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## Adoption of feeding practices followed by Kathani cattle owners of Sakoli Tahsil of Bhandara District

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### Abstract

Kathani was lesser-known cattle breed in eastern part of Vidarbha of Maharashtra. The present investigation was carried out on "Adoption of feeding and management practices followed by Kathani cattle owners in Sakoli Tahsil of Bhandara district". Information is collected from 200 farmers which are classified based on their land holdings. Majority of the Kathani cattle owners (44.50%) were having Marginal land holding. Majority of the respondent (40.50%) owned 2 to 5 animals. Population of male Kathani cattle was more (50.73%) among the cattle owners followed by female (49.27%) cattle. Majority of cattle owners (80.50%) followed grazing + stall feeding practice. In economic studies it is seen that, from the total cost of rearing about 72.52 percent of cost is on feeding practices and 27.48 percent on management practices. Average annual production of dairy cattle is Rs. 44,525 from which 56.20 percent from milk production, 30.32 percent from draft value of male and 6.73% from each manure production and young calf. After calculating the profitability estimate, total cost of rearing is Rs. 32,054, Gross Monetary Return (GMR) is Rs. 44,525, Net Monetary Return (NMR) is Rs. 12,471 and B:C ratio is 1.38:1. From the above results it is seen that, the milk production of Kathani cattle is less and it is concluded that Kathani cattle is the major draught purpose breed of Vidarbha region of Maharashtra.

**Keywords:** Kathani, feeding practices, production performance, management practices

### Introduction

India has rich and diverse genetic resources with some best cattle breeds of dairy, draught and dual-purpose. Despite the large number of good breeds of cattle, more than 80% of cattle population belongs to the non-descript category. About 20-25% of total livestock population in our country can be classified as descript and recognized breeds. Presently lesser known Kathani cattle breed in eastern part of Vidarbha region of Maharashtra state is documented in old gazetteer of Bhandara districts as Telangpatti. This breed was not included in the list of recognized cattle breeds of the country but considering their importance to tribal rice growing farmers recently NBAGR register Kathani cattle.

In India livestock rearing is traditional and based on socio-economic condition of farmers due to low availability of quality feeds with poor feeding practices. The productivity of animal has direct impact with planes of nutrient supplied through the feed. The important sources of fodder are forage crops, forest, open grazing grounds, fallow lands, weeds and crop residues. However, the digestibility of dry fodder and crude fiber is significantly higher in Kathani cattle which results in efficient utilization of low-grade roughages than cattle. In India, farmers don't have adequate knowledge about nutritional requirement of an animal and cannot supplement or enrich a feed, if found deficient in particular nutrient. The analysis of feed stuff gives important information about the quality of feed in respect of nutritional value of different purpose. Whatever be the inherent qualities all the animals are not to express these qualities in actual production unless they are properly fed their ration furnishes all the required nutrients in such proportion and amount as well as provide balanced nourishment to the animal. Research work on feeding and management, constraints, recommended practices of Kathani cattle are the needs of today for better understanding so as to get the valuable information on these aspects.

## Materials and Methods

The Sakoli tahsil comprises of 96 villages, out of which 10 villages namely Virsee, Sitepar, Ukara, Mokhe, Kinhi, Lavari, Satalwada, Borgaon, Pindkepar and Pathri were randomly selected. From each village, 20 cattle owners were selected thus, in all 200 dairy farmers were selected for the study. The data in respect of enumeration of breed, existing feeding and management practices and production performance of Kathani cattle were collected by personal interview with well-designed and pretested schedule.

## Results and Discussion

The results of the data collected to facilitate the understanding of the feeding and management practices, followed by Kathani cattle owners are discussed in detail under the following heads:

1. Classification of farmers on the basis of size of land holding

**Table 1:** Classification of farmers according to size of land holding

Sr. No.	Village	Landless labour (No land)	Marginal farmer (up to 1ha)	Small farmer (1 to 2 ha)	Medium farmer (2 to 8 ha)	Large farmer (above 8 ha)	Total
1	Virsee	2	8	9	2	1	20
2	Sitepar	1	9	8	1	0	20
3	Ukara	0	9	7	2	1	20
4	Mokhe	1	10	8	1	0	20
5	Kinhi	0	9	7	3	3	20
6	Lavari	2	11	8	1	1	20
7	Satalwada	0	8	8	2	0	20
8	Borgaon	1	8	7	1	2	20
9	Pindkepar	0	10	8	0	1	20
10	Pathri	1	7	6	4	1	20
Total		8	89	76	17	10	200
Percent (%)		4.00	44.50	38.00	8.50	5.00	100

## 2. Classification of farmers according to size of herd

The farmers were further categorized into 4 groups according to number of animals kept by them. The present classification is in accordance with the classification made by Shinde *et al.* (2018)<sup>[8]</sup>. It is observed from Table 2 that, 40.50% of total (200) farmers possessed the herd size of 2-5 animals, followed by 35.50% farmers have the herd size of up to 2

2. Classification of animal population on the basis of herd size
3. Feeding practices adopted by Kathani cattle farmers

## 1. Classification of farmers on the basis of size of land holding

The dairy farmers were selected on the basis of land holdings i.e., landless (0 ha), marginal (up to 1 ha), small (1 to 2 ha), medium (2 to 8 ha) and large (above 8 ha).

It is observed from Table 1 in Sakoli tahsil that, majority of the farmers having marginal land holding (44.50%), followed by small land holding (38%), medium land holding (8.50%), large land holding (5.00%) and landless labour (4.00%) respectively. The present results are in conformity with the observation reported by Sabale *et al.* (2018)<sup>[6]</sup> categorized the farmer as marginal farmers (25.50%) small farmers (33.25%), medium farmers (38.25%) and large farmers (3.00%) while there is no farmers landless labour respectively.

animals and only 19.50% of total farmers holds herd size of 5-10 animals. However, only 4.50% farmers possessed the herd size more than 10 animals, respectively on their farms. These results are according to Shinde *et al.* (2018)<sup>[8]</sup> categorized the herd size of cattle owners as up to 2, 2 to 5, 5 to 10 and more than 10 with majority by 5 to 10 with 65.00 percent cattle

**Table 2:** Distribution of farmers according to size of herd

Sr. No.	Name of village	Up to 2 animals	2 to 5 animals	5 to 10 animals	More than 10 animals	Total
1	Virsee	6	8	5	1	20
2	Sitepar	10	8	2	0	20
3	Ukara	8	8	4	0	20
4	Mokhe	4	10	4	2	20
5	Kinhi	5	6	7	2	20
6	Lavari	7	10	3	0	20
7	Satalwada	8	9	3	0	20
8	Borgaon	11	6	2	1	20
9	Pindkepar	3	8	6	3	20
10	Pathri	9	8	3	0	20
Total		71	81	39	9	200
Percent (%)		(35.50)	(40.50)	(19.50)	(4.50)	(100.00)

## 3. Feeding practices adopted by Kathani cattle farmer

Feed cost is becoming the most important factor in livestock production, increasing self-sufficiency in feed production will be an important factor for livestock management. On this

background it is essential to study the existing feeding practices adopted by the Kathani cattle owners to evaluate the constraint in their practices. The data collected on the existing feeding practices is presented in Table 3.

**Table 3:** Feeding practices adopted by different categories of Kathani cattle farmers

Sr. No.	Feeding practices	Land less labour (N=8)	Marginal farmer (N=89)	Small farmer (N=76)	Medium farmer (N=17)	Large farmer (N=10)	Total (N=200)
1.	<b>System of feeding</b>						
i)	Grazing	-	-	-	-	-	-
ii)	Stall feeding	0 (00.00)	13 (14.60)	20 (26.31)	4 (23.52)	2 (20.00)	39 (19.50)
iii)	Grazing + Stall feeding	8.00 (100.0)	76.00 (85.40)	56 (73.68)	13 (76.47)	8 (80.00)	161 (80.50)
2.	Processing of concentrate before feeding (crushing, soaking etc.)	6 (75.00)	31 (34.83)	51 (67.10)	12 (70.58)	10 (100.0)	110 (55.00)
3.	Enrichment of poor-quality straw by urea	-	-	-	-	-	-
4.	<b>Chaffing of green fodder and dry fodder</b>						
i)	Manually	-	-	-	-	-	-
ii)	Machinery	0 (0.00)	0 (0.00)	0 (0.00)	2 (11.76)	4 (40.00)	6 (3.00)
5.	Feeding of green fodder	6 (75.00)	62 (69.66)	57 (75.00)	7 (41.17)	2 (20.00)	134 (67.00)
6.	Feeding of silage	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (10.00)	1 (00.50)
7.	Feeding of dry matter 2 to 2.5 kg per 100 kg body weight of animal	6 (75.00)	49 (55.05)	44 (57.89)	13 (76.47)	2 (20.00)	114 (57.00)
8.	Feeding of concentrates @ 40 percent of milk production	2 (25.00)	19 (21.34)	15 (19.73)	4 (23.52)	3 (30.00)	43 (21.50)
9.	Additional ration for pregnant animal	7 (87.50)	74 (83.14)	57 (75.00)	15 (88.25)	9 (90.00)	162 (81.00)
10.	Use of mineral mixture	0 (0.00)	7 (7.86)	11 (14.47)	0 (0.00)	4 (40.00)	22 (11.00)
11.	Feeding of unconventional roughages & concentrates during scarcity	4 (50.00)	34 (38.20)	21 (27.63)	5 (29.41)	0 (00.00)	64 (32.00)
12.	<b>Type of concentrates used</b>						
i)	Home made	2 (25.00)	13 (14.60)	14 (18.42)	1 (5.88)	0 (0.00)	30 (15.00)
ii)	Purchased	1 (12.50)	30 (33.70)	22 (27.84)	6 (35.29)	7 (70.00)	66 (33.00)
iii)	Both	5 (62.50)	46 (51.68)	40 (52.63)	10 (58.82)	3 (30.0)	104 (52.00)
13.	<b>Feeding of concentrates mixture</b>						
i)	Separate	8 (100.0)	89 (100.0)	76 (100.0)	17 (100.00)	10 (100.0)	200 (100.0)
ii)	With roughages	-	-	-	-	-	-

(Figures in parent thesis indicate percentage)

### 3.1 System of feeding

It is observed from Table 3 that, majority of Kathani cattle owners followed stall feeding plus grazing (80.50%) in all the categories as the supply of fodder is not adequate. Only stall feeding is adopted in (19.50%) farmers due to unavailability of sufficient fodder for stall feeding and grazing land. None of the farmers reported that they feed their cattle only through grazing system. The observation of Shinde *et al.* (2018) [8] is in accordance with the present results observed by who reported that, cent percent of the farmers adopted grazing + stall feeding type of feeding practices.

### 3.2 Processing of concentrate before feeding (crushing, soaking etc.)

It is observed from Table 3 that, out of 200 dairy owners from each type of land holding, this practice was adopted by large, medium, small, landless and marginal category of farmers with 100.00 percent, 70.58 percent, 67.10 percent, 75 percent and 34.83 percent, respectively. The overall practice followed by Kathani cattle owners were 55.00 percent among 200 selected farmers. The findings of Soni Gawade *et al.* (2018) [9] revealed that, processing of concentrates before feeding were done by (79.20%) of the farmers.

### 3.3 Enrichment of poor-quality straw by urea

It is observed from Table 3 that, none of the farmers adopted the process of enriching the poor-quality straws before feeding to the milch animals. The reason behind non-adoption of this valuable recommendation was due to lack of scientific knowledge and technical guidance. It is one of the major constraints in adopting this practice. Similar findings are reported by Shinde *et al.* (2018) [8], Kadam *et al.* (2019) [2] who reported that, none of the farmers adopted enrichment of poor-quality straw by urea.

### 3.4 Chaffing of green and dry fodder before feeding

It is revealed from Table 3 that, out of 200 Kathani cattle owners from each type of land holding, chaffing of green fodder with the help of machinery has adopted by large and medium category of famers with 40.00 percent and 11.76 percent respectively. The overall adoption was 3.00 percent. The result reported by Kumar *et al.* (2019) [2] are in conformity with present result who reported that, chaffing of green and dry fodder were adopted by 75.50 percent and 66.50 percent farmers respectively.

### 3.5 Feeding of green fodder

It is observed from Table 3 that, out of the 200 Kathani cattle

owners of each land holding in category of farmers viz. landless, small, marginal, medium, and large with 75.00 percent, 75.00 percent, 69.66 percent, 41.17 percent and 20.00 percent respectively adopted the feeding of green fodder. The overall adoption of practice of feeding green fodder was 67.00 percent as this is helpful in minimizing the cost of milk production. The present results are in conformity with the observation reported by Sabapara *et al.* (2019) <sup>[7]</sup> who revealed that 69.6 percent of farmers cultivated green fodder crops to feed their animals.

### 3.6 Feeding of silage

It is observed from Table 3 that, preparation of silage for feeding animal were followed in majorly only by large group 10.00 percent. Tanwar *et al.* (2010) <sup>[10]</sup> are in the conformity that due to lack of green and dry fodder, poor irrigation facilities, non-availability of high yielding varieties fodder seed farmers do not prefer to prepare silage and hay making.

### 3.7 Feeding of dry matters @ 2 to 2.5 kg per 100 kg body weight of animals

It is revealed from Table 3 that, 57.00 percent of overall cattle owners were in a position to fulfil the requirement. Amongst the land holding groups (76.47%) medium, (75.00%) landless, (57.89%) small, (55.05%) marginal and (20.00%) large group, respectively had followed the practices. The present result is more or less in conformity by that study conducted by Atkare *et al.* (2017) <sup>[11]</sup> who revealed that feeding of dry matter 2-2.5 kg per 100 kg body weight was followed by 81.50 percent of the farmers in Gadchiroli district.

### 3.8 Feeding of concentrates @ 40 percent of milk production

It is observed from Table 3 that, the adoption of this practice was highest in large cattle owners (30.00%) followed by landless (25.00%), medium (23.52%) marginal (21.34%) and small (19.73%) category of farmers, respectively. The overall adoption rate feeding concentrate according to milch production was 21.50 percent. However, the result reported by Soni Gawade *et al.* (2018) <sup>[9]</sup> are in contradiction to the present result who reported that, majority of farmers (more than 75 percent) did not adopted feeding of concentrates @ 40 percent of milk production.

### 3.9 Additional ration for pregnant animal

It is observed from the table 3 in Sakoli Tahsil that, overall adoption of this practice was 81.00 percent. Considering the various categories of the farmers, the adoption of this practice was found 90.00 percent, 88.23 percent, 87.50 percent, 83.14 percent and 75.00 percent under large, medium, landless, marginal and small category of the farmers, respectively. Similar results were observed by Raja *et al.* (2017) <sup>[5]</sup> who reported that, 74.82 percent of farmers followed feeding of extra allowances during the advanced pregnancy period of cattle.

### 3.10 Use of mineral mixture

It is observed from table 3 that, large (40.00), small (14.47), marginal (7.86) gives salt and calcium and other mineral mixture to the cattle, whereas landless and medium groups of farmers haven't given any mineral mixture to the cattle. The present results are in conformity with the observation reported by Megha Pedhekar *et al.* (2017) <sup>[4]</sup> who observed that use of 60 g common salt, mineral mixture and mineral bricks were

not adopted by majority of the (more than 75%) cattle owners under village condition of Gadchiroli district.

### 3.11 Feeding of unconventional roughages and concentrate during scarcity

It is observed from Table 3 that, out of 200 farmers 32.00 percent adopted this practice. Among the land holding groups, the adoption of this practices by farmers was 50.00 percent for landless, 38.20 percent for marginal, 29.41 percent for medium, 27.63 percent for small, whereas large category of farmers hasn't used such products. Kadam *et al.* (2019) <sup>[12]</sup> reported that 81.66 percent cattle owners fed unconventional roughages and concentrates during scarcity.

### 3.12 Type of concentrate used

It is observed from Table 3 that, out of 200 Kathani cattle owners from each type of land holding homemade concentrate were used by landless (25.00%), followed by small (18.42%), marginal (14.60%), medium (5.88%), and large (0.00%) farmers respectively. The overall homemade concentrates were used by 15.00 percent farmers. The farmers who purchased concentrates by large (70.00%) followed by medium (35.29%), marginal (33.70%), small (27.84%) and landless (12.50%) respectively. The overall purchased concentrates were used by 33% farmers. The farmers who used both homemade and purchased concentrate were landless (62.50%), medium (58.82%), small (52.63%), marginal (51.68%) and large group (30.00%) category of farmers, respectively. The overall adoption of homemade and purchased concentrates were by 52.00 percent farmers. The results reported by Shinde *et al.* (2018) <sup>[8]</sup> was nearly agreed with present results who observed that majority of the farmers (56.00%) adopted feeding of homemade concentrate followed by (26.00%) farmers adopted feeding of purchased concentrate while only (16.00%) farmers adopted feeding of both homemade and purchased type of concentrate.

### 3.13 Feeding of concentrates mixture (separate or with roughages) as total mixed ration

From Table 3, it can be observed that, all 200 Kathani cattle owners from each type of land holding adopted separate concentrate feeding with an average of 100 percent. The overall adoption was 100.0 percent among 200 selected farmers. The present results are in conformity with the observation reported by Shinde *et al.* (2018) <sup>[8]</sup>, who reported that feeding of concentrates separately was carried out by 35.50 percent and with roughages by 63.00 percent.

## 4. Conclusion

Majority of the Kathani cattle owners (44.50%) were having marginal land holding. Majority of the respondent (40.50%) owned 2 to 5 animals. Population of male Kathani cattle was more (50.73%) among the cattle owners followed by female (49.27%) cattle. Majority of cattle owners (80.50%) followed Grazing + stall feeding practices followed by stall feeding by only (19.50%) farmers. Only 0.50 percent farmers adopted feeding of silage. None of the respondents adopted the practice of enrichment of poor-quality straw by urea, use of mineral mixture.

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