'higher extent' of training needs followed by medium category according to both dairy farmers and veterinarians in the study area. However, there was a variation in the number of dairy farmers within each of these categories. The field veterinarians perceived higher extent of training needs for the farmers than farmers themselves. This indicates that farmers had many unfelt needs which must be realized for the farmers by the veterinarians or the concerned experts for a profitable dairy farming.

Table 5: Overall extent of training needs of dairy farmers as perceived by farmers and veterinarians

n=120

Extent of training needs	Dairy farmers' perceived training needs (n=120)		Dairy farmers' training needs as perceived by veterinarians (n=66)	
	Frequency	Percentage	Frequency	Percentage
Low (≤33.33%)	0	0	0	0
Medium (33.34-66.66%)	16	13.33	2	3.03
High (≥66.67%)	104	86.66	64	96.96

Table 6 indicates 't' values for six major areas of dairy farming which was obtained by comparison of mean training need index value of dairy farmers and field veterinarians. Dairy products preparation and preservation got highest 't' value of 10.58 followed by feeding (6.6), health care (3.2), breeding (2.9), marketing & finance (1.49) and housing and management (0.97). The 't' value is highly significant (<0.01) for all major areas except for marketing & finance and housing & management (non-significant). Many training needs were unfelt by the dairy farmers, but veterinarians felt higher training needs for dairy farmers. So, there is a need for extension education programmes to educate dairy farmers and change unfelt needs into felt needs for knowledge and skill development.

Table 6: Difference in training needs of dairy farmers as perceived by them and field veterinarians in dairy farming

Training area	Mean training need index		't' value
	Dairy farmers (n=120)	Veterinarians (n=66)	
Breeding	74.4±0.98	79.54±1.51	2.9**
Feeding	72±0.89	82.09±1.2	6.6**
Health care	80.46±1.14	85.95±8.9	3.2**
Housing & management	70.77±0.78	69.61±0.69	0.97
Marketing & finance	74.26±1.2	77.03±1.1	1.49
Dairy products preparation	49.72±1.29	71.39±1.4	10.58**

* Significant at 5% level of significance, ** Significant at 1% level of significance

CONCLUSION

The dairy farmers and field veterinarians perceived higher extent of training needs in health care, feeding and

breeding. There was a marked difference between the perception of farmers and field veterinarians in sub-areas of dairy products preparation, feeding, health care and breeding. The public and private extension agencies have to educate the dairy farmers to make them realize their unfelt needs and convert them into felt needs by effective extension strategies for improved livestock productivity.

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