

Existing management practices followed by the cattle keepers in Churu district of Rajasthan*

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ABSTRACT

The study was conducted in Churu district of Rajasthan to acquire first hand information on existing breeding, feeding and housing management practices for dairy cattle. It was observed that 86.00% of the respondents resorted to natural service, 61.75% inseminate their cows at an early heat stage. Significantly more (82.00%) respondents believed in quacks treatment for anoestrous/repeaters animals and only 4.25% cattle keepers followed pregnancy diagnosis. Regarding feeding practices, majority of the farmers followed group feeding (68.75%) and grazed in fallow/harvested field (65.25%). Home prepared concentrate mixture (60.50%) with soaking (78.50%) was prevalent in the area. Only 17.25 and 32.25% of the respondents incorporated mineral mixture and common salt in concentrate mixture, respectively. All the cattle keepers had kutchra floor in shed and 58.50% kept their cattle near dwelling house. Thatched (70.50%) and single slope roof (45.50%) was observed in study area. None of the respondents followed grooming practice. The results indicated that knuckling (81.75%) was the main method of milking. All the respondents, clean udder and teats and wash hand before milking. None of the cattle keepers did dry hand milking and sealing of teat canal at the end of lactation. More than half (53.50) of the respondents fed colostrum to newly born calf within 2 h. All the respondents attended the calf at the time of calving and 96.25% cattle keepers cut and disinfected the naval cord of calf. Only few respondents dehorned and castrated the calf. Regarding sick animal treatment, 82.00% cattle keepers preferred first quacks then vety. doctor/stock man. Only 14.25% of the respondent followed vaccination and deworming practice. Majority (65.50%) of the cattle keepers isolated their sick animals from healthy animals. Water trough and manger was cleaned at weekly interval by 78.00% respondents, while animal shed was cleaned daily by 91.50% cattle keepers.

Key words: Cattle keepers, Management practices

India ranks first in the world with a total of 185 million cattle population (Dairy India, 2007). Rajasthan state ranks sixth in cattle population in India. Animal husbandry is the most important enterprise for the farmers of semi arid region of Rajasthan. Churu district is also situated in this region, where the present study was conducted. Keeping the importance of cattle in view, a comprehensive study was

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conducted to find out the various existing practices followed by the cattle keepers in the aspects of breeding, feeding, housing, milking, calf rearing and health care management.

MATERIALS AND METHODS

The present study was undertaken in Churu, Rajgarh, Sardarshahar and Sujargarh blocks of Churu district in Rajasthan. Four villages from each block and 25 respondents from each village were selected randomly. Thus, the entire sample consisted of 400 respondents from selected 16 villages in 4 blocks of the district. The data were collected by personal interview techniques through a interview schedule. The existing management practices relating to breeding, feeding, housing, milking, calf rearing and health care management were separately enlisted. The frequencies were obtained for different breeding, feeding, housing, milking, calf rearing and health care management practices included in the study. The score of individual practice was converted into percentage.

RESULTS AND DISCUSSION

The management practices of breeding, feeding, housing, milking, calf rearing and health care management followed by all the 400 respondents were studied and individual practice has been described in the following sub-sections.

Existing breeding management practices: The results regarding various breeding practices followed by the cattle keepers are presented in Table 1. Significantly higher (86.00%) percentage of the respondents resorted to natural service and only 14.00% adopted AI. The low adoption of AI is in agreement with the findings of Kumar *et al.* (2006) and Gadaria *et al.* (2007). The present results of AI are less as compared to observed by Malik *et al.* (2005). This may be due to the availability of more AI facilities in the study areas of these authors. Regarding quality of breeding bull majority (44.50%) of the respondents used purebred indigenous bull followed by non-descript (41.50%), crossbred (10.25%) and exotic (3.25%) bull for insemination/natural service of their cows.

As regards to the stage of heat at which cows were allowed for insemination, 61.75, 38.25 and 0.00% of the respondents followed the practice in early heat, mid heat and later heat, respectively. It was noted that all the respondents observed their cows for heat symptoms regularly.

Regarding pregnancy diagnosis, only 4.25% of the respondents practiced pregnancy diagnosis of their cows, which is encouraging than the findings of Kumar *et al.* (2006).

Table 1. Existing breeding management practices

Existing practices	Frequency	Percentage
<i>Method of breeding</i>		
Natural	344	86.00
AI	56	14.00
<i>Quality of breeding bull</i>		
Indigenous (pure-bred)	178	44.50
Non-descript	166	41.50
Crossbred	41	10.25
Exotic	15	3.75
<i>Heat detection</i>		
Yes	400	100.00
No	0	0
<i>Stage of heat at which cows were allowed for insemination/service</i>		
Early heat	247	61.75
Mid heat	153	38.25
Later heat	0	0.00
<i>Pregnancy diagnosis (PD)</i>		
Yes	17	4.25
No	383	95.75
<i>Treatment of Anoestrous/repeaters</i>		
Yes	400	100.00
No	0	0
<i>If yes, then</i>		
by veterinary doctor/stockman	72	18.00
by quacks	328	82.00

All the respondents treated their cows for anoestrous and repeat breeding (Table 1). Regarding the treatment of anoestrus and repeat breeding problem, only 18.00% of the respondents properly treated their problematic cows with the help of veterinary doctor and stockman. The present findings are less as compared to reported by Malik *et al.* (2005). Majority (82.00%) of the respondents were dependent on quacks for the treatment due to ignorance and lack of veterinary facilities in their locality.

Thus, it is quite evident from the emerging results of various breeding practices followed by the cattle keepers in the study area that majority of the respondents were not adopting the recommended breeding practices. There was a wide gap in adoption of certain practices, like AI, PD and proper treatment of anoestrus/repeat breeders to increase the production and productivity of cows.

Existing feeding management practices: All the respondents grazed their animals (Table 2). When grazing was not sufficient then stall feeding was practiced. During stall feeding majority (68.75%) of the respondents fed their animals in groups while 31.25% of the cattle keeper fed their animals individually. These findings are almost similar to Garg *et al.* (2005), Malik *et al.* (2005), Kumar *et al.* (2006) and Swaroop and Prasad (2007). The animals were grazed on harvested/fallow field by 65.25% of the respondent and about one third (34.75%) of the respondents grazed their animals on their own pasture land with harvested and fallow field. About one third (34.75%) of the respondents kept some part of land as a pasture for grazing their animals for 3–4 years. After 3–4 years the pasture land used for crop sowing and other part of land kept for pasture without any seeding of improved grass and other practices. This practice was mostly followed by owners of large herd size and large land holding farmers.

Pearlmillet stover (*bajra karbi*) was the main dry fodder with some quantity of grass collected during crop weeding. The *bajra karbi* was chopped by all the respondents but dry grass was rarely chopped. Only 32.50% of the respondents chopped green fodder. Cultivation of green fodder was done only by the farmers who had irrigation facilities i.e. 12.25%. Majority of the respondents fed green fodder only 2–3 months in monsoon season (July to September) by uprooting of weeds in their rain fed crop. Green fodder feeding by the respondents in present study are lower than observed by Swaroop and Prasad (2007). It may be due to the availability of more irrigation facilities in the study areas of these authors.

Our results (Table 2) indicated that majority (60.50%) of the respondents fed home prepared concentrate mixture to their animals followed by readymade (21.50%) and mixture of home prepared and readymade (18.00%). Home prepared concentrate mixture constituted crushed grain of *bajra* and *barley* mixed with cotton seed cake. These findings are in line with Bhuyan *et al.* (2004) and Garg *et al.* (2005) and contrary to Singh *et al.* (2004). Regarding pre treatment of

Table 2. Existing feeding amnagement practices

Existing practices	Frequency	Percentage
<i>Feeding of animals</i>		
Stall feeding	400	100.00
Grazing	400	100.00
Both	400	100.00
<i>Method of feeding</i>		
Group feeding	275	68.75
Individual feeding	125	31.25
<i>Grazing site</i>		
Common pasture land	0	0.00
Harvested/fallow field	261	65.25
Harvested/fallow field and own pasture land	139	34.75
<i>Type of dry fodder</i>		
Bajra karbi+dry grass	336	84.00
Bajra karbi+dry grass+wheat straw	64	16.00
<i>Chopping of dry fodder</i>		
Yes	400	100.00
No	0	0.00
<i>Chopping of green fodder</i>		
Year	130	32.50
No	270	67.50
<i>Cultivation of green fodder</i>		
Yes	49	12.25
No	351	87.75
<i>Type of concentrate mixture</i>		
Home prepared	242	60.50
Readymade	86	21.50
Mixture of home prepared and readymade	72	18.00
<i>Pretreatment of concentrate mixture</i>		
Soaking	314	78.50
Soaking and boiling	86	21.50
<i>Feeding of common salt</i>		
Yes	129	32.25
No	271	67.75
<i>Feeding of mineral mixture</i>		
Yes	69	17.25
No	331	82.75
<i>Preparation of hay and silage</i>		
Yes	0	0.00
No	400	100.00
<i>Mode of concentrate feeding to lactating cows</i>		
At milking time	338	84.50
Both at milking time and mixed with fodder	62	15.50
<i>Concentrate feeding of advance pregnant cows</i>		
Yes	262	65.50
No	138	34.50
<i>Concentrate feeding to young calf</i>		
Yes	241	60.25
No	159	39.75
<i>Concentrate feeding to heifer</i>		
Yes	31	7.75
No	369	92.25
<i>Quantity of concentrate fed to the lactating cow per day</i>		
1–2 kg concentrate	0	0.00
2–3 kg concentrate	165	41.25
3–5 kg concentrate	88	22.00
1 kg for 2.5 litre milk	27	6.75
1 kg for 3.0 litre milk	120	30.00

concentrate mixture 78.50% of the respondents soaked concentrate mixture before feeding and 21.50% soaked and boiled concentrate mixture before feeding.

Only 32.25 and 17.25% of the respondents fed common salt and mineral mixture, respectively. None of the respondents prepared hay and silage. The farmers of the study area collected the grass (weeds) at the time of weeding and dried it for feeding but they did not follow the scientific method of hay preparation. These findings are almost similar as observed by Malik *et al.* (2005), Kumar *et al.* (2006) and Nagalakshmi *et al.* (2007).

Majority (84.50%) of the respondents were feeding (Table 2) concentrate to lactating cows at the time of milking. Only 15.50% of the respondents fed concentrate mixture both at milking time and mixed with fodder. The data of concentrate feeding to advance pregnant cow was encouraging i.e. 65.50% of the respondents were feeding concentrate mixture as a special ration to advance pregnant cows which is essential because green fodder availability round the year was very low and possibility of green fodder production throughout the year was also less in near future in the study area. The present findings are encouraging than reported by Garg *et al.* (2005) and Kumar *et al.* (2006).

Existing housing management practices: The perusal of the results revealed that majority (58.50%) of the respondents kept (Table 3) their animals near dwelling house followed by separate from dwelling house (38.75%) and inside dwelling house (2.75). All the respondents had *kutch* floor in their cattle shed and only 12% had drainage channel. These findings are in close conformity with the earlier reports of Kumar *et al.* (2006) and encouraging than Gadariya *et al.* (2007) and contrary to Aggarwal and Sharma (1986), who reported that 26% of the respondents had *pucca* floors.

Regarding slope in floor about half (51.50%) of respondents had slope in floor in cattle shed. These findings are encouraging then reported by Garg *et al.* (2005) and Kumar *et al.* (2006). Nearly half (45.50%) of the respondents had single slope roof of shed followed by flat (36.75%) and double slope (17.75%) roof of shed. Large percentage (70.50%) of the respondents used thatch material for roof of cattle shed. Only 26.50 and 3.00% used asbestos and stone slab for roofing the shed, respectively. These results are almost similar as observed by Garg *et al.* (2005) but contrary to reported by Malik *et al.* (2005). Brick and lime (51.75%) and brick in mud (44.75%) prepared wall of sheds were prevalent in the study area. Almost all (99.50%) the respondents used manger for feeding.

Farmers having *pucca* manger (Table 3) followed by *kutch* (30.50%) and wooden (12.00%) manger for feeding of animals. The present findings are encouraging than reported by Garg *et al.* (2005). Majority (63.75%) of the respondents had not constructed water trough in animal shed. None of the respondents practiced grooming of the cattle. These results are not in line with the previous observation of

Table 3. Existing housing management practices

Existing practices	Frequency	Percentage
<i>Location of shed</i>		
Inside dwelling house	11	2.75
Near dwelling house	234	58.50
Separate from dwelling house	155	38.75
<i>Type of floor</i>		
Kutchha	400	100.00
Pucca	0	0.00
<i>Slope in floor</i>		
Yes	206	51.50
No	194	48.50
<i>Drainage channel/pit</i>		
Yes	48	12.00
No	352	88.00
<i>Features of roof of shed</i>		
Flat	147	36.75
Single slope	182	45.50
Double slope	71	17.75
<i>Roof material of shed</i>		
Thatch	282	70.50
Asbestos	106	26.50
Stone slab	12	3.00
Bricks and mud	0	0.00
<i>Material used in walls</i>		
Thatch	16	4.00
Brick and lime/cement	207	51.75
Brick in mud	177	44.25
<i>Manger Feeding</i>		
Yes	398	99.50
No	2	0.50
<i>Type of manger</i>		
Kutchha	122	30.50
Pucca	230	57.50
Wooden	48	12.00
<i>Grooming practice of cattle</i>		
Yes	0	0.00
No	400	100.00
<i>Provision of water trough in shed</i>		
Yes	145	36.25
No	255	63.75
<i>Breeding material used on the floor in winter season</i>		
Yes	264	66.00
No	136	34.00
<i>Grazing practice of advance pregnant cows</i>		
Yes	76	19.00
No	324	81.00
<i>Segregate cow before calving</i>		
Yes	258	64.50
No	142	35.50
<i>Provide bedding material to pregnant cows</i>		
Yes	250	62.50
No	150	37.50
<i>Proper light provision in the animal shed</i>		
Yes	73	18.25
No	327	81.75
<i>Wash the cows's hind quarters after drop of placenta</i>		
Yes	74	18.50
No	326	81.50

Nataraju and Channegowda (1986). A considerable large percentage (66.00%) of the respondents used bedding material during winter season. The bedding material consisted of spikes of bajra (bajra grain coat after threshing), dry sand, ash and waste dry grass. Spikes of bajra was preferred for bedding material because of its good absorbent property. The present findings are in line with the earlier reports of Varma (1989) and Malik and Nagpaul (1998).

Results of the table indicated that 64.50% of the respondents segregate their cows before calving. There was no separate calving box but farmers segregated their cow 2–3 days before calving from other animals in the same shed and 62.50% of the respondents provided bedding material to pregnant cows. Only 18.25% of the respondents had proper light provision in the animal sheds. It was mainly due to the lack of electrified houses in rural areas of Churu district. Only 18.50% of the respondents washed the cow's hind quarters after drop of placenta.

The results of the present study revealed that existing housing management practices were not according to the recommended practices. There was some lacuna specially in drainage channel, location of shed, lack of water trough, defective feeding mangers and lack of scientific cattle shed. These were attributed mainly due to lack of capital and poor knowledge about profit of scientific housing.

Existing milking management practices: Majority (81.75%) of the respondents (Table 4) followed knuckling method of milking. Only 18.25% of respondents followed proper method i.e. full hand milking method. Our results are almost similar with the earlier findings of Singh and Singh (1999) and encouraging than reported by Garg *et al.* (2005). These findings are less as compared to reported by Malik *et al.* (2005) and Kumar *et al.* (2006).

Regarding place of milking 60.25% of the respondents milked cows at the same place and 39.75% milked at separate and dry place. These findings are lower than observed by Malik and Nagpaul (1999) and Kumar *et al.* (2006). It was encouraging to note that majority (86.25%) of the respondent followed stripping at the end of milking. The results are contrary to Varma (1989), who reported that none of the respondent practiced stripping at the end of milking. All the respondents cleaned udder and teats and washed their hands before milking. These results are similar with the earlier findings of Garg *et al.* (2005). All the respondents milked their cows twice a day. The present findings are in line with the findings of Dubey and Kumar (1981) and contrary to Sarkar and Pal (1980), who suggested three times milking per day.

The respondents changed milker from time to time because some cows will give milk to a particular person if milker is not changed (Table 4). The results are encouraging than observed by Malik and Nagpaul (1999). None of the respondent used scientific milking pail for milking. Similar observation was reported by Garg *et al.* (2005). Majority

Table 4. Existing milking management practices

Existing practices	Frequency	Percentage
<i>Method of milking</i>		
Full hand	73	18.25
Knuckling	327	81.75
Stripping	0	0.00
<i>Stripping at the end of milking</i>		
Yes	345	86.25
No	55	13.75
<i>Place of milking</i>		
Milking at the same place	241	60.25
Milking at separate and dry place	159	39.75
<i>Frequency of milking</i>		
Two times	400	100.00
Three times	0	0.00
<i>Clean udder and teats before milking</i>		
Yes	400	100.00
No	0	0.00
<i>Wash hand before milking</i>		
Yes	400	100.00
No	0	0.00
<i>Change milker</i>		
Yes	293	73.25
No	107	26.75
<i>Type of milking pail</i>		
Open mouth bucket	400	100.00
Scientific milking pail	0	0.00
<i>Cleaning of milking utensil with</i>		
Sand and clean water	226	56.50
Ash and water	163	40.75
Cleaning agent and water	11	2.75
<i>Method of drying of pregnant cow</i>		
Abrupt cessation	0	0.00
Inter mittent milking	349	87.25
Incomplete milking	51	12.75
<i>Wipe the udder and teats just after milking</i>		
Yes	0	0.00
No	400	100.00
<i>Calf is allowed to suckle</i>		
Before milking	79	19.75
After milking	0	0.00
Both times	321	80.25
<i>If the cow do not let down milk after the death of calf, practice followed</i>		
Offer concentrate feed and teat manipulation	316	79.00
Apply oxytocin injection	84	21.00
<i>Dry hand milking</i>		
Yes	0.00	0.00
No	400	100.00
<i>Sealing of teat canal at the end of lactation</i>		
Yes	0	0.00
No	400	100.00

(56.50%) of the cattle keepers used sand and clean water for cleaning of milking utensils followed by ash and water (40.75%) and cleaning agent and water (2.75%).

None of the respondent wiped the udder and teats just after milking. Majority (87–25%) of the respondents followed intermittent milking method for drying of pregnant cows followed by incomplete milking method (12.75%). A large percentage of cattle keepers allowed calf for suckling both times i.e. before and after milking. Only 19.75% allowed calf before milking. All the respondents practiced let down of milk through calf suckling. The results obtained from present study are similar as observed by Garg *et al.* (2005) and Kumar *et al.* (2006). It was discouraging to note that 21% of the respondents applied oxytocin injection for let down of milk after the death of calf. The practices of dry hand milking and sealing of teat canal at the end of lactation where not followed by any of the respondent.

After critical perusal of the results it is emerged that though majority of the respondents followed many ideal milking management practices, yet some gap existed in adoption of certain critical practices by some of the respondents. Knuckling is a faulty method of milking. The wrong method was more practiced by milkers in the study area. This may lead to constant irritation of the teat canal due to pressure of knuckle which in turn may cause mastitis in many cases and thus not recommended. The calf should be allowed to suckle only before milking to prevent teat injury. The milking should be done in clean and separate place for clean milk production. The oxytocin injection should not be used for milk let down because it is very harmful for lactating cows as well as calves and human beings and legally it is prohibited. Wet hand milking should be avoided for clean milk production as well as to prevent teat injury. Sealing of teat canal with proper ointment should be done at the end of lactation, which ensures prevention of any infection during dry period.

Existing calf rearing management practices: All the respondents (Table 5) attended the cow as well as calf at the time of calving. Majority (96.25%) of the respondents were following the practices of cleaning the calf immediately after birth and trim hooves and allowed the dam to lick her calf immediately. The cattle keepers thought that if they trim the hooves of newly born calf then hooves will not increase in size. These findings are in line with the observation of Malik and Nagpaul (1999) and Kumar *et al.* (2006). More than 64.25% cattle keepers did not follow the cut and disinfect naval cord. Only 35.75% cattle creepers cut the naval cord with new blade or knife and tied with thread. These findings are encouraging than reported by Kumar *et al.* (2006) and lower than observed by Malik and Nagpaul (1999).

It was observed that 53.50, 18.00 and 28.50% of the respondents provided colostrum within two hours of birth, 2 to 4 h and after fall of placenta, respectively. These findings are encouraging than reported by Malik *et al.* (2005), Kumar *et al.* (2006) and Sreedhar (2007) and less as compared to reported by Mathur (2001). New born calf allowed suckling of colostrum as *ad lib.* one quarter and half quarter were followed by 39.50, 43.25 and 17.25% of the respondents,

Table 5. Existing calf management practices

Existing practices	Frequency	Percentage
<i>Attended the calf at the time of calving</i>		
Yes	400	100.00
No	0	0.00
<i>Clean the calf immediately after birth and trim the hooves</i>		
Yes	385	96.25
No	15	3.75
<i>Cut and disinfect naval cord of calf</i>		
Yes	143	35.75
No	257	64.25
<i>Feeding of colostrum to the calf</i>		
Within 2 h of birth	214	53.50
Two to 4 h of birth	72	18.00
After drop of placenta	114	28.50
<i>Quantity of colostrums feeding</i>		
Ad lib. suckling	158	39.50
One quarter	173	43.25
Half quarter	69	17.25
<i>Measures applied when placenta is not shed in proper time</i>		
Veterinary staff help	126	31.50
Quack's help	274	68.50
<i>Disposal of placenta</i>		
Throw in oak plant	284	71.00
Deep buried	82	20.50
Throw in common land	34	8.50
<i>No of days suckling to the dam</i>		
Weaning	0	0.00
Less than four months	60	15.00
Upto six months	325	81.25
More than six months	15	3.75
<i>Deworming of calf</i>		
Yes	17	4.25
No	383	95.75
<i>Lice/ticks eradication measure followed</i>		
Yes	400	100.00
No	0	0.00
<i>Dehorning of calf</i>		
Yes	38	9.50
No	362	90.50
<i>Castration of male calf</i>		
Yes	78	19.50
No	322	80.50

respectively. Regarding measures applied when placenta was not shed in proper time, majority (68.50%) of the respondents took help of quacks. Only 31.50% took the help of veterinary doctor and stockman. Most of the cattle creepers disposed of placenta in *aak* (*Calotropis procera*) plant (71.00%) followed by deep buried (20.50%) and throw in out skirt common land (8.50%). The reason behind the placenta thrown in *aak* plant was that the villagers believed if they throw placenta in *aak* plant, female calf will born in next calving. But scientifically this practice may be connected with the sanitation.

Majority (81.25%) of the respondents (Table 5) allowed

suckling to their calves up to 6 months of age, whereas, 15.00 and 3.75% of the respondents allowed suckling less than 4 months and above 6 months of age, respectively. None of the respondent practiced weaning system of calf rearing. These findings are in close conformity with the reports of Mathur (2001) and Kumar *et al.* (2006). A considerable large percentage (82.50%) of the respondents took measures of lice and ticks eradication, but only 4.25% cattle keepers followed the practice of calf deworming. The results of calf deworming in close conformity with findings of Kumar *et al.* (2006) and contrary to Malik *et al.* (2005). Only 9.50 and 19.50% of the respondents followed Dehorning and castration of calves, respectively. These findings are similar as observed by Kumar *et al.* (2006) and not in line with observed by Malik *et al.* (2005), who reported that 82% of the respondents dehorned the female crossbred calves. The male calf was generally castrated at the age of 8–12 months mostly by burdizzo castrator and the practice of dehorning was limited to the crossbred female calf only.

Inspite of a large percentage of the respondents who were following scientific calf rearing practice to a greater extent as shown in Table 2 but some recommended practices like feeding of colostrum within one-two hours, disinfection of naval cord, deworming, dehorning and castration should be followed which increases the growth rate as well as less mortality percentage of calf.

Existing health care management practices: The data collected from the respondents with respect to health care management practices are given in Table 6. It was observed that 82.00% of the respondents got treated their sick animals by quacks first and if sick animals were not recovered, then they contacted to veterinary doctor or stockman for treatment but that time the condition of sick animal become very serious. Only 18.00% of the cattle keepers got treated their sick animals properly by veterinary doctor and/or stockman. Regarding vaccination against HS, FMD, and BQ only 14.25% of the respondents got vaccinated their animals. The present findings are encouraging than observed by Mathur (2001) and Kumar *et al.* (2006) and lower than reported by Malik and Nagpaul (2000) and Singh (2003).

Our results Table 6 revealed that 65.50% of the cattle keepers isolated their sick animals from healthy ones. These results were lower than reported by Malik and Nagpaul (2000) and Kumar *et al.* (2006) but encouraging than observed by Singh (2003). Regarding dewormed their animals regularly. Majority (91.75%) of the cattle keepers left the dead body of animal outside the village as such for decay/vultures. These findings are not in agreement with the observations of Singh (2003).

It was also observed that most of the cattle keepers, i.e. 78.00% cleaned water through and manager at weekly interval. Only 20.50 and 1.50% of the respondents cleaned alternate day and daily, respectively. It was encouraging to note that 91.50% of the cattle keepers cleaned their animals

shed daily. Regarding measures adopted to control flies, 96.00% of the respondents use smoke of waste grass/fodder to control flies/mosquitoes. Only 4.00% cattle keepers used electric fan for control of flies and mosquitoes.

These findings are more than the reports of Varma (1989) and Kumar *et al.* (2006). The majority (62.50%) of the cattle keepers followed dusting of insecticides to control lice/ticks, whereas, 37.50% followed manual method of picking these practices. These findings are in line with the observation of Malik and Nagpaul (2000) and contrary to Kumar *et al.* (2006).

According to the surveyed respondents, the availability of veterinary facilities and assistance in general was very poor. The percentage of respondents regarding veterinary facilities as good, satisfactory and poor were 7.75, 17.50 and 74.75, respectively. The number of veterinary hospital (2) and stockman centre (2) existed in the surveyed villages was

Table 6. Existing health care management practices

Existing practices	Frequency	Percentage
<i>Who is consulted for treatment of sick animal</i>		
Veterinary doctor/stockman	72	18.00
Quacks first then Vety. doctor/stockman	328	82.00
<i>Vaccination of animals</i>		
Yes	57	14.25
No	343	85.75
<i>Deworming practice followed</i>		
Yes	57	14.25
No	343	85.75
<i>Isolate the sick animals from healthy animals</i>		
Yes	262	65.50
No	138	34.50
<i>Disposal of dead animals</i>		
Deep burial	33	8.25
Leave as such for decay/vultures	367	91.75
<i>Cleaning interval of water trough and manger</i>		
Daily	6	1.50
Alternate day	82	20.50
Weekly	312	78.00
<i>Cleaning interval of animal shed</i>		
Daily	366	91.50
Alternate day	34	8.50
Weekly	0	0.00
<i>Measures adopted to control flies</i>		
Smoke of waste grass/fodder	384	96.00
Electric fan	16	4.00
<i>Measures adopted to control lice/ticks</i>		
Manual	150	37.50
Dusting of insecticides	250	62.50
<i>Veterinary aid available in the surveyed villages</i>		
Veterinary hospital	2	
Stockman centre	2	
<i>Availability of veterinary facilities</i>		
Good	31	7.75
Satisfactory	70	17.50
Poor	299	74.75

also very less. The remaining villages where veterinary facilities were not available, the minimum and maximum distance of nearest stockman centre/veterinary hospital were 7 to 30 km.

Our results Table 6 showed that most of the respondents had not followed recommended health care management practices. It will be possible only when government provide the veterinary facilities in rural areas extensively.

It can be concluded that majority of the respondents yet followed natural service for inseminate their cows, about two-third respondents inseminate their cows at early heat stage and for problematic cows, i.e. anoestrus and repeat breeders, quacks treatments was prevalent in the district. Only few respondents followed pregnancy diagnosis. Group feeding and grazing in fallow/harvested field was prevalent in the area. More than half respondents fed home-prepared concentrate mixture. A small number of cattle keepers fed mineral mixture and common salt to their cattle. The respondent followed thatched roof with single slope. Mostly cattle shed was near to dwelling house with kutcha floor. Manager feeding was common in the area. It was also concluded from the study that cleaning of udder and teats and washing of hands before milking was a good existing practice, viz. wrong milking method, wet hand milking and not sealing of teat canal at the end of lactation were the wrong practices that was followed by majority of the cattle keepers did not cut and disinfected the navel cord, dehorned and castrated the male calf. Veterinary facility was meagre in the rural area, so cattle keepers does not have any other alternative rather than taking the treatment from quacks

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