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The feeding practices followed by the dairy buffaloes owners buffalo in central plain zone of Uttar Pradesh

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Abstract

The present investigation was carried out to study the feeding management practices in Kanpur Dehat. While observing feeding practices followed by the respondents, it was noted that the chopping of green fodder as a daily routine was practiced by only 83.33 per cent of the farmers. However, 16.67 per cent farmers chopped green fodder sometime. Excess green fodder in the form of hay and silage was not at all practiced in the study area. Chopping of dry fodder as a daily routine was practiced by only 100 per cent of farmers. Mixing of dry fodder with green fodder was adopted by only 60 per cent farmers. Some dairy farmers (30%) also practiced treatment of dry fodder by physical treatment (Sani preparation). The maximum number of farmers (18.33%) practiced pretreatment of concentrate (soaking, grinding and boiling) mixture and offered the same to the animals once in a day. A few respondents practiced supplementation of feed with mineral mixtures. Availability of clean and fresh drinking water to the animals was not ensured and they were dependent only on village pond and community water trough as a source of drinking water. Animals were fed in shed and also sent for grazing to the field surrounding the village and community pasture daily for 1-3 hours.

Keywords: Buffaloes, feeding practices, fodder, management

1. Introduction

India has the highest livestock population in the world, which emerged as a largest milk producing country with an annual milk production of 195 million tons. Uttar Pradesh is one of the major contributors of higher milk production of the country. Annual milk production of Uttar Pradesh is about 30.5 million tones which contributes 18% of total milk production of country. Although state has rich in milch animal's population with first rank in the country, but milch animal production is mainly contributed by a large population rather than higher productivity per animals. This is mainly due to unbalanced feeding practices.

Under typical Indian conditions, under-feeding and non-availability of balanced diet and deficiency of specific nutrients are very common in the case of milch animals. Pantgne *et al.* (2002) [9] reported that farmers, in general do not feed their animals with required amount of nutrients. Further, the availability of nutrients depends on feeds and fodder consumed by animals which is again affected by season, cropping pattern, land holding capacity of farmers etc. (Patel *et al.*, 2007) [10]. Overfeeding during dry period is more common than underfeeding because in many situations dry buffaloes are group fed with lactating buffaloes. Fat cows are more susceptible to calving difficulties, metabolic disorders and infectious diseases (Ferguson, 2001) [4] Low productivity of milch animals in Tarai belt of of eastern UP was observed merely due to deficiency of nutrients in the feed and fodder existing in the area (Sagar *et al.*, 2013) [11]. It may be because of very low productivity and poor breeds of buffaloes. The present investigation was, therefore, carried out to assess the existing feeding pattern, from different feed resources in Kanpur Dehat and Kanpur Nagar district of central Plain Zone of Uttar Pradesh of Utter Pradesh.

2. Materials and Methods

2.1 Area of the study

The present study was undertaken in Kanpur Dehat of central plain zone of U.P. The boundary of the district touches Kanpur nagar, kannauj, Auraiya, Jalaun, Hameerpur districts.

2.2 Study area

Central Plain zone of Uttar Pradesh is consists of 14 districts covering 189.28 lakh livestock population out of which 89.18 buffaloes (47%). Out of fourteen district of central plain zone, one district *viz;* Kanpur Dehat will be randomly selected for study. Kanpur Dehat is consists of six Tehshil *viz;* Akbarpur, Bhognipur, Derapur, Rashulabad, Sikandra and Maitha; Ten blocks i.e. Rashulabad, Maitha, Jhijhak,

Derapur, Sandalpur, Akbarpur, Sarvan Khera, Rajpur, Amraudha, & Malasha with 640 revenue villages. One block Maitha from Kanpur dehat was selected randomly. four villages from maitha block was randomly selected covering 60 farmer samples.

2.3 Selection of respondents
Sample of sixty dairy farmers formed the group of respondents. From each village fifteen respondents were selected falling under three categories *viz*. having 1-3 buffaloes, 4-6 buffaloes and more than 7 buffaloes.

2.4 Tools for the study
Data were collected through personal contacts and interviews, which have been considered to be the most important tool through which the researcher could get most authentic first hand information. The interview schedule was prepared keeping in view the objectives of the study and common for all the respondents.
The interview schedule was prepared in such a way that the required information regarding the farmer and the information to arrive at the feeding pratices of the dairy animals was obtained through various questions put across to the farmers.

2.5 Collection of data
Data as regards to various aspects of the study were collected by personal interviews from 60 respondents of four villages of Kanpur Dehat district.
A detailed questionnaire was filled up from the responses of the farmers regarding their knowledge of the recommended feeding practice and to what extent it was being actually adopted by them.

2.6 Analysis of data and statistical tests applied
The study being of an exploratory nature, it was desirable to collect data fairly exhaustively. Data pertaining directly to buffaloes feeding practices rather than to the peripheral issues were analysed. Basic statistical tools like frequency distribution, percentage, mean, range, standard deviation, z-test and ratio etc., were used to draw the inferences.

$Z=|X- \mu /s/\sqrt{n}$

Where,
X = Sample mean
μ = Population mean
S = Standard deviation of sample
n = Sample size

3. Result and Discussion
Feeding practices
1. Chopping of green fodder
It is inferred from data presented in Table 1. that the chopping of green fodder as a daily routine was practiced by only 83.33 per cent of the farmers. However, 16.67 percent farmers chopped the green fodder sometimes.

Table 1: Distribution of respondents practicing chopping of green fodder

S. No.	Chopping	Frequency	Percent
1.	Always	50	83.33
2.	Sometimes	10	16.67
3.	Never	0	0.00
	Total	60	100

A large majority of farmers (83.33 per cent) practiced chopping of green fodder always before feeding to animals. These results are well supported by the findings of Kundu and Basu (1985) [7], Dhiman *et al.* (1990) [3] and Malik and Nagpaul (1998) [8].

2. Conservation and preservation of fodder
Conservation and preservation of excess green fodder in the form of hay and silage is not at all practiced in the study area.
Excess green fodder is never preserved either in hay or silage form which was also observed by Handa and Gill in the study conducted in the year 1989 [5] in Ludhiana district.

3. Chopping of dry fodder
Data presented in Table 2. indicate that chopping of dry fodder as a daily routine is being practiced by only 100 per cent of the farmers. However, 0 per cent of the farmers chopped dry fodder sometimes. As reported, only 0 per cent of the farmers never chopped dry fodder before feeding.

Table 2: Distribution of respondents practicing chopping of dry fodder

S. No.	Chopping	Frequency	Percent
1.	Always	60	100
2.	Sometimes	0	0
3.	Never	0	0
	Total	60	100

A majority of farmers (100%) practiced chopping of dry fodder before feeding to animals. The results are well supported by the findings of Kundu and Basu (1985) [7], Dhiman *et al.* (1990) [3] and Malik and Nagpaul (1998) [8].

4. Mixing of dry and green fodder
A perusal of data Table 3. reveals that only 60 per cent buffalo's owners mixed green fodder with dry fodder before feeding to the animals. However, 40 percent buffaloes owners fed dry fodder to their animals without mixing it with green fodder.
The ratio of mixing green fodder with dry fodder ranged from 1: 2 to 1: 3.

Table 3: Distribution of farmers practicing mixing of dry fodder with green fodder

S. No.	Practiced followed	frequency	Percent
1.	Mixing dry fodder with green fodder	36	60
2.	No mixing	24	40
	Total	60	100

Mixing of dry fodder with green fodder is practiced (60%) by a vast majority of farmers. Similar remarks were also made in a study (Anonymous, 1999) [2].

5. Treatment of dry fodder

Data presented in Table 4. depict that only 30 per cent of the buffaloes owners practiced enrichment of dry fodder with physical treatment. No chemical treatment or biological treatment was practiced by the animal owners. However, 70 per cent of the buffalo's owners did not practice any treatment for enrichment of dry fodder.

Table 4: Frequency of respondents practicing any treatment of the dry fodder before feeding

S. No.	Practice	frequency	percent
1.	Preparationof sani	18	30
2.	No treatment	42	70
	Total	60	100

The maximum buffalo's owners (70%) did not practice any treatment *viz*., chemical or biological for enrichment of dry fodder. Some farmers (30%) practiced preparation of Sani as a physical treatment. The results are well supported by the findings of Sharma (1993) [12].

6. Pre-treatment of concentrate mixture

Data given in Table 5. show that the buffalos owners invariably pretreated the concentrate mixture in one or the other form. However, only grinding was not practiced as a pretreatment of concentrate mixture by any of the farmers. Whereas 15.00 per cent of the buffalo's owners practiced only soaking as a pretreatment of the concentrate mixture. Largely 81.67 percent owners practiced grinding, soaking and boiling as a pretreatment of the concentrate mixture and a less number of respondents (3.33%) practiced grinding only boiling.

Table 5: Frequency of respondents practicing Pre-treatment of concentrate mixture

S. No.	Pre-treatment	frequency	percent
1.	Only grinding	0	0.00
2.	Only boiling	2	3.33
3.	Grinding and soaking	9	15.00
4.	All of the above	49	81.67
	Total	60	100.00

A majority of the buffaloes owners (18.33%) practiced pretreatment of concentrate mixture in one or/the other form like grinding, soaking and boiling prior to feeding it to the animals.

7. Feeding Practices

It is noted from Table 6. that the farmers of various villages fed different types of green fodder, dry fodder and concentrate to the animals. The farmers fed lucerne, berseem, sorghum and bajra, green grass, mainly as green fodder to the animals. Amongst dry fodders fed to the animals of this village, the main fodders were wheat straw, dry grasses, maize kadabi and sorghum kadabi. In concentrates category, the main feed ingredients were cotton seed cake, cotton seed, crushed barley, wheat bran, In addition, the farmers were also in the practice of feeding compounded concentrate mixtures (Kapila Pashu Aahar) to the animals which were locally available in the market.

Table 6: Different type of green fodder, dry fodder and concentrate ingredients being fed to dairy animals

S. No.	Name of village	Feeding practices		
		Green	Dry	Concentrate
1.	Aurangabad	Lucerne, berseem, sorghum, bajra, green grass	Wheat straw, paddy straw, kadabi	Wheat bran, crushed barley, mustard cake, compounded concentrate mixture, grampea, pigeon pea mixture.
2.	Fattepur	Lucerne, berseem, sorghum, bajra, green grass	Wheat straw, Paddy straw, kadabi	Wheat bran, crushed barley, mustard cake, compounded concentrate mixture, gram pea, pigeon pea mixture.
3.	Malikpur	Lucerne, berseem, sorghum, bajra, green grass	Wheat straw, Paddy straw, kadabi	Wheat bran, crushed barley, mustard cake, compounded concentrate mixture, grampea, pigeon pea mixture.
4.	Sahtavanpurwa	Lucerne, barseem, sorghum, bajra, green grass	Wheat straw, Paddy straw, kadabi	Wheat bran, crushed barley, mustard cake compounded concentrate mixture, grampea, pigeon pea mixture.

8. Feed supplements

Ration fed to dairy animals was supplemented with mineral mixture by only 66.67 per cent of the respondents and whatever mineral mixture being given by a section of buffalo's owners was largely given to the milch animals.

Table 7: Frequency distribution of respondents supplementing concentrates with mineral mixture

S.No.	Category of animals	Respondents supplementing concentrates with mineral mixture				Total	
		Supplementing		No supplementing			
		No.	%	No.	%	No.	%
1.	Milch	40	66.67	20	33.33	60	100
2.	Dry	0	0	0	0	0	0
3.	Adv. pregnant	0	0	0	0	0	0

In some cases, (66.67%) mineral mixture is given to milch animals as a feed supplement by mixing it with the concentrate mixture. In no case mineral block and vitamin supplements were given to the animals. Whereas, Heinriche *et al.* (1987) [6] reported the use of vitamin supplement by his study subjects.

9. Water

It is seen from data (Table 8.) that only 33.34 per cent of the buffalos' owners made provision of drinking water in the

shed where the animals are housed.
Further, water provided daily in the shed was fetched from the village pond or hand pumps.
None of the respondents specified the quantity of water offered to different categories of dairy animals.

Table 8: Distribution of respondent providing water in the shed itself

S. No.	Water management practice	Frequency	Percent
1.	Providing water in the shed	20	33.34
2.	Not providing water in the shed	40	66.66
	Total	60	100.00

Reviews of earlier work do not provide any data pertaining to the availability of drinking water to dairy animals. The observations in the present study showed that usually water was not provided to the dairy animals in the shed itself. But some dairy farmers (66.66%) provided water in the shed. No systematic attempt was made to offer clean and fresh drinking water to the animals. However, animals drink water from the village pond, community water troughs and tube well whenever they are out for grazing.

10. Feeding system

The results showed that the animals were fed in the stall (46.67%) or wherever they were kept as well as sent for grazing for 1 to 3 hours per day in and around the village. The observations are in accordance with the findings Agarwal and Sharma (1986) [12] who also reported the average time of 7.8 hours for cattle and 7.3 hours' buffaloes for grazing in their study conducted in Karnal district.
The practice of feeding in manger was adopted by 96.67 per cent of livestock owners and 3.33 per cent did not practice feeding in manger. A common manger for all animals was constructed by using wood and stone slabs in the study area.

11. Watering Frequency

As regards the frequency of watering, the buffaloes owners replied that they did not followed a fixed routine of offering water to the animals (Table 9). However, animals used to drink water from the village pond or community water trough whenever they felt thirsty while they were out for grazing. But the general opinion of the respondents in this regard indicate that during winters animals used to drink water 2 times a day whereas in summer the frequency of drinking water increased to 3 to 4 times a day.

Table 9: Frequency of watering to dairy animals

S. No.	Frequency of watering	Frequency	Per cent
1.	Once in 24 hr	10	16.67
2.	Twice in 24 hr	40	66.67
3.	Three time in 24 hr	10	16.66
	Total	60	100

12. Feeding method

In the study areas, the animals were fed in the stall as well they were sent for grazing to pastures and other places.
Complete stall feeding was reported by only by 46.47 per cent buffaloes owners in the study area. Likewise complete pasture grazing was not reported and 53.33 per cent cattle and buffaloes adopted stall feeding plus grazing as the system of feeding (Table 10.).
Animals were sent for grazing to the hills surrounding the village, personal pasture and community pastures by almost all the buffaloes owners.

Table 9: Frequency of feeding system

S. No.	Feeding system	Frequency	Per cent
1.	Complete stall feeding	28	46.67
2.	Complete pasture grazing	0	0
3.	Stall feeding + pasture grazing	32	53.33
	Total	60	100

13. Grazing Time

It is inferred from data presented in Table 10. that the majority of buffaloes owners (36.67%) sent their animals for 1 to 3 hours daily for grazing while 10 per cent sent for 4-6 hrs and 53.33 per cent did not sent their animals for grazing at all.

Table 10: Average duration (hrs/day) for which animals were sent for grazing

S. No.	Duration	Frequency	Per cent
1.	1-3 hrs	22	36.67
2.	4-6 hrs	6	10.00
3.	7-9 hrs	0	0 .00
4.	No grazing	32	53.33
	Total	60	100

14. Feeding Practices

Table 11: Distribution of respondents offering feeds and fodder in manger

S. No.	Provision of manger	Frequency	Per cent
1.	Feeding in manger	58	96.67
2.	Not feeding in manger	02	3.33
	Total	60	100

The practice of providing manger in the shed was adopted by 96.67 per cent of livestock owners and 3.33 per cent of the livestock owner did not provided manger in the buffaloes sheds
In the study area, the practice of providing common manger constructed by using wood and stone slabs for all animals was followed. the respondents reported the construction of cement concrete manger. Those who did not have any manger fed their dairy animals in bamboo baskets or tagari's. In some cases, they also offered feed on the floor itself.

4. Conclusion

From the present study, it may be concluded that the buffaloes owners of various villages of Kanpur Dehat district did not follow scientific feeding practices as evident from the nutritional status of various categories of buffaloes. No special care in feeding the animals with regard to the physiological state (like pregnancy & milk production) was considered. The level of DCP intake by different categories of buffaloes was noted below the prescribed nutritional standards. The remedial measures suggested to overcome the constraints will go a long way in improving the nutritional status of buffaloes of the study area.

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