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**SM Nanda**

Department of Veterinary and  
Animal Husbandry Extension,  
CVSc. A.H., OUAT,  
Bhubaneswar, Odisha, India

**P Swain**

Department of Veterinary and  
Animal Husbandry Extension,  
CVSc. A.H., OUAT,  
Bhubaneswar, Odisha, India

**BC Das**

Department of Veterinary and  
Animal Husbandry Extension,  
CVSc. A.H., OUAT,  
Bhubaneswar, Odisha, India

**SK Dash**

Department of Animal Genetics  
and Breeding, OUAT,  
Bhubaneswar, Odisha, India

**K Shweta**

Department of Veterinary and  
Animal Husbandry Extension,  
CVSc. A.H., OUAT,  
Bhubaneswar, Odisha, India

**Corresponding Author:**

**SM Nanda**

Department of Veterinary and  
Animal Husbandry Extension,  
CVSc. A.H., OUAT,  
Bhubaneswar, Odisha, India

## Information needs of field veterinarians of coastal Odisha on dairy husbandry activities

**SM Nanda, P Swain, BC Das, SK Dash and K Shweta**

### Abstract

This study was conducted with 120 veterinarians from the coastal districts of Odisha namely Ganjam, Puri, Kendrapara, Jagatsinghpur, Bhadrak and Balasore. Twenty field veterinarians per district were chosen at a random. Significant difference was observed in the information needs on normal health parameters of cattle and buffalo among the veterinarians posted in rural and urban areas. There is significant difference of the information needs between the young and old age groups with respect to dairy nutrition, dairy schemes and normal health parameters of dairy animals. The male veterinarians are in need of more information needs on dairy breed than their counter parts. Significant difference was observed between the respondents having less than 10 years and more than 20 years of job experience on the information needs on drugs used, dairy schemes, health parameters, dairy nutrition and dairy breeds, respectively with younger ones with higher estimates. Significant difference was observed between veterinarians who have attended more than 20 trainings and the other two groups separately for the information needs in case of Dairy Nutrition, Dairy Schemes and Drugs related to Dairy Husbandry with lower estimates for respondents with more than 20 training experience. The findings of this research can be studied to provide information on different activities of dairy husbandry that can fulfil the needs of the field veterinarians.

**Keywords:** Personal variables, field veterinarians, coastal Odisha, dairy husbandry

### Introduction

There are around 1467 number of field veterinarians including 925 Class II officers in the animal husbandry and veterinary services sector of Odisha (Annual activity report 2017-18, F&ARD) <sup>[1]</sup>. A study revealed that the farmers' perception to have information on technology transfer, rural development, weather and success stories were 26.48 per cent, 22.73 per cent, 18.6 per cent and 15.63 per cent respectively (Biswajit *et al.*, 2013) <sup>[2]</sup>. A research reported that the farmers of Gulbarga district of Karnataka were dependent to SMS pertaining to information on weather forecasting (83.00%), Integrated Pest Management (77.00%), disease management (72.00%), new varieties and forecasting (68.00%), livestock management (65.00%), low cost agricultural implements and machinery (50.00%) and organic practices (45.00%) (Mangie *et al.*, 2011) <sup>[3]</sup>. The field veterinarians at times need information on different dairy husbandry activities during treatment and extension works.

### Materials and Methods

This study was conducted with 120 veterinarians from the coastal districts of Odisha namely Ganjam, Puri, Kendrapara, Jagatsinghpur, Bhadrak and Balasore. Twenty field veterinarians per district were chosen at a random. The data were collected were collected using a structured interview schedule duly vetted by the experts. The responses were recorded in a three point continuum scale containing the responses "Much Needed, Less Needed and Not Needed", which were scored as 2, 1 and 0 respectively. The total scores obtained for each category were considered as the information needs of the respondents. The effect on the independent personal variables of the field veterinarians on the information needs on dairy husbandry was analysed. The age of respondent veterinarians was categorized based on the number of years completed as on the date of interview as expressed by them. The respondents were categorized into three categories based on their distribution over the age. A<sub>1</sub> for the age group up to 35 years, A<sub>2</sub> (36-50 years) and A<sub>3</sub> (>50 years). Gender was categorized as G<sub>1</sub> for males and G<sub>2</sub> for females. The working area of the respondents were classified as W<sub>1</sub> for rural areas, W<sub>2</sub> for semi-urban areas and W<sub>3</sub> for urban areas.

Educational qualification was considered as Q<sub>1</sub> (BVSc and AH) and Q<sub>2</sub> (MVSc and above). Job Experience was grouped as E<sub>1</sub> for experience less than 10 years, E<sub>2</sub> for experience between 10-20 years and E<sub>3</sub> for greater than 20 years. Based on the number of trainings attended by the respondent veterinarians, they were classified three groups T<sub>1</sub> for <10 trainings attended, T<sub>2</sub> for number of trainings attended between 10 and 20 and T<sub>3</sub> for more than 20 trainings attended. The data were analysed using IBM SPSS 22.0 [4].

Since the data were non orthogonal in nature, least square analysis for 6-way classification without interaction was followed. The statistical model assumed was  $Y_{ijklmno} = \mu + A_i + G_j + W_k + Q_l + E_m + T_n + e_{ijklmno}$  ( $Y_{ijklmno}$  =  $o^{th}$  observation of the respondent with A<sup>th</sup> age G<sup>th</sup> Gender W<sup>th</sup> working area possessing Q<sup>th</sup> qualification having E<sup>th</sup> job experience and T<sup>th</sup> number of trainings attended,  $\mu$  = Population mean common to all observations,  $A_i$  = Effect of i<sup>th</sup> Age of the respondent,  $G_j$  = Effect of j<sup>th</sup> Gender of the respondent,  $W_k$  = Effect of k<sup>th</sup> working area of the respondent,  $Q_l$  = Effect of l<sup>th</sup> Educational qualification,  $E_m$  = Effect of m<sup>th</sup> job experience of the respondent,  $T_n$  = Effect of n<sup>th</sup> number of trainings attended by the respondent and  $e_{ijklmno}$  = Error associated with the measurements which varied with a mean 0 and variance  $\sigma^2$ ).

## Results and Discussion

### Effect of working area on information needs

The result in Table 1 revealed that significant difference was observed in the information needs on health parameters of cattle and buffalo among the veterinarians posted in rural and urban areas. However, no significant difference was observed between semi-urban veterinarians with other two counterparts. The reason might be that there are well equipped laboratory facilities in the urban hospitals for testing the samples for which the respondent veterinarians were much interested to know the normal health parameters of animals. But the same facilities were not available in either semi-urban or rural Veterinary Dispensaries for which the respondents were not interested on the said information. From the result it was inferred that the respondent veterinarians working in the urban areas were in more information needs on Dairy Housing, Dairy Disease and Dairy Products, the reason being the dairying was treated as business opportunity. Whereas, more information needs were observed on Dairy Breeds, Dairy Nutrition, Dairy Schemes and Drugs related to Dairy Husbandry in rural areas, the reason might be the farmers were interested to know from the veterinarians more about all this information to venture the dairy business.

**Table 1:** Effect of working area on information needs of Dairy Husbandry activities

Sl. No.	Dairy Husbandry Activities	Overall (120)	Working area	Mean $\pm$ SE	f-value
1	Dairy Breeds	16.32 $\pm$ 0.44	Rural (29)	16.65 $\pm$ 0.93	1.205
			Semi Urban (72)	16.59 $\pm$ 0.55	
			Urban (19)	14.73 $\pm$ 1.16	
2	Dairy Housing	8.84 $\pm$ 0.21	Rural (29)	8.69 $\pm$ 0.49	0.081
			Semi Urban (72)	8.89 $\pm$ 0.26	
			Urban (19)	8.89 $\pm$ 0.52	
3	Dairy Nutrition	17.73 $\pm$ 0.67	Rural (29)	18.10 $\pm$ 0.67	0.379
			Semi Urban (72)	17.68 $\pm$ 0.31	
			Urban (19)	17.37 $\pm$ 0.68	
4	Dairy Disease	14.67 $\pm$ 0.19	Rural (29)	14.34 $\pm$ 0.57	0.464
			Semi Urban (72)	14.78 $\pm$ 0.18	
			Urban (19)	14.79 $\pm$ 0.47	
5	Dairy Products	17.82 $\pm$ 0.51	Rural (29)	17.59 $\pm$ 0.95	0.210
			Semi Urban (72)	17.71 $\pm$ 0.70	
			Urban (19)	18.58 $\pm$ 1.18	
6	Dairy Schemes	4.12 $\pm$ 0.25	Rural (29)	4.41 $\pm$ 0.36	0.365
			Semi Urban (72)	4.04 $\pm$ 0.25	
			Urban (19)	4.00 $\pm$ 0.48	
7	Normal health parameters of dairy animals	5.65 $\pm$ 0.08	Rural (29)	5.54 <sup>a</sup> $\pm$ 0.25	3.164*
			Semi Urban (72)	5.68 <sup>ab</sup> $\pm$ 0.90	
			Urban (19)	6.00 <sup>b</sup> $\pm$ 0.00	
8	Drugs related to Dairy Husbandry	16.37 $\pm$ 0.37	Rural (29)	16.72 $\pm$ 0.77	0.258
			Semi Urban (72)	16.37 $\pm$ 0.47	
			Urban (19)	15.84 $\pm$ 1.05	

\*Significant at  $p < 0.05$

Values bearing different superscripts for individual parameters across rows differ significantly

### Effect of age on information needs

It was evident from Table 2 that there was significant difference of the information needs between the young and old age groups with respect to dairy nutrition. The reason being the young age group of the respondents were more involved in animal health and management activities in the field for which they might be requiring more information on the dairy nutrition than their older counterparts. Significant difference was also observed in estimates concerning to Dairy Schemes between young age group and older age groups. The respondents of young age group were having more

information needs on dairy scheme than their older counterparts, the reason being they were more involved in field extension activities. Significant difference also exists between the young age group and older age group separately with respect to the information needs on the normal health parameters owing to the reason that the seniors are all through involved in the office administration and hardly gets time to refer the books, etc. Therefore, they sought such information from the app at anytime and anywhere to render the health advices when required.

**Table 2:** Effect of age of the respondents on information needs of Dairy Husbandry activities

Sl. No.	Dairy Husbandry Activities	Overall (120)	Age of the respondents	Mean $\pm$ SE	f-value
1	Dairy Breeds	16.32 $\pm$ 0.44	Up to 35 years (33)	16.97 $\pm$ 0.86	0.783
			36-50 years (71)	16.28 $\pm$ 0.57	
			>50 years (16)	16.12 $\pm$ 1.17	
2	Dairy Housing	8.84 $\pm$ 0.21	Up to 35 years (33)	8.85 $\pm$ 0.45	0.388
			36-50 years (71)	8.94 $\pm$ 0.28	
			>50 years (16)	8.37 $\pm$ 0.31	
3	Dairy Nutrition	17.73 $\pm$ 0.27	Up to 35 years (33)	18.78 <sup>b</sup> $\pm$ 0.61	3.605*
			36-50 years (71)	17.49 <sup>ab</sup> $\pm$ 0.32	
			>50 years (16)	16.62 <sup>a</sup> $\pm$ 0.58	
4	Dairy Disease	14.67 $\pm$ 0.19	Up to 35 years (33)	14.06 $\pm$ 0.51	1.978
			36-50 years (71)	14.88 $\pm$ 0.20	
			>50 years (16)	15.00 $\pm$ 0.36	
5	Dairy Products	17.82 $\pm$ 0.51	Up to 35 years (33)	17.52 $\pm$ 1.14	0.376
			36-50 years (71)	17.70 $\pm$ 0.63	
			>50 years (16)	18.94 $\pm$ 1.28	
6	Dairy Schemes	4.12 $\pm$ 0.19	Up to 35 years (33)	4.90 <sup>b</sup> $\pm$ 0.31	3.382*
			36-50 years (71)	3.86 <sup>ab</sup> $\pm$ 0.25	
			>50 years (16)	3.69 <sup>a</sup> $\pm$ 0.54	
7	Normal health parameters of dairy animals	5.65 $\pm$ 0.08	Up to 35 years (33)	5.27 <sup>a</sup> $\pm$ 0.24	4.108*
			36-50 years (71)	5.80 <sup>b</sup> $\pm$ 0.71	
			>50 years (16)	5.75 <sup>b</sup> $\pm$ 0.17	
8	Drugs related to Dairy Husbandry	16.37 $\pm$ 0.38	Up to 35 years (33)	17.12 $\pm$ 0.67	1.151
			36-50 years (71)	16.28 $\pm$ 0.48	
			>50 years (16)	15.25 $\pm$ 1.25	

\*Significant at  $p < 0.05$ 

Values bearing different superscripts for individual parameters across rows differ significantly

Young age – up to 35 years, Middle age- 36-50 years, and Old age more than 50 years.

**Effect of gender on information needs**

Table 3 revealed that there was no significance difference between male and female veterinarians on the information needs of Dairy Husbandry practice. However, numerical estimate of the mean value of male respondents for information needs on the dairy breeds is comparatively more

signifies that, the male veterinarians are in need of more information needs on dairy breed than their counter parts, the reason being the male veterinarians frequently visit field and involve in the Govt. schemes on purchase and distribution of cattle and buffaloes to the farmers.

**Table 3:** Effect of gender of the respondents on information needs of Dairy Husbandry activities

Sl. No.	Dairy Husbandry activities	Overall (120)	Gender	Mean $\pm$ SE	f-value
1	Dairy Breeds	16.21 $\pm$ 0.44	M (98)	16.35 $\pm$ 0.46	0.446
			F (22)	15.59 $\pm$ 1.24	
2	Dairy Housing	8.84 $\pm$ 0.21	M(98)	8.91 $\pm$ 2.16	0.581
			F(22)	8.50 $\pm$ 0.63	
3	Dairy Nutrition	17.73 $\pm$ 0.27	M(98)	17.87 $\pm$ 0.29	1.273
			F(22)	17.09 $\pm$ 0.70	
4	Dairy Disease	14.67 $\pm$ 0.22	M(98)	14.82 $\pm$ 0.17	2.424
			F(22)	14.04 $\pm$ 0.74	
5	Dairy Products	17.81 $\pm$ 0.51	M(98)	17.90 $\pm$ 0.56	0.141
			F(22)	17.40 $\pm$ 1.23	
6	Dairy Schemes	4.12 $\pm$ 0.19	M(98)	4.12 $\pm$ 0.21	0.001
			F(22)	4.13 $\pm$ 0.45	
7	Normal health parameters of dairy animals	5.65 $\pm$ 0.08	M(98)	5.68 $\pm$ 0.07	0.725
			F(22)	5.50 $\pm$ 0.30	
8	Drugs related to Dairy Husbandry	16.37 $\pm$ 0.37	M(98)	16.21 $\pm$ 0.42	0.806
			F(22)	17.09 $\pm$ 0.84	

**Effect of education on information needs**

As per the results organised in Table 4, no significant difference was observed in case of veterinarians with different educational qualifications. The reason might be that the field situation demands a blend of knowledge and experience of the veterinarians to solve the problems effectively. However, numerically higher estimates were obtained for respondents with BVSc and AH degree in Dairy Breeds, Dairy Housing, Dairy Nutrition and Drugs related to dairy Husbandry

whereas, lower estimates were observed in Dairy Disease, Dairy Products, Dairy Schemes and Normal Health Parameters of Cattle and Buffalo with respondents having higher qualification. Usually in the Dept. the higher professional degree holders are assigned the duties where specialisation is required such as disease diagnosis laboratory, production of vaccines etc. Whereas the simple BVSc degree holders were assigned the field livestock extension activities where specialisation is not required. That is why the trend of

information needs shows different numerical estimates in case of both the respondents having lower and higher educational

qualification though no significant difference is observed.

**Table 4:** Effect of Education on information needs of Dairy Husbandry activities

Sl. No.	Dairy Husbandry activities	Overall (120)	Education	Mean±SE	f-value
1	Dairy Breeds	16.12±0.44	BVSc and AH(67)	16.82±0.67	2.381
			MVSc& above (53)	15.45±0.53	
2	Dairy Housing	8.84±0.21	BVSc and AH(67)	8.88±0.32	0.042
			MVSc& above (53)	8.79±0.26	
3	Dairy Nutrition	17.73±0.21	BVSc and AH(67)	17.77±0.39	0.031
			MVSc& above (53)	17.68±0.37	
4	Dairy Disease	14.67±0.19	BVSc and AH(67)	14.49±0.29	1.135
			MVSc& above (53)	14.90±0.22	
5	Dairy Products	17.81±0.51	BVSc and AH(67)	17.45±0.59	0.651
			MVSc& above (53)	18.28±0.77	
6	Dairy Schemes	4.24±0.24	BVSc and AH(67)	3.98±0.31	0.448
			MVSc& above (53)	4.12±0.19	
7	Normal health parameters of dairy animals	5.70±0.11	BVSc and AH(67)	5.58±0.12	0.480
			MVSc& above (53)	5.65±0.08	
8	Drugs related to Dairy Husbandry	16.37±0.37	BVSc and AH(67)	16.97±0.44	3.202
			MVSc& above (53)	15.62±0.64	

### Effect of job experience on information needs

The result in Table 5 depicted that there was significant difference with respect to the information needs among the respondents of varied job experience. Significant difference was observed between the respondents having less than 10 years and more than 20 years of job experience on the information needs on drugs used, dairy schemes and dairy nutrition, respectively. Significant difference was observed between estimates of respondents below 10 years of age and between 10 to 20 years of age. The less job experienced

respondent veterinarians were much information needs than the high job experienced ones on the above mentioned dairy practices the reason being their desire to know more to face the farmers queries in the field condition. But the high job experienced respondents might have acquired the knowledge on the above aspects for which their information needs are at lower level. Lower estimates for high experienced veterinarians indicate that they are well versed with prescribing the right drug for the right disease. Therefore, their demand to know this information is less.

**Table 5:** Effect of Job experience on information needs of Dairy Husbandry activities

Sl. No.	Dairy Husbandry activities	Overall (120)	Job Experience	Mean ±SE	f-value
1	Dairy Breeds	16.22±0.44	<10 years (36)	16.80±0.86	1.443
			10-20 years (54)	16.54±0.63	
			>20 years (30)	14.93±0.88	
2	Dairy Housing	8.84±0.21	<10 years (36)	9.05±0.43	0.417
			10-20 years (54)	8.87±0.33	
			>20 years (30)	8.53±0.31	
3	Dairy Nutrition	17.73±0.27	<10 years (36)	18.80 <sup>b</sup> ±0.58	3.526*
			10-20 years (54)	17.30 <sup>a</sup> ±0.39	
			>20 years (30)	17.23 <sup>a</sup> ±0.37	
4	Dairy Disease	14.67±0.19 (120)	<10 years (36)	14.22±0.48	1.407
			10-20 years (54)	14.98±0.21	
			>20 years (30)	14.67±0.34	
5	Dairy Products	17.82±0.51	<10 years (36)	17.47±1.08	0.194
			10-20 years (54)	17.76±0.69	
			>20 years (30)	18.33±1.03	
6	Dairy Schemes	4.12±0.19	<10 years (36)	4.83 <sup>b</sup> ±0.29	4.906*
			10-20 years (54)	4.13 <sup>ab</sup> ±0.26	
			>20 years (30)	3.27 <sup>a</sup> ±0.45	
7	Normal health parameters of dairy animals	5.65±0.08	<10 years (36)	5.33 <sup>a</sup> ±0.22	3.641*
			10-20 years (54)	5.85 <sup>b</sup> ±0.07	
			>20 years (30)	5.67 <sup>ab</sup> ±0.14	
8	Drugs related to Dairy Husbandry	16.37±0.37	<10 years (36)	17.33 <sup>b</sup> ±0.63	4.567*
			10-20 years (54)	16.78 <sup>b</sup> ±0.50	
			>20 years (30)	14.50 <sup>a</sup> ±0.86	

\*Significant at  $p < 0.05$

Values bearing different superscripts for individual parameters across rows differ significantly

### Effect of trainings on information needs

The results explained in Table 6 revealed that significant difference was observed between veterinarians who have attended more than 20 trainings and the other two groups

separately for the information needs in case of Dairy Nutrition, Dairy Schemes and Drugs related to Dairy Husbandry with lower estimates for respondents with more than 20 training experience. The reason might be that the

respondent veterinarians, undergone more than 20 trainings have acquired the required knowledge on the above dairy

practices for which the estimates of their information needs depicted lower than those attended less than 10 trainings.

**Table 6:** Effect of trainings on information needs of Dairy Husbandry activities

Sl. No.	Dairy Husbandry activities	Overall (120)	No of trainings attended	Mean $\pm$ SE	f-value
1	Dairy Breeds	16.22 $\pm$ 0.44	<10 (27)	15.96 $\pm$ 1.04	1.913
			10-20 (65)	16.92 $\pm$ 0.62	
			>20 (28)	14.82 $\pm$ 0.69	
2	Dairy Housing	8.84 $\pm$ 0.21	<10 (27)	8.63 $\pm$ 0.53	1.412
			10-20 (65)	9.15 $\pm$ 0.28	
			>20 (28)	8.32 $\pm$ 0.36	
3	Dairy Nutrition	17.73 $\pm$ 0.27	<10 (27)	18.55 <sup>b</sup> $\pm$ 0.70	4.156*
			10-20 (65)	17.95 <sup>b</sup> $\pm$ 0.34	
			>20 (28)	16.43 <sup>a</sup> $\pm$ 0.44	
4	Dairy Disease	14.67 $\pm$ 0.19	<10 (27)	13.96 $\pm$ 0.61	2.016
			10-20 (65)	14.87 $\pm$ 0.21	
			>20 (28)	14.89 $\pm$ 0.30	
5	Dairy Products	17.82 $\pm$ 0.51	<10 (27)	16.96 $\pm$ 1.33	1.192
			10-20 (65)	17.58 $\pm$ 0.66	
			>20 (28)	19.18 $\pm$ 0.90	
6	Dairy Schemes	4.12 $\pm$ 0.19	<10 (27)	4.59 <sup>b</sup> $\pm$ 0.37	3.526*
			10-20 (65)	4.31 <sup>b</sup> $\pm$ 0.25	
			>20 (28)	3.25 <sup>a</sup> $\pm$ 0.41	
7	Normal health parameters of dairy animals	5.65 $\pm$ 0.08	<10 (27)	5.33 $\pm$ 0.28	2.182
			10-20 (65)	5.72 $\pm$ 0.09	
			>20 (28)	5.78 $\pm$ 0.12	
8	Drugs related to Dairy Husbandry	16.37 $\pm$ 0.37	<10 (27)	16.58 <sup>b</sup> $\pm$ 0.79	3.189*
			10-20 (65)	16.91 <sup>b</sup> $\pm$ 0.45	
			>20 (28)	16.37 <sup>a</sup> $\pm$ 0.38	

\*Significant at  $p < 0.05$

Values bearing different superscripts for individual parameters across rows differ significantly

### Summary and Conclusion

The field Veterinarians help in enhancing the socio-economic status of the farmers by remaining in direct contact with the livestock owners. Thus, the findings of this research can be studied to provide information on different activities of dairy husbandry that can fulfil the needs of the field veterinarians. Basing on the information needs of the respondents, training modules may be designed to lessen the information gap.

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