



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2018; 6(2): 3124-3128

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Received: 10-01-2018

Accepted: 11-02-2018

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Housing and feeding practices of buffaloes in Katni district of Madhya Pradesh

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Abstract

A survey study was conducted to see the housing and feeding practices of buffaloes in Katni district of Madhya Pradesh. The survey data obtained revealed that buffaloes in Katni district were mostly reared in a single row (93.40%) kachcha house (62.60) with fairly ventilated (51.60%) house. The surveyed farmers of the district were not following any scientific practices of feeding and they do not have any knowledge of feeding standard and nutrient recommendations of any agency. The milk yield (88.0%) of the buffaloes was the main basis of feeding concentrate to them. The buffaloes generally thriving on the grazing land and only limited numbers of medium and large farmers were providing concentrate to them. Wheat straw and paddy straw were the main dry roughage used for feeding of animals. Most of the respondents were occasionally providing common salt and rarely mineral mixture to their animals. Concentrate was mostly given to medium and high yielders, while poor yielders, pregnant, heifers and calves were if fed concentrate, it was in very less quantities.

Keywords: Buffaloes, housing practices, feeding practices, concentrate, survey

1. Introduction

Livestock play an important role in strengthening the Indian economy. India's livestock sector is one of the largest in the world. It has 56.7% of world's buffaloes, 12.5% cattle and 20.4% small ruminants. As per ^[1] there has been an overall decline of 3.33% in the total livestock population in the country. Madhya Pradesh has a very large cattle population. It contributes 37.28% cattle and 21.23 % buffalo population with a total of 36.33 millions livestock in national livestock population. The district Katni contributes 535039 in total state live stock population out of which 355204 cattle and 80631 buffalo population ^[2].

In spite of highest milk producers in the world, the productivity of our milch animals is very low. According to ^[3] the main constraint to livestock development in developing countries is the scarcity and fluctuation in the quality and quantity of animal feed. The crop residues and agro-industrial by products forms the bulk of the ration supply to the animals resulting in less availability of nutrients to the lactating animals. The crop residues and local grasses are deficient in protein and certain minerals.

The inadequate supply of quality feed and improper feeding management limits the availability of important nutrients to the animal during critical periods of their production cycle. In India, ruminants depend on straw for their maintenance. The production requirement was most often met from protein supplements like groundnut cake, mustard cake or cottonseed cake ^[7] and very seldom from compounded concentrate mixture ^[8] which affects the farm economics. The research evidence indicates that animal owners are not accustomed to follow scientific housing, breeding, feeding and management practices due to which overall productivity of animals goes down.

2. Material and Methods

2.1 Location and Climate

Katni is situated at 23.83⁰ latitude and 80.40⁰ longitudes at 392 MSL in the southern part of second agro-climate zone, including Kymore plateau and Satpura hills of Madhya Pradesh. The climate of the district resembles to that of tropical regions with hot summer and cold winters. The temperature goes up to 48 °C during summer while it falls to 4 °C in winter. The district receives average 1050 mm average rainfall in a year.

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2.2 Selection of farmers

Multistage stratified random sampling procedure was used for the selection of villages. The five blocks of Katni district namely Mudawara, Rithi, Bahuriband, Dhimarkheda and Vijayraghavgarh were selected purposively for the survey study. A total of 500 cattle and buffaloes rears were selected from the district (100 from each block).

2.3 Data collection

A questionnaire was prepared keeping in mind the objectives and various dimensions of study. The data were collected from the individual buffalo owner through personal interview regarding the type of animal house (Kacha/pakka/semi pakka), manger size, ventilation, drainage, housing system followed (single line/double line) etc. in animal houses. The data were also collected regarding animal rearing systems (free range/semistall fed/stallfed), feeding practices followed example grazing hours per day, stall feeding per day, type and quantity of green fodders used, dry fodders, concentrates fed, awareness among farmers regarding feeding standards, mineral mixture and common salt etc. were also studied while conducting interview of farmers.

3. Results and Discussion

3.1 Housing practices

The data on housing practices adopted by the dairy farmers in the study area has been presented in table 1. The results revealed that in the district animal rears mainly practiced to house their animals in a single row (93.40%) only few rears (6.60%) were housed their animals in double row housing system. The animal houses in the area were mostly kachha type (62.60%) followed by semipukka (26.8%) and Pukka houses were minimum (10.6%). In the Katni district, 63.6% animals assess their feed in adequate sized manger whereas, 36.4% were assessed feed in inadequate size mangers. In the district animal houses were found mostly fair (51.6%) ventilated followed by good (24%) and poor (24.4%) ventilation.^[9] Recorded better ventilation in animal houses of rural areas than urban. The drainage system in animal houses was noticed very poor. It was observed that more than 51% farmers were not having manure pit and they were disposing the animal dung on open ground. Size and height of the houses were not optimum in most of the surveyed areas.

Table 1: Housing practices adopted by surveyed respondent of different blocks of Katni district (%)

Traits	Category	Mudwara	Rithi	Bahuriband	Dhimarkheda	Vijayraghawgarh	District
1. Type of housing							
a.	Single line	91.00	95.00	92.00	96.00	93.00	93.4.0
b.	Double line	09.00	05.00	08.00	04.00	07.00	06.60
2. Type of house							
a.	Pukka	19.00	09.00	07.00	08.00	10.00	10.60
b.	Kachha	49.00	67.00	62.00	73.00	62.00	62.60
c.	Semipukka	32.00	24.00	31.00	19.00	28.00	26.80
3. Size of manger							
a.	Adequate	62.00	67.00	58.00	68.00	63.00	63.60
b.	Inadequate	38.00	33.00	42.00	32.00	37.00	36.40
4. Ventilation in house							
a.	Good	24.00	26.00	27.00	20.00	23.00	24.00
b.	Fair	48.00	51.00	53.00	55.00	51.00	51.60
c.	Poor	28.00	23.00	20.00	25.00	26.00	24.40
5. Proper drainage							
		48.00	36.00	42.00	32.00	38.00	39.20

3.2 Feeding practices adopted

The water was provided separately in almost all areas surveyed. The feeding practices followed in the surveyed area of Katni district has been given in Table 2 & 3. The data revealed that surveyed farmers of the district were not following any scientific practices and they do not have any knowledge of feeding standard and nutrient recommendations of any agency. The milk yield (88.0 %) of the buffaloes was the main basis of feeding concentrate to them while availability of the feed ingredients and stage of pregnancy was the other two criterias for feeding concentrate. Similar observation was reported by^[10] in their areas of study.

The data indicated that preparation of balance concentrate mixture was not the common practice among the respondents of the surveyed area. Only few (2.20%) progressive respondents of the peri-urban areas were preparing balance concentrate mixture for feeding their buffaloes. The individual concentrate ingredients (97.20%) as such or in crushed condition were used for feeding, which led to imbalanced supply of nutrients and finally resulted in to deficiency of certain nutrients in buffaloes. Among the various methods of feed processing, soaking of feed ingredients was most popularly adopted by the farmers (72.6%)^[11]. also reported that majority of the rural farmers do not provide balanced ration to their animals in the

Rajnandgaon city of Chattisgarh. The higher cost of concentrate mixture was one of the important reasons for not giving it to livestock in the district. Similar findings were reported by^[11, 12] in similar agro-climatic conditions.

From the survey data it was observed that most of the respondents were in practice of feeding to their animals during the milking (70%) morning and evening in the Katni district. This kind of practice was adopted probably for easy handling of animals during milking to get maximum milk and secondly this was the time when buffaloes were available in confined areas at home. The animals were allowed to graze (82.40%) for 6-8 hours in a day along with twice stall feeding. Similar practice was reported by^[13] in Junagadh district of Gujarat. However,^[14] reported that in Kolkata, West Bengal most of the animals were kept loose for grazing only^[15]. Reported stall feeding in buffaloes but cattle were kept on both grazing and stall feeding.

The green fodder mostly local grasses, sorghum chari, maize and berseem was in practice for feeding either in unchopped or chopped condition both but percentage of feeding unchopped (65.20%) was dominated over chopped (34.80%) feeding^[15, 16]. found that chaffing of green fodder was uncommon and concentrate was provided to only productive animals. Among surveyed areas of the district, wheat straw (65%) was the first choice as dry fodder followed by paddy

straw (25%), pulses straw and others (10%) which was the last choice in Katni district. The availability and keeping quality of wheat straw probably made it as a first choice of roughage for feeding livestock in the district [17]. Also found rice, wheat, pulses and oil seeds residues and byproduct fed to the livestock. It was noticed that local grasses served as main green fodder for dairy animals similar condition was also reported by [17].

In the district 68% surveyed farmers were occasionally

providing common salt to their animals. However, 23.6% farmers were not giving common salt to their animals. Very few farmers were practicing to daily feeding of common salt which was only 8.4%. The feeding of mineral mixture in the animal ration was very seldom 6.0% in the district [18, 20], also reported that feeding of mineral mixture was not practiced and common salt was occasionally fed even to high milk producing animals like crossbred cows and buffaloes in their respective areas of study.

Table 2: Feeding practices adopted by surveyed respondents of different blocks of Katni district (%)

Traits	category	Mudwara	Rithi	Bahuriband	Dhimarkheda	Vijayraghawgarh	District
1. Feeding recommendation/Standard fallowed		00.00	00.00	00.00	00.00	00.00	00.00
2. Ground on which concentrates fed							
a.	On milk yield	91.00	86.00	90.00	88.00	85.00	88.00
b.	On body weight	03.00	04.00	02.00	03.00	04.00	03.20
c.	On both	06.00	10.00	08.00	09.00	11.00	08.80
3. Method of feeding concentrate.							
a.	Feeding as balance concentrate mixture	11.00	00.00	00.00	00.00	00.00	02.20
b.	Feeding ingredients individually	89.00	100.00	100.00	100.00	100.00	97.20
c.	Soaking before feeding	83.00	69.00	76.00	62.00	73.00	72.60
d.	Feeding without soaking	17.00	31.00	24.00	38.00	27.00	27.40
e.	Feeding with roughage	89.00	96.00	95.00	97.00	96.00	94.40
f.	Feeding Separately	11.00	04.00	05.00	03.00	04.00	05.60
4. No. of feeding times							
a.	Once	12.00	15.00	17.00	31.00	19.00	18.80
b.	Twice	74.00	76.00	71.00	63.00	74.00	71.60
c.	Thrice or more	14.00	09.00	12.00	06.00	07.00	09.60

Table 3: Feeding practices adopted by surveyed respondents of different blocks of Katni district (%)

Traits	category	Mudwara	Rithi	Bahuriband	Dhimarkheda	Vijayraghawgarh	District
1. Feeding green fodder							
a.	After Chopping	42.00	33.00	36.00	28.00	35.00	34.80
b.	Given as such	58.00	67.00	64.00	72.00	65.00	65.20
2. Feeding concentrate round year							
		31.00	16.00	18.00	11.00	15.00	18.20
3. Feeding at the time of milking							
		78.00	66.00	75.00	61.00	70.00	70.00
4. Dry fodder mostly fed							
a.	Paddy straw	23.00	23.00	28.00	24.00	27.00	25.00
b.	Wheat straw	70.00	67.00	61.00	63.00	64.00	65.00
c.	Other	07.00	10.00	11.00	13.00	09.00	10.00
5. Grazing practices followed							
		68.00	82.00	86.00	89.00	87.00	82.40
6. Supplementation of common salt							
a.	Daily	11.00	07.00	09.00	07.00	08.00	08.40
b.	Occasional	71.00	70.00	68.00	66.00	65.00	68.00
c.	Not supplementing	18.00	23.00	23.00	27.00	27.00	23.60
7. Supplementation of mineral mixture							
		16.00	04.00	05.00	02.00	03.00	06.00

3.3 Concentrate feeding preferances

The feeding of concentrate to different categories of buffaloes has been presented in table 4. The concentrate feeding was most common among buffaloes of fair to high yielders although the quantity what they feeding were unsatisfactory. The data of district average indicated that only 13.2% respondents were fed concentrate to those buffaloes yielded less than 2.5 liter milk per day. The rest of the buffaloes of this category were solely depending on straws and pasture grasses. However, 78.6% respondents were providing concentrate along with roughage to their buffaloes yielded more than 2.5 liters milk per day. The concentrate feeding practices in early pregnancy was very uncommon among the respondent whereas concentrate feeding to advance pregnant buffaloes was practiced by 32.2% of surveyed respondents. However, it was 6.8% and 9.0% for heifers and calves, respectively. The dry and early pregnant buffaloes of all categories were not offered concentrate. They were solely depending on straws and pasture grasses.

The crop residues and agro-industrial by-products were the main component of the animal ration in the Katni district which was deficient in certain nutrients resulting in deficiencies in lactating buffaloes [6, 13, 21], also noticed that animals were mostly depending on crop residues and agro-industrial by products in their area. Weat bran, rice bran, mustard oilseed cake and rahar chuni, etc. were the main home grown concentrate ingredients easily available for feeding of animals [19]. Found that 83-85% of the farmers fed their buffaloes with home prepared concentrate twice a day during milking in Jhajjar district of Haryana. While, Mudgal *et al.* (2003) studied that in Indore district of M.P. farmers were not feeding balanced diet to their animals.

The concentrates were mostly fed to lactating buffaloes but quantity was insufficient [20]. Also reported inadequate feeding of concentrate to lactating animals in Mirzapur district of Uttar Pradesh. They also reported that there was a lack of awareness among farmers about mineral supplementation. These findings were also supported by [13] in Junagadh and [21]

in Kutch district of Gujarat. In the present study it was observed that the buffaloes were fed concentrate at milking time both in the morning and evening in addition to green and dry fodders. Similar to our findings [22] also noticed in Junagadh, Amreli, Bhavnagar districts and Saurashtra for feeding the Jaffarabadi buffaloes.

In most of the study areas, poor yielders, pregnant, heifer and growing animals were either not provided or provided with very small quantity of concentrate mixture, except few rich and progressive livestock owners who were feeding concentrate mixture to their pregnant and growing animals as well. Generally, most of the respondents were mostly using locally available pasture grasses and weeds for feeding their

livestock. Similar observation was recorded by [21] in a survey of Kutch district.

The buffaloes in the Katni district generally thrive on grazing and only a limited number of medium and large farmers were providing concentrate to their lactating and advance pregnant buffaloes [10, 21, 23], also noticed similar condition. The crop residues and agro-industrial byproducts forms main part of animals ration [4, 24], also noticed that crop residues and agro-industrial byproducts contribute major share in animal ration in their area of study. Wheat straw and paddy straw were the main roughage fed to the buffaloes in Katani district [20, 23-25], found similar observations in animal diet.

Table 4: Preference of feeding concentrate to different categories of animals in Katni district (%)

Traits	Category	Mudwara	Rithi	Bahuriband	Dhimarkheda	Vijayraghawgarh	District
1. Milch animal							
a	Poor yielder (<2.5 L/day)	16.00	11.00	15.00	10.00	14.00	13.20
b	Fair to high yielder (2.5 < L/day)	88.00	74.00	82.00	70.00	79.00	78.60
2. Advance Pregnant animal							
		53.00	25.00	36.00	20.00	27.00	32.20
3. Heifer							
		16.00	04.00	07.00	02.00	05.00	06.80
4. Calf							
		10.00	07.00	15.00	04.00	09.00	09.00

4. Conclusion

The animals in Katni district were mostly housed in single row fair to good ventilated house but the drainage system in animal houses was improper and even not practicing to dispose dung and animal house waste in manure pits.

Buffaloes generally thriving on the grazing land and only limited numbers of medium and large farmers were providing concentrate to them. Wheat straw and paddy straw were the main dry roughage used for feeding of animals. None of the respondents were aware about feeding standards and nutrient recommendations. Most of the respondents were occasionally providing common salt and rarely mineral mixture to their animals. Concentrate was mostly given to medium and high yielders, while poor yielders, pregnant, heifers and calves were if fed concentrate.

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