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STUDIES ON HOUSING AND HEALTH CARE MANAGEMENT PRACTICES FOLLOWED BY DAIRY OWNERS

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ABSTRACT

The study on status of housing and health care practices followed by the dairy owners in Rajasthan was conducted in Tonk and Jhunjhunu districts. 720 respondents constituted the total sample size, equally divided in both the districts. It was observed that majority of the respondents had one side open shed (48.75%), kept their animals near dwelling (45%), had katcha floor (100%), pucca wall (47.36%), thatched roof (57.5%), no slope in floor (70.83%), wooden manger (43.75%), used no bedding material during winter (100%), disposed manure as such (64.44%), depended on ponds and wells as a source of drinking water (73.61%) and had no provision of water trough in shed (85.41%). In respect of health care practices, majority of the respondents approached veterinarian for treatment of their sick animals (53%), frequently availed veterinary facilities (53%), resorted to vaccination against *Hemorrhage septicemia* (46%), followed smoking for control of flies and mosquitoes (46%), controlled ecto-parasites manually supplemented with insecticides (43%) and disposed carcass (51%). However, only very few respondents followed deworming of adult animals, isolated sick animals and got vaccination against FMD to the tune of only 8.8, 2.2 and 1.5 per cent, respectively in the study area.

INTRODUCTION

In our country, about 70 per cent of the population is primarily engaged in agriculture, and rear livestock (mainly cattle and buffaloes) as secondary occupation. Livestock raising in India is of backyard type. There exists a symbiotic relationship between man-land-livestock in a given ecosystem. Livestock, comprising mainly cattle and buffaloes have a complementary and supplementary sustainable relationship with crops under mixed farming system prevalent in our country. In Rajasthan the livestock plays an important role in the state's economy and contributes about 13 per cent of the total income. Milk production in the state was 7.7 million tonnes in 2000-01. With an annual growth rate of about 8 per cent, the contribution of cattle is 32.50 per cent and 58 per cent is shared by buffaloes. Proper management is prerequisite to sustain higher productivity of livestock First and foremost, the provision of sanitary housing conditions is must. The shed where the animals are to be kept should be clean, airy with good drainage system. Preventive measures, vaccination and timely treatments ensure proper health of animals that promotes their productivity. Thus, the study was undertaken to investigate the prevailing housing and health care practices being followed by the dairy owners.

MATERIAL AND METHODS

The present study was undertaken in Tonk and Jhunjhunu districts of Rajasthan state. The farmers who kept one or more dairy animals in the village constituted the population for the study. In each district 20 villages and from each village 18 respondents equally belonging to small, medium and large categories were selected constituting sample size of 360 respondents in each district. The respondents were interviewed with the help of specially designed schedule for the study. The responses were quantified, frequencies were obtained for responses and percentages were calculated to draw inference. Chi-square tests were applied to determine the association between different variables.

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RESULTS AND DISCUSSION

Animal housing related practices

The farmers provide different types of housing to their animals depending upon their economic status, availability and cost of housing materials as well as the prevailing climate. The Table 1a and 1b reveal percentage of respondents using various housing practices as affected by district, category, age, caste, education, herd size and family size.

District: The majority of the respondents had katcha wall of the shed (39.44%), katcha manger (50.83%) and ponds as source of drinking water (75%) in Tonk, whereas, in Jhunjhunu respondents had pucca wall (62.78%), wooden manger (63.89%) and wells as major source of drinking water (62.50%). Conspicuously about two-third of total respondents had thatched roof of shed and more than three-fourth made no provision of water trough in the study area. Obviously respondents in Jhunjhunu district seem to be more conspicuous in following better housing practices than their counterparts in Tonk.

Category: The category of farmers had significant effect only on various housing practices. The study reveals that around half the respondents had one side open shed, kept their animals near dwelling, made pucca wall of shed and gave no slope in the floor with the exception of large farmers that followed relatively better housing practices over small and medium group of farmers.

Age: The age showed significant effect on type of house, type of wall, roof material, slope in floor, type of manger and disposal of manure. Middle age respondents seem to be more conspicuous about better housing practices as evident from the Table 1a and 1b that show around two-third of them have pucca wall with one side opening. About one-fourth of them have asbestos and pucca roof of shed and use taps as a source of clean drinking water.

Caste: The Table 1a and 1b reveal positive association of caste with measure housing practices followed by the respondents. Quality and type of house, location of shed, type of wall, roof material, type of manger, source of drinking water and provision of water trough etc. showed progressive improvement among SC/ST, General and OBC categories in that order. The observations are naturally substantiated as OBC and general caste respondents traditionally follow mixed farming and have relatively better financial position as compared to their SC/ST counterparts to provide better housing facilities.

Education: The education showed significant effect on location of shed, type of wall, roof material, slope in floor, type of manger and source of drinking water. Table 1a and 1b reveal positive association of education with better housing practices such as pucca separate shed, slope in floor and clean drinking water. It could be because of their cosmopoliteness and appreciation for better livestock raising.

Herd size: The study reveals that three-fourth respondents of large group and half of the medium group respondents had three side open shed, kept their animals in separately located house and maintained katcha manger. On the contrary maximum percentage of small herd size respondents had one side open shed (63.19), kept their animals near dwelling (48.23), gave no slope in floor (85.04), and had wooden manger (54.13). It was found that three-fourth of total respondents had no provision of water trough and around 50 per cent had pucca wall sheds and used wells as major source of drinking water excepting the large herd owners of whom only one-fifth followed these practices.

Family size: The family size had non-significant effect on animal housing related practices. Conspicuously about three-fourth respondents belonging to small family size kept their animals either near dwelling or in the

Table 1 (a). Effect of district, category, age, education, caste and herd size on housing practices

Variables	Type of housing			Location of sheds			Type of wall			Roof material			
	Closed	Three side open	One side open	Inside dwelling	Near dwelling	Separate dwelling	Katcha	Pucca	Pillars	Thatched	GI sheets	Asbestos sheets	Pucca
District													
Tonk	17.50	31.94	50.56	15.28	41.11	43.61	39.44	31.94	28.61	58.89	29.17	6.94	5.00
Jhunjhunu	23.89	29.17	46.94	22.78	48.89	28.33	10.83	62.78	26.39	56.11	17.22	10.56	16.11
X^2 Value		**1.25**			**5.39**			**26.41****			**9.74***		
Category													
Small	16.67	39.58	43.75	32.50	42.08	25.42	28.75	26.25	45.00	72.08	15.42	8.33	4.17
Medium	22.92	35.83	41.25	15.00	51.67	33.33	24.17	54.17	21.67	53.33	20.42	11.67	14.58
Large	22.50	16.25	61.25	9.58	41.25	49.17	22.50	61.67	15.83	47.08	33.75	6.25	12.29
X^2 Value		**16.32****			**24.70****			**32.87****			**21.26****		
Age													
<36 Yrs	23.65	33.11	43.24	18.92	43.92	37.16	35.81	25.00	39.19	69.59	21.62	4.05	4.73
37 to 58 Yrs	15.96	25.35	58.69	18.08	43.66	38.26	18.78	61.03	20.19	48.12	25.35	11.97	14.55
> 58 Yrs	31.51	43.15	25.34	21.92	50.00	28.08	32.88	30.14	36.99	72.60	18.49	4.11	4.79
X^2 Value		**24.18****			**2.78**			**30.02****			**20.85****		
Caste													
Sc/St	21.76	55.88	22.35	54.71	38.24	8.82	55.88	22.35	21.76	84.12	10.00	2.94	2.94
O B C	16.15	22.77	61.08	8.28	50.52	40.58	16.77	53.42	29.81	48.03	27.95	10.97	30.04
General	50.75	22.39	26.87	5.97	22.39	71.64	7.46	67.16	25.37	58.21	22.39	7.46	11.94
X^2 Value		**69.68****			**124.77****			**72.83****			**30.46****		
Education													
Illiterate	19.58	23.78	56.64	51.75	39.16	9.09	27.27	25.17	47.55	74.83	16.78	7.69	0.70
Primary	19.54	31.79	48.68	12.58	53.97	33.44	25.17	52.98	21.85	51.99	25.17	6.29	16.56
Middle	23.47	25.51	51.02	13.27	25.51	61.22	32.65	54.08	13.27	45.92	25.51	15.31	13.27
Above	22.03	36.72	41.24	6.78	45.20	48.02	19.21	51.98	28.81	59.32	23.73	10.17	6.78
X^2 Value		**6.60**			**110.51****			**39.19****			**35.59****		
Herd Size													
Small (<2)	26.57	12.20	63.19	26.97	48.23	24.80	15.94	51.57	32.48	61.61	19.29	8.66	10.43
Medium (2-4)	10.53	75.94	13.53	0.00	45.86	54.14	43.61	45.86	10.53	46.62	29.32	10.53	13.53
Large (>4)	0.00	72.15	15.19	0.00	22.78	77.22	53.16	22.78	24.05	49.37	37.97	6.33	6.33
X^2 Value		**124.97****			**90.61****			**42.46****			**12.10**		

Table 1 (b) . Effect of district, age, education, caste and herd size on housing practices

Variable	Slope in floor		Type of feed manger			Manure disposal		Source of drinking water				Provision of water trough in shed	
	Yes	No	Katcha	Pucca	Wooden	Manure pit	As such	Wells	Ponds	Hand pumps	Tap	Yes	No
District													
Tonk	32.78	67.22	50.83	25.56	23.61	36.67	63.33	9.72	75.00	7.78	7.50	6.11	93.89
Jhunjhunu	25.56	74.44	17.22	18.89	63.89	34.44	65.56	62.50	0.00	0.00	37.50	23.06	76.94
X^2 Value	**1.26**			**36.14****		**0.11**			**141.35****			**12.09****	
Age													
<36 Yrs	39.19	60.81	31.76	25.68	42.57	41.22	58.78	32.43	47.30	6.76	13.51	20.95	79.05
37 to 58 Yrs	23.24	76.76	33.10	17.14	49.77	29.81	70.19	35.68	33.80	3.05	27.46	11.97	88.03
> 58 Yrs	36.30	63.70	39.04	33.56	27.40	46.58	53.42	41.10	38.36	3.42	17.12	15.75	84.25
X^2 Value	**6.54***			**12.70***		**6.15***			**10.73**			**2.99**	
Caste													
Sc/St	18.82	81.18	60.00	8.82	31.18	38.24	61.76	41.18	50.00	2.94	5.88	20.59	79.41
O B C	29.61	70.39	26.50	22.15	51.35	33.75	66.25	34.37	34.16	3.11	28.36	10.77	89.23
General	52.24	47.76	22.39	56.72	20.90	41.79	58.21	35.82	29.85	11.94	22.39	26.87	73.13
X^2 Value	**26.09****			**39.26****		**1.38**			**29.82****			**8.42***	
Education													
Illiterate	19.58	59.44	54.55	12.59	32.87	40.56	59.44	27.97	52.45	5.59	13.99	16.08	83.92
Primary	23.84	76.16	27.81	9.60	62.58	28.81	71.19	43.05	30.13	2.32	24.50	12.91	87.09
Middle	33.67	66.33	40.82	35.71	23.47	44.90	55.10	35.71	39.80	9.18	15.31	21.43	78.57
Above	43.50	56.50	24.29	44.07	31.64	37.85	62.15	31.07	36.72	2.26	29.94	12.43	87.57
X^2 Value	**11.19***			**72.91****		**5.88**			**25.35****			**3.88**	
Herd Size													
Small (<2)	14.96	85.04	30.12	15.75	54.13	32.48	67.52	38.39	34.65	2.95	24.02	9.06	90.94
Medium (2-4)	57.14	42.86	42.11	33.83	24.06	42.11	57.89	37.59	33.83	6.02	22.56	27.07	72.93
Large (>4)	73.42	26.58	45.57	44.30	10.13	44.30	55.70	18.99	62.03	6.33	12.66	29.11	70.89
X^2 Value	**72.88****			**51.03****		**3.30**			**24.69****			**14.31****	

dwelling itself, whereas, almost same number of respondents belonging to large families kept their animals either near or separate from dwelling.

From the above results it could be concluded that around half of the respondents had one side open shed, kept their animals near dwelling, had pucca wall, thatched roof and wooden manger. Around two-third respondents disposed manure as such. Strikingly none of the respondents had pucca floor and used bedding material during winter. Further, three-fourth respondents used ponds and wells as a source of drinking water with negligible numbers having water trough in shed.

The present findings are in conformity with the earlier findings, reporting that majority of the farmers had one side open shed (Shrivastava and Promila 1983); katcha floor (Dhiman *et al.* 1990 and Malik and Nagpaul (1998); no provision of water trough (Malik and Nagpaul 1998). However, Dhiman *et al.* (1990) and Malik and Nagpaul (1998) observed that majority of the respondents had closed house, provided bedding material in winters and had sloppy floor. As regards location of sheds Malik and Nagpaul (1998) reported that farmers kept buffaloes inside their dwellings, while Dhiman *et al.* (1990) reported that farmers kept their animals separately from dwellings, thus refuting the findings of present study.

Health care practices

The health practices were determined taking into consideration vaccination, source of treatment, isolation of sick animals, disposal of carcass, control of ectoparasites and flies, deworming of adult animals and availing of veterinary facilities, as influenced by district, category, age, caste, education, herd size and family size (Table 2a and 2b).

District: The district showed significant effect on source of treatment, isolation of sick animals, control of ectoparasites, proper disposal of carcass and availing veterinary facilities. Large number of respondents availed services of quacks for treatment of animals (42.78%), did not dispose carcass properly (85.83%), controlled ectoparasite manually with desi treatment (37.50%) and some times availed veterinary facilities (65.56%) in Tonk. In sharp contrast, respondent of Jhunjhunu district availed the services of veterinarian (70%), disposed carcass properly (87.78%), controlled ectoparasite manually with conjuctive use of insecticides (56.67%) and frequently availed veterinarian facilities (78.23%). It may be concluded that preventive practices were invariably followed in Jhunjhunu district. Observations of district statistical data reveal that veterinary facilities in Jhunjhunu district are comparatively better than Tonk district, which resulted differences between districts.

Category: Categories of farmers had significant effect only on source of treatment, control of flies, ticks and lice, disposal of carcass and availing veterinary facilities. The Table 2a and 2b reveal medium level of overall adoption of disease preventive measures indicating increasing adoption trend with increase in size of holding of respondents.

Age: The age of farmers showed significant effect on the source of treatment and disposal of carcass. Services of veterinary surgeon for treatment was availed by 43.24, 53.76, 60.96 per cent and carcass was properly disposed by 35.14, 53.49, 58.22 per cent respondents of young, middle and old age group, respectively. The use of above practices showed an increasing trend with the increase in age of the respondents. There was no association between other disease preventive practices with the age of respondents.

Caste: The caste significantly effected the source of treatment, disposal of carcass and control of ectoparasites. About 60 per cent respondents comprising 63.77 per cent OBC and 58.21 per cent general castes availed the

Table 2 (a) . Effect of district, category, age, education, caste, and herd size on diseases prevention practices

Variable	Treatment of sick animals			Vaccination			Isolation of sick animals		Control of flies/ mosquitoes	
	Veterinarian	Quacks	Own efforts	HS	BQ	FMD	Yes	No	Smoking	Spraying
District										
Tonk	36.11	42.78	21.11	55.00	29.72	3.06	4.44	95.56	48.61	5.83
Jhunjhunu	70.00	7.22	22.78	36.94	26.67	0.00	0.00	100.00	43.33	3.33
X^2 Value		**36.18****			**2.99**			**4.54**		**0.39**
Category										
Small	35.42	27.08	37.50	30.00	13.75	0.00	0.42	99.58	39.17	0.00
Medium	50.83	26.25	22.92	45.00	25.42	0.00	1.25	98.75	55.00	4.58
Large	72.92	21.67	5.42	62.92	45.42	4.58	5.00	95.00	43.75	9.17
X^2 Value		**37.58****			**6.35**			**5.48**		**8.42***
Age										
<36 Yrs	43.24	31.76	30.41	50.68	26.35	1.35	4.05	95.95	60.14	4.73
37 to 58 Yrs	53.76	77.07	21.83	41.31	25.12	1.88	2.11	97.89	39.91	4.93
> 58 Yrs	60.96	19.86	13.70	54.79	39.04	0.68	0.68	99.32	49.32	3.42
X^2 Value		**11.87***			**2.02**			**2.57**		**0.75**
Caste										
Sc/St	20.59	40.00	40.59	34.12	7.06	1.18	2.94	97.06	25.88	3.53
O B C	63.77	19.67	14.91	49.48	35.40	0.41	1.45	97.72	50.52	4.97
General	58.21	25.37	25.37	50.75	29.85	10.45	5.97	94.03	64.18	4.48
X^2 Value		**43.68****			**18.83****			**2.81**		**0.82**
Education										
Illiterate	41.26	32.17	26.57	35.66	25.17	0.00	0.00	100.00	45.45	1.40
Primary	47.02	27.81	25.17	39.74	25.50	0.66	1.66	98.34	44.70	5.30
Middle	56.12	24.49	19.39	60.20	30.61	4.08	4.08	95.92	50.00	4.08
Above	71.19	14.69	14.12	57.06	33.90	2.82	3.95	96.05	46.33	6.21
X^2 Value		**20.76****			**4.68**			**4.88**		**2.96**
Herd Size										
Small (<2)	50.98	22.24	26.77	36.22	20.47	0.20	0.79	99.21	40.55	2.36
Medium (2-4)	59.40	29.32	11.28	68.42	39.10	3.76	3.01	96.99	57.89	8.27
Large (>4)	55.70	35.44	8.86	70.89	46.84	6.33	10.13	89.87	60.76	12.66
X^2 Value		**15.73****			**2.96**			**10.75****		**3.37**

Table 2 (b) . Effect of district, category, education, caste and herd size on diseases prevention practices

Variable	Proper disposal of carcass		Deworming of adult animals		Eradication of ticks and lice			Availing veterinary facilities		
	Yes	No	Yes	No	Manual	Manual + Desi	Manual + Insecticide	Always	Frequently	Some times
District										
Tonk	14.17	85.83	11.94	88.06	33.06	37.50	29.44	7.5	26.94	65.56
Jhunjhunu	87.78	12.22	6.67	93.33	18.07	25.28	56.67	8.33	78.33	13.33
X^2 Value		**108.41****		**1.65**		**15.39***			**59.71****	
Category										
Small	34.58	65.42	5.42	44.58	47.50	31.25	23.75	2.92	51.25	45.83
Medium	54.58	70.42	11.67	38.33	19.17	38.33	42.50	43.33	53.33	36.67
Large	63.75	61.25	10.83	39.17	10.00	24.58	62.92	10.83	53.33	35.83
X^2 Value		**6.09***		**2.72**		**50.47****			**40.50****	
Caste										
Sc/St	26.47	74.71	7.06	94.12	67.65	19.41	20.00	2.94	48.82	49.41
O B C	58.18	40.17	10.56	87.78	14.08	35.61	48.65	9.94	52.38	36.02
General	61.19	47.76	5.97	94.03	16.42	31.34	61.19	5.97	64.18	38.81
X^2 Value		**27.12**		**2.12**		**80.02****			**8.21**	

(Contd.

Variable	Proper disposal of carcass		Deworming of adult animals		Eradication of ticks and lice			Availing veterinary facilities		
	Yes	No	Yes	No	Manual	Manual + Desi	Manual + Insecticide	Always	Frequently	Some times
Education										
Illiterate	31.47	68.53	4.20	95.80	34.27	34.97	30.77	2.10	44.06	53.85
Primary	47.68	52.32	7.95	92.05	25.17	29.14	45.70	8.28	54.30	37.42
Middle	50.00	50.00	10.20	89.80	19.39	42.86	37.76	7.14	46.94	45.92
Above	72.88	27.12	15.25	84.75	22.60	25.99	51.41	12.43	59.89	27.68
X^2 Value		**34.85****		**7.51**		**15.71***			**19.45****	
Herd Size										
Small (<2)	55.12	44.88	6.69	93.31	28.74	27.95	43.31	5.91	56.89	37.20
Medium (2-4)	42.11	57.89	14.29	85.71	19.55	38.35	42.11	12.78	46.62	40.60
Large (>4)	39.24	60.76	17.72	82.28	15.19	41.77	43.04	12.66	35.44	51.90
X^2 Value		**5.78**		**5.67**		**7.42**			**11.41***	

services of veterinarian as against only 20.59 per cent of SC/ST for treatment of their sick animals. Similar trend with respect of vaccination against HS, proper disposal of carcass, control of ectoparasites and availing frequent veterinary facilities was also observed among respondents of different castes. It was found that only one-fifth of SC/ST respondents followed these practices as compared to around 50 per cent of OBC and general castes.

Education: The education of farmers showed significant effect on source of treatment, disposal of carcass, availing veterinary facilities and control of ectoparasites. The practice of treatment of sick animals by veterinarian, frequently availing veterinary facilities, control of ectoparasites manually with conjunctive use of insecticides and disposal of carcass were followed by one-third illiterates with increasing trend reaching around two-third among primary, middle and above educated respondents.

Herd size: The herd size showed significant effect on source of treatment, isolation of sick animals and availing veterinary facilities. Respondents seeking veterinarian services for treatment of sick animals and frequently availing veterinary facilities were 50.98, 59.40, 55.70; 50.38, 54.13, 64.50 per cent by small, medium and large herd size in increasing trends, respectively. Further around one-tenth large herd size owners isolated their sick animals from herd as against almost nil by small and medium herd size respondents.

Family size: Family size only showed significant effect on source of treatment. The practice of treatment of sick animals by veterinarian was followed by 44.76 and 58.53 per cent of small and large family size respondents, respectively.

From the above results it is concluded that majority of the respondents approached veterinarian for treatment of their sick animals (53%), frequently availed veterinary facilities (53%), resort to vaccination against *Hemorrhage septicemia* (46%), followed smoking for control of flies (46%), controlled ectoparasites manually supplemented with insecticides (43%) and disposed carcass (51%). However, only very few respondents followed deworming of adult animals, isolated sick animals and got vaccination against FMD to the tune of only 8.8, 2.2 and 1.5 per cent, respectively in the study area.

The vaccination against contagious diseases and ectoparasites control practices observed in this study, are in agreement with those of Dhiman *et al.* (1990) and Singh *et al.* (1998). Observations of Singh *et al.* (1998) are in agreement with present findings that mostly respondents were not isolating their sick

animals from common herd. Further findings of Dhiman *et al.* (1990) and Singh *et al.* (1998) also confirmed the present findings that most of the farmers get their sick animals treated by stockmen/veterinarian.

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