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FEEDING MANAGEMENT PRACTICES OF DAIRY ANIMALS IN PATAN DISTRICT OF NORTH GUJARAT REGION

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ABSTRACT

A field survey was conducted to collect the first hand information on dairy animal management practices followed by the dairy animal owners of Patan district of north Gujarat. Existing feeding management practices were studied through predesigned and pretested questionnaire from 100 dairy animal owners. As far as feeding of green fodder is concerned, leguminous and non leguminous fodders used by farmers were 76.00 & 24.00 percent respectively. About 23.00 per cent farmers used to feed merely compounded cattle feed, while 77.00 percent farmers used mixture of home-made concentrate with compounded feed. Concentrate feeding was significantly (P<0.01) different with land holding of farmers. Feeding of mineral mixture was significantly (P<0.01) different among the Talukas.

Key words: Feeding, Management, Patan District, Dairy animals.

Livestock sector play a very crucial role in shaping the economy of rural peoples. It is continuous income generating source for rural house hold. Gujarat is known as “Milk bowl of India” with milk production and productivity far higher than the national average, owing to development of wide network of co-operative dairy system. North Gujarat is the milk area comprising Mehsana, Patan ,Banaskantha and Sabarkantha districts. Farmers of this region is progressive and keeping buffaloes and crossbred cows for milk production, feeding management play a very significant role in exploiting real potential of dairy animals[1]. Patan is leading district for dairy development. Looking to the significant contribution of North Gujarat in economy of Nation, a comprehensive study was designed to find out existing management practices followed by owners in respect of feeding by the progressive farmers of the Patan district of north Gujarat.

MATERIALS AND METHODS

A field study was conducted in Patan District of north Gujarat using multistage random sampling technique for selecting the respondents. The survey study was conducted in five talukas, which has well developed dairy co-operative network and truly represent the whole district with even distribution. Sidhpur, Patan, Chanasama, Harij and Sami Talukas were selected randomly for study. Two villages were selected from each Taluka, which were geographically located apart and truly represent the animal practices. Ten

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farmers of each villages who keep the elite dairy animals producing at least 10 kg or more milk/ animal/day, were selected with the help of secretary of village dairy co-operative society.

The selected farmers were interviewed regarding their education, total land holding and adopting feeding management practices with help of questionnaire. The data recorded were analyzed[2].

RESULTS AND DISCUSSION

Study area was totally irrigated by bore-wells/tube-wells and framers were used to grow 2-3 crops annually. There were no grazing facilities for animal[3].Hence only stall feeding practices prevalent in villages under study are presented (Table 1).

Feeding System: It was observed that all respondents (100.00%) adopted individual feeding system to their milch animals as well as others. This was a good practice to feed the milch animals according to their production levels and to prevent the harassment to docile animals by vicious onces during feeding. Adoption of this practice showed full awareness of farmers[4,5].

Fodder Availability: The large farmers used to feed more leguminous fodders as compared to small and medium farmers. Not a single farmer practiced silage making because green fodder might be available throughout the year[4,5]. Feeding of dry fodder was significantly ($p<0.01$) different between the Talukas; which might be due to variation in cultivation time of grain crops. Majority of farmers fed bajra straw to their animals because environmental conditions of this area were more suitable for the cultivation of the grain crop like bajara (Pennisetum glaucum) as compared to jowar (Sorghum vulgare) and wheat (Triticum aestivum).

Source of Concentrate: The sources of concentrate differed significantly ($P<0.01$) with land holding of the owners. The large farmers fed more homegrown concentrate as compared to medium and small farmers[5, 6]. It might be due to surplus production of grains and the easily and chiefly availability of the industrial byproducts like chunis, husks and brans to the large farmers, which were diverted to feeding milch animals economically[7,8,9].

Method of Feeding: The chaffed green and dry fodder was offered to the animals by only 07.00 and 33.00 percent of respondents respectively, trend was similar as reported earlier[4,5]. Adoption of less chaffing practices might be due to lack of manger facilities, labour availability or inadequate knowledge of efficient utilization of feeds and fodders. The practice of feeding concentrate was significantly different between Talukas. It might be due to variation in practices adopted for let down of milk in dairy animals with respect to localities and species of the dairy animals.

Feeding mineral mixture: About half (41.00 per cent) of the farmers used to supplement ration of their milch animal with mineral mixture. Feeding of mineral mixture differs significantly ($P<0.01$) between the Talukas. It might be due to variation in type of milch animals (either cattle/ buffalo or both) they reared. The farmers, keeping crossbred cattle, offered mineral mixture regularly[5,6,10]. In contrast to this[1,3] it was observed that mineral mixture was not at all fed by most of the farmers whereas very few of them fed mineral mixture to their animals[11,12,13].

Feeding care during advance pregnancy and after calving :Majority of farmers (72.00%) practiced to feed extra concentrate to their dairy animals during last 2–4 weeks of pregnancy. This is a good practice adopted by farmers because maximum development of foetus occurs during last 6–7 weeks of pregnancy and the digestive system of high yielder become well acquainted for concentrate digestion and also increased body condition of animal.

All respondents (88.00%) had adequate knowledge about feeding care after calving. They fed energy rich (bajara, guar, grinded wheat etc.) feed mixed with ecbolic ingredients, (Suva, Lali, Methi, etc.) to prevent stress and to provide sufficient energy for freshening.

Watering of dairy animal: Majority of farmers (95.00%) provided water to their milch animals ad libitum but restricted in frequencies in which two times (20.00 % respondents) and three times (75.00 respondents) watering were common in summer. About 95.00 per cent respondents offered two times water in winter only 5.00 per cent farmers had free access to watering due to automatic water supply attached with manger.

Table 1. Particulars of the respondents

Background variables	Number of respondents	Percentage
Overall	100	100
Taluka :		
Sidhpur	20	20
Patan	20	20
Chanasama	20	20
Harij	20	20
Sami	20	20
Education :		
Illiterate	11	11
Primary	52	52
Secondary (metric)	22	22
Above metric	15	15
Main source of income in mixed farming :		
Dairying	74	74
Cropping	26	26
Herd size:		
1 – 5 animals	17	17
6 – 10 animals	55	55
> 10 animals	28	28
Land holding size:		
< 5 Acres	24	24
5– 10 Acres	37	37
> 10 Acres	39	39

Table-2 : Feeding practices followed by the respondents of different categories.

Particulars	Categories according to Taluka					Categories according to land holding size			Categories according to herd size		
	Sidhpur	Patan	Chansama	Harij	Sami	< 5 acres	5-10 acres	> 10 acres	1-5 animals	6-10 animals	> 10 animals
Green fodder availability											
Non-legume	2	3	4	7	8	10	6	8	5	12	7
	(10.00)	(15.00)	(20.00)	(35.00)	(40.00)	(41.67)	(16.22)	(20.51)	(29.41)	(21.82)	(25.00
Legume + Non legume	18	17	16	13	12	14	31	31	12	43	21
	(90.00)	(85.00)	(80.00)	(65.00)	(60.00)	(58.33)	(83.78)	(79.49)	(70.59)	(78.18)	(75.00)
χ2	7.3464					5.5957			0.4317		
Dry fodder availability											
Bajara straw	8	10	17	18	17	17	25	28	8	47	15
	(40.00)	(50.00)	(85.00)	(90.00)	(85.00)	(70.83)	(67.57)	(71.79)	(47.06)	(85.45)	(53.57)
Bajara straw + Jowar straw	7	6	3	2	3	4	10	7	7	5	9
	(35.00)	(30.00)	(15.00)	(10.00)	(15.00)	(16.67)	(27.03)	(17.95)	(41.18)	(9.09)	(32.14)
Bajara straw + Jowar straw + Wheat straw	5	4	0	0	0	3	2	4	2	3	4
	(25.00)	(20.00)	(0.00)	(0.00)	(0.00)	(12.50)	(5.41)	(10.26)	(11.76)	(5.45)	(14.29)
χ2	24.3958**					2.0053			18.8478**		
Source of concentrate											
Compounded cattle feed	4	6	3	5	5	12	6	5	4	11	8
	(20.00)	(30.00)	(15.00)	(25.00)	(25.00)	(50.00)	(16.22)	(12.82)	(23.53)	(20.00)	(28.57)
Home prepared + compounded cattle feed	16	14	17	15	15	12	31	34	13	44	20
	(80.00)	(70.00)	(85.00)	(75.00)	(75.00)	(50.00)	(83.78)	(87.18)	(76.47)	(80.00)	(71.43)
χ2	1.466					13.1225**			0.7728		
Method of feeding											
Green fodder											
Chaffed	3	2	2	0	0	1	3	3	0	4	3
	(15.00)	(10.00)	(10.00)	(0.00)	(0.00)	(4.17)	(8.11)	(7.69)	(0.00)	(7.27)	(10.71)
As such	17	18	18	20	20	23	34	36	17	51	25
	(85.00)	(90.00)	(90.00)	(100.00)	(100.00)	(95.83)	(91.89)	(92.31)	(100.00)	(92.73)	(89.29)
χ2	5.5298					0.3944			1.9693		
Dry fodder											
Chaffed	6	8	5	6	8	5	12	16	4	19	10
	(30.00)	(40.00)	(25.00)	(30.00)	(40.00)	(20.83)	(32.43)	(41.03)	(23.53)	(34.55)	(35.71)
As such	14	12	15	14	12	19	25	23	13	36	18
	(70.00)	(60.00)	(75.00)	(70.00)	(60.00)	(79.17)	(67.57)	(58.97)	(76.47)	(65.45)	(64.29)
χ2	1.62821					2.7483			0.8422		
Concentrate feeding											
Before milking	9	11	10	5	8	13	15	15	10	23	10
	(45.00)	(55.00)	(50.00)	(25.00)	(40.00)	(54.17)	(40.54)	(38.46)	(58.82)	(41.82)	(35.71)
During milking	7	5	4	13	11	18	13	19	6	22	12
	(35.00)	(25.00)	(20.00)	(65.00)	(55.00)	(75.00)	(35.14)	(48.72)	(35.29)	(40.00)	(42.86)
After milking	4	4	6	2	1	3	9	5	1	10	6
	(20.00)	(20.00)	(30.00)	(10.00)	(5.00)	(12.50)	(24.32)	(12.82)	(5.88)	(18.18)	(21.43)
χ2	20.500**					4.0252			3.1088		

Figure in parenthesis indicate percentage; * Significant at 5% level (P<0.5); ** Significant at 1% level (P<0.01)

Table-2 : Feeding practices followed by the respondents of different categories.

Particulars	Categories according to Taluka					Categories according to land holding size			Categories according to herd size		
	Sidhpur	Patan	Chansama	Harij	Sami	< 5 acres	5-10 acres	> 10 acres	1-5 animals	6-10 animals	> 10 animals
Feeding care in advance pregnancy											
Concentrate during last 15 days	16	13	14	16	13	15	27	30	10	42	22
	(80.00)	(65.00)	(70.00)	(80.00)	(65.00)	(62.50)	(72.97)	(76.92)	(58.82)	(76.36)	(78.57)
Concentrate during last 30 days	3	4	3	1	0	5	4	2	4	4	3
	(15.00)	(20.00)	(15.00)	(5.00)	(0.00)	(20.83)	(10.81)	(5.13)	(23.53)	(7.27)	(10.71)
No fed concentrate	1	3	3	3	7	4	6	7	3	11	3
	(5.00)	(15.00)	(15.00)	(15.00)	(35.00)	(16.67)	(16.22)	(17.95)	(17.65)	(20.00)	(10.71)
$\chi 2$	**10.7810**					**4.106**			**4.6508**		
Feeding care after calving											
Energy rich ration for 15 days	18	16	17	19	18	22	31	35	15	49	24
	(90.00)	(80.00)	(85.00)	(95.00)	(90.00)	(91.67)	(83.78)	(89.74)	(88.24)	(89.09)	(85.71)
Energy rich ration for 30 days	2	4	3	1	2	2	6	4	2	6	4
	(10.00)	(20.00)	(15.00)	(5.00)	(10.00)	(8.33)	(16.22)	(10.26)	(11.76)	(10.91)	(14.29)
No fed any special ration	0	0	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
$\chi 2$	**2.4620**					**1.040**			**0.2013**		
Feeding of mineral mixture											
Yes	9	13	10	6	3	10	15	16	8	21	12
	(45.00)	(65.00)	(50.00)	(30.00)	(15.00)	(41.67)	(40.54)	(41.03)	(47.06)	(38.18)	(42.86)
No	11	7	10	14	17	14	22	23	9	37	16
	(55.00)	(35.00)	(50.00)	(70.00)	(85.00)	(58.33)	(59.46)	(58.97)	(52.94)	(67.27)	(57.14)
$\chi 2$	**17.0561****					**0.0811**			**0.4766**		
Frequency of watering (Summer)											
Two time	4	3	2	5	6	5	7	8	5	11	4
	(20.00)	(15.00)	(10.00)	(25.00)	(30.00)	(20.83)	(18.92)	(20.51)	(29.41)	(20.00)	(14.29)
Three time	14	14	18	15	14	19	28	28	12	41	22
	(70.00)	(70.00)	(90.00)	(75.00)	(70.00)	(79.17)	(75.68)	(71.79)	(70.59)	(74.55)	(78.57)
Free asses of water	2	3	0	0	0	0	2	3	0	3	2
	(10.00)	(15.00)	(0.00)	(0.00)	(0.00)	(0.00)	(5.41)	(7.69)	(0.00)	(5.45)	(7.14)
Frequency of watering (Winter)											
Two times	18	17	20	20	20	24	35	36	17	52	26
	(90.00)	(85.00)	(100.00)	(100.00)	(100.00)	(100.00)	(94.59)	(92.31)	(100.00)	(94.55)	(92.86)
Free assess of water	2	3	0	0	0	0	2	3	0	3	2
	(10.00)	(15.00)	(0.00)	(0.00)	(0.00)	(0.00)	(5.41)	(7.69)	(0.00)	(5.45)	(7.14)

Figure in parenthesis indicate percentage; * Significant at 5% level (P<0.5); ** Significant at 1% level (P<0.01)

CONCLUSION

Present study revealed that most of the respondents had satisfactory knowledge about feeding practices. However, many of them were unaware about the importance of feeding mineral mixture and efficient utilization of fodders. Hence there is a need of educating them through various trainings and practical demonstrations on and off the campus extension activities of SAUs Kvk's and government line departments.

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