

EXISTING FEEDING AND BREEDING MANAGEMENT PRACTICES FOR DAIRY ANIMALS IN SURAT DISTRICT OF GUJARAT

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ABSTRACT

The study was conducted purposively in Surat district to ascertain the feeding and breeding management practices followed by rural dairy animal owners. A field survey was conducted during March, 2013 to January, 2014 and data were collected from randomly selected 300 dairy animal owners through personal interview with the help of pre-tested structured schedule from five talukas selected at random. The present study revealed that all farmers adopted individual feeding system to their dairy animals and 81.67% of respondents followed stall feeding system while, only 18.33% of respondents followed stall feeding as well as grazing system. Majority (67%) of respondents cultivated green fodder crops and 64.33 and 99% respondents fed green non-leguminous and bunds grass to their milking animals, respectively. Paddy straw was major ingredient (75%) used as dry fodder. Sixty eight percent of respondents fed homemade + compound cattle feed as concentrate to their milking animals, based on milk production (62.67%), mainly after milking (57.67%). They fed concentrate to their animals after soaking in water while, 35% of respondents fed concentrates as such. Most of respondents (95%) practiced to feed green/dry fodders as such to their dairy animals. 52.33% of respondents did not fed concentrates to their young calves while, 72% of respondents fed concentrates to their heifers. They practiced to feed concentrates to their advanced pregnant heifers and 72.67% followed special feeding after calving. 58.33% of respondents provided mineral supplements to their dairy animals. All the respondents detected heat in their animals by observing the symptom of bellowing and mucus discharge (84.67%) and bred their animals by artificial insemination (89.67%) between 12-18 hours after heat detection (95.67%). About 40% respondents bred their animals after 2 to 3 months of calving and 89.33% respondents followed the pregnancy diagnosis but 59.67% did it either from Livestock Inspectors or Artificial Insemination workers after three months of breeding. Majority (54%) of respondents followed treatment of anoestrus/repeaters in their dairy animals and only 7.67% of respondents kept the breeding records of their dairy animals.

Keywords: Breeding, Dairy animals, Feeding, Management, Practices, Surat district.

Gujarat is an important state in milk production and marketing in India on co-operative dairy system. Gujarat has around 5.23% of cattle and 9.55% of buffalo population of the country¹. Production potential of livestock depends mostly on the management practices under which they are reared and these practices vary significantly across various agro-ecological regions due to many factors. Understanding of livestock management practices followed by farmers in a region is necessary to

identify the strengths and weaknesses of the rearing systems and to formulate suitable intervention policies⁴. Feeding is one of the most important practices in animal husbandry. It is generally agreed that all the animals fail to prove their full genetic potential for higher production when fed at low levels. Under feeding of young stock of animals leads to poor growth, delay in maturity and lower productivity than optimum after attaining the breedable age. The dairy animal owners must have a thorough understanding of the facts that milk production can be increased by adoption of improved animal feeding and breeding practices. Therefore, it is imperative

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to ascertain the scientific feeding and breeding management practices of dairy animals followed by dairy animal owners under village conditions so that need based extension programme may be launched to make them aware, to increase their knowledge and the adoption of scientific feeding and breeding management practices for dairy animals in study areas.

MATERIALS AND METHODS

A field survey was conducted in Surat district of South Gujarat during March, 2013 to January, 2014. Out of nine talukas in the district, five talukas were randomly selected. From each selected taluka, 5 villages having functional primary milk producer's co-operative societies were selected at random. Minimum two dairy animals kept by twelve dairy animal owners from each village were randomly selected. Ultimately a total of 300 respondents were included in the study. While selecting respondents due care was taken to ensure that they were evenly distributed in the village and truly represented animal management practices prevailing in the area. The selected dairy farmers were single interviewed and the desired information was collected regarding feeding and breeding management practices with the help of pre-designed and pre-tested questionnaire. The statistical tools like frequency and percentages were used for interpreting the data and inferences were drawn¹².

RESULTS AND DISCUSSION

Feeding management practices

The data regarding the feeding practices followed by the dairy animal owners are presented in Table 1 and revealed that majority of respondents (81.67%) followed stall feeding system, while only 18.33% of respondents followed stall feeding as well as grazing system for their animals. These findings are in accordance with the results of ⁴. All dairy animal owners adopted individual feeding system to their animals. This is a good practice to feed the milch animals according to their production level and also to save docile animals being harassed by vicious animals during feeding. Adoption of this practice showed full awareness of dairy animal

owners in the study areas. Present findings are in conformity with the results of ². Majority of respondents (67%) cultivated green fodder crops which are in accordance with the findings of ⁸ and encouraging than reported by ^{9,10}. It was observed that majority of respondents (64.33%) provided non-leguminous green fodder to their animals, while only 2.67% of respondents provided non-leguminous + leguminous green fodder to their animals. However, 99% of respondents provided non-cultivated green bunds grass and 96.67% of the respondents provided sugarcane tops. Not a single farmer practiced silage making because of shortage of green fodder and lack of knowledge about silage making. These results are contrary to the results of ². It was further observed that 75% respondents fed their animals only paddy straw as dry fodder and rest fed paddy straw + jowar (25%). The environmental conditions favour the cultivation of paddy crop than jowar (*Sorghum bicolor* L.) and maize (*Zea mays* L.). In addition to paddy straw and paddy straw with jowar 56% of the respondents provided the dry bund grasses to their animals as dry fodder. Present results are similar to the results of ^{9,10}. Majority of respondents (68%) fed to their animals home produced ingredients along with compound cattle feed followed by compound cattle feed (28.67%) and only home produced ingredients as concentrates (3.33%). It was also observed that the large farmers fed more home grown ingredients as compared to medium or small farmers. It might be due to surplus production of grain and other concentrates (chuni, husk etc.) by large farmers, which were diverted to feeding dairy animals to economise the feeding expenses. Present results are in accordance to the results of ¹⁰. However, the results are contrary to the findings of ^{4,9}. Majority of respondents (95%) fed green/dry fodders as such to their animals. It might be due to lack of manger facilities, inadequate knowledge of efficient utilization of feed and fodders. These findings are in agreement with the results of ^{2,10}. However, present findings are contrary to the results of ⁴, who reported that 79.3% farmers adopted chaffing of green and dry fodder practice. All the respondents fed concentrates two times in a day to their animals. It was observed that 57.67, 32.33 and 10% respondents practiced to feed

concentrates after milking, during milking and before milking, respectively. These findings are supported by the finding of ¹⁰. However, present findings are contrary to the results of ^{3,8,9,11}. It was observed that 52.33% of respondents did not feed concentrates to their young calves, while 47.67% fed concentrates to their young calves. These results are supported by ⁹. It was also observed that 72% of respondents fed concentrates to their heifers which is similar to the findings of ³. These findings are in contrary with the results of ⁷ and encouraging than ¹¹. Majority (65%) of respondents fed concentrates to their animals after soaking in water, while 35% of respondents fed concentrate as such. Present findings are supported by ⁴. Majority of respondents (76%) practiced to feed concentrates to their advanced pregnant heifers. Further, it was found that 43.33% of respondents practiced to feed concentrates to their advanced pregnant heifers during last 2 months of pregnancy followed by 30.67 and 2% of respondents practiced to feed concentrates to their advanced pregnant heifers during last one month and last 15 days of pregnancy, respectively. This is a good practice adopted by respondents because maximum development of foetus occurs during last 6–7 weeks of pregnancy. The digestive system of high yielders become well acquainted to concentrate digestion which results in body weight gain and improvement of body condition of animals too. The results are supported by ^{2,10}. However, ⁸ reported very low i.e. 8% respondents provided concentrates to their advanced pregnant animals.

Majority of respondents (72.67%) followed special feeding after calving to their animals. Majority of respondents had adequate knowledge about feeding care after calving. They fed energy and protein rich (Guar- *Cyamopsis tetragonoloba* L., Bajara- *Pennisetum glaucum* L., Wheat- *Triticum aresivum* L. or Paddy- *Oriza sativa* L., Coconut- *Cocos nucifera* etc.) feed mixed with echbolic ingredients, (Asaliya- *Barbarea verna*, Suva- *Anethum sowa*, Methi- *Trigonellafoenum graecum* L. etc.) to prevent stress and to provide sufficient energy for freshening. These findings are in agreement with the results of ^{3,10,11}. It was observed that 58.33% of respondents provided

mineral supplements to their milch animals which is supported by ¹⁴ and encouraging than that of ^{2, 8, 10}. Contrary to these finding ¹¹ reported that mineral mixture supplement to their milch animals was very low i. e. 6%. The findings of all workers of the studies indicated that there was very low level of awareness regarding feeding extra mineral mixture in their respective survey areas. Only 11.33% respondents provided extra salt to their milch animals. It might be due to lack of knowledge of dairy animal owners. The present findings are well supported by the findings of ¹⁰. However, in contrary to present findings ⁶ observed supplementation of common salt followed by 88% respondents. Very low percent of followers of feeding extra salt may be due to the practice of feeding compound cattle feed followed by respondents to the extent of 96.67% in the present study. All of the respondents provided water to their milch animals *ad libitum* in quantity but restricted in frequencies in which two times (37.33% respondents), three times (46.33% respondents) to four time (16.67% respondents) a day were common in summer. About 80% respondents offered two times water in winter. ¹³ reported that water is provide twice a day in summer and once a day in winter to their buffaloes and is a common practice followed by most of the animal keepers. Contrary to the present study ² and ¹⁰ reported 72 and 98% of the respondents provided water three times a day, respectively. Thus the importance of water is known practically to all farmers, who provided water to their animals depending upon their resources. It was observed that majority of respondents depended on Hand pump (56.67%) followed by Bore wells (43.33%) as a source of drinking water to their dairy animals. The present findings are comparable with the results of ^{6,10}.

Breeding management practices

The breeding practices followed by dairy animal owners are presented in table 2 and revealed that detection of heat in dairy animals was done based on the symptoms of oestrus by all respondents which are in similar line with the results of ⁹. It was found that 84.67% respondents observed mucus discharge and bellowing as the symptoms of oestrus. It was informed by the respondents during

personal interview that mostly buffaloes are showing mucus discharge as heat symptom while crossbred cows are showing mucus discharge and bellowing during estrus. The symptoms of estrus were mostly pronounced in morning or during cool hours of day. In winter buffaloes showed more intense heat symptoms as compared to summer. Present findings are comparable with the results of ^{2,7}. Majority of the respondents (89.67%) used scientific method of artificial insemination (A.I.) for conceiving their dairy animals. Higher proportion to use of artificial insemination (A.I.) were due to availability of good infrastructure facilities for the preservation and timely A. I. services with satisfactory results provided by A. I. workers in villages. Present results are similar to the results of ^{2,7}. However, the results are contrary to the findings of ^{5,6,9}.

The study revealed that 95.67% respondents allowed their female animals for breeding through A.I. or N.S. at mid heat period and only 4.33% respondents allowed their animals at early heat period. This is a good practice adopted by farmers to serve their cows/buffaloes in between 12-18 hrs from onset of estrus for better results of conception. This practice was widely accepted by farmers which might be due to extension work done by A.I. workers in villages. The results are in accordance with the results of ^{2,4,9}. It was also observed that 40.33, 34.67

and 25% respondents rebred their dairy animal after 2-3 months, 3-5 months and after 5 months of calving, respectively which are supported with the results of ⁴. It might be due to fairly high level of awareness in respondents as they are under a milk shed of co-operative milk producer union.

The results of study indicated that 89.33% of respondents followed pregnancy diagnosis practice in their dairy animals which is supported by the results of ⁴. However, Contrary to the present findings ^{9,5} reported only 4.25 and 7.5% of respondents adopted pregnancy diagnosis practice in Churu district of Rajasthan and mid hills of Uttarakhand area, respectively. Among pregnancy diagnosis practice adopted, 59.67% pregnancy diagnosis were done by either livestock inspectors or A.I. workers and 17.33% by qualified veterinarians after three months of breeding. However, 12.33% of respondents had done pregnancy diagnosis by their own judgement. Present results are in accordance with the results of ¹⁵. Majority of respondents (54%) followed treatment of anoestrus /repeaters in their dairy herds which are lower than that reported by ⁹ and encouraging than results of ^{5,15}. It was observed that only 7.67% of respondents kept the breeding records of their dairy animals, whereas 92.33% of respondents did not follow this practice. Present findings are encouraging than the results of ⁵.

Table 1. Distribution of the dairy animal owners according to feeding practices followed

Variable	Category	Frequency	Percent
Feeding system	Stall feeding	245	81.67
	Stall feeding+ Grazing	055	18.33
Feeding of milch animal	Individual	300	100.00
	Group feeding	000	000.00
Cultivation of green fodder	Yes	201	67.00
	No	099	33.00
Green fodder availability (multi-choice)	Non-legume	193	64.33
	Non-legume + Legume	008	02.67
	Not cultivating but feeding bunds grass	297	99.00
	Sugarcane top	290	96.67
Dry fodder availability (multi-choice)	Paddy straw	225	75.00
	Paddy straw +Jowar straw	075	25.00
	Any other, Specify	168	56.00

Existing feeding and breeding management practices

Types of concentrate feeding	Home made	010	03.33
	Homemade + compounded cattle feed	204	68.00
	Compounded cattle feed	086	28.67
Feeding criteria followed	Milk production	188	62.67
	Flat rate	112	37.33
Green and dry fodder fed	As such	285	95.00
	Chaffed	015	05.00
Time of feeding concentrate	During milking	097	32.33
	After milking	173	57.67
	Before milking	030	10.00
Concentrate feeding to young calves	Yes	143	47.67
	No	157	52.33
Concentrate feeding to heifers	Yes	216	72.00
	No	084	28.00
Pretreatment of concentrate	Dry	105	35.00
	After soaking	195	65.00
Feeding of concentrate to advanced pregnant heifers	No special feeding	072	24.00
	For last 15 days	006	02.00
	For last one month	092	30.67
	For last two months	130	43.33
Special feeding after calving	Yes	218	72.67
	No	082	27.33
Feeding of mineral mixture	Yes	175	58.33
	No	125	41.67
Feeding of salt	Yes	034	11.33
	No	266	88.67
Frequency of Watering	2 times	112	37.33
	3 times	138	46.00
	4 times	050	16.67
Source of water	Bore well	130	43.33
	Hand Pump	170	56.67

Table 2. Distribution of the dairy animal owners according to breeding practices followed

Variable	Category	Frequency	Percent
Methods of heat detection	By Symptoms	300	100.00
Symptoms of heat detection	Mucus discharge	015	05.00
	Bellowing	031	10.33
	Mucus Discharge + Bellowing	254	84.67
Breeding of female animals	Artificial insemination	269	89.67
	Natural service	031	10.33
Insemination or mating of female after heat detection	Immediately after heat	013	04.33
	Within 12-18 hrs	287	95.67

Breeding after calving	2-3 months	121	40.33
	3-5 months	104	34.67
	After 5 months	075	25.00
Pregnancy diagnosis	No	032	10.67
	Yes	268	89.33
	(i) Own judgments	037	12.33
	(ii) Qualified veterinarian	052	17.33
	(iii) L.I. or A.I. worker	179	59.67
Treatment of anoestrus/repeaters	Yes	162	54.00
	No	138	46.00
Kept breeding records	Yes	023	07.67
	No	277	92.33

CONCLUSION

It can be concluded that feeding and breeding management practices adopted by the respondents in the study area is quite satisfactory and needs improvement in some of the recommended practices to the respondents through organize training programmes, demonstrations, kisan ghosthi and exposure visits by various government organizations and NGOs.

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