

Management Practices of Deoni Cattle Rearers in their Native Tract: A Study in Bidar District, Karnataka, India

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ABSTRACT: The study conducted in Bidar district of Karnataka on Deoni cattle rearing practices from 120 Deoni cattle owners showed that the majority of the respondents (85.83%) were practicing both grazing and stall feeding methods. The use of natural service for impregnating the animals was preferred by the maximum number of respondents (93.33%), and bulls reared by the farmers from the village are being preferred for breeding (82.14%). However, the study also highlights some areas where improvement is required. For instance, while the majority of the respondents consult government veterinarians for animal diseases (68.33%) and deworming practices (65.83%), there is a need to educate them about the benefits of regular veterinary check-ups and preventative measures for animal health and productivity. Only 36.97% of the respondents kept their animals in pucca cattle sheds, a majority (50.83%) followed a full hand method of milking, and none of them used to clean the animals daily. Based on the findings, it can be concluded that there is a need for creating awareness on scientific cattle rearing practices, introduction of breed up-gradation programs, supply of quality semen, and provision of adequate inputs to make the rearing of Deoni cattle much more beneficial to the rearers. By implementing these measures, it is possible to enhance the productivity, health, and overall well-being of Deoni cattle and improve the livelihoods of cattle rearers in the region.

Keywords: Deoni cattle, Breeding, Feeding, Animal health, Livelihood.

INTRODUCTION

The desi cow has been an integral part of the Indian way of life for centuries. The country has a vast diversity of animal genetic resources, and the indigenous livestock system has specific traits that make them resilient and adaptable to climate change. These traits provide stability to livelihoods in resource-frail regions of the country (Rao, 2011). The Deoni cow, also known as Dongari/Dongarpati ("of the hills"), Surti, or Deccani, has evolved over the last 200 years. The name of the cattle comes from the Deoni taluka of Latur district of Maharashtra (Singh et al., 2002). It is believed to have originated from a mixture of Gir, Dangi, and local cattle strains (Joshi and Phillips, 1953). Traditionally, Deoni animals are maintained under a semi-intensive intensive

system of management. They are known for their robust physique and drought power, making them highly valuable for both milk and draught purposes. As a dual-purpose breed, these animals fetch more market prices, making them a crucial asset for farmers. However, despite the benefits of the breed, scientific cattle-rearing practices are not being fully harnessed by farmers. The sustainability of the breed and the empowerment of farmers can be ensured by implementing effective and efficient cattle-rearing practices. Therefore, it is essential to study the existing rearing practices in Deoni cattle to understand the areas where improvements can be made. By doing so, farmers can maximize the potential of the Deoni breed while ensuring the sustainability of their livelihoods.

METHODOLOGY

In this study, conducted in Bidar district of Karnataka, an exploratory research design was used to answer specific research questions related to Deoni cattle rearing practices. To conduct the research, Bhalki, Basavakalyan, and Aurad blocks were purposively selected due to the high number of genetically pure Deoni cattle in the region. Four villages were then randomly selected from each block, resulting in a total of 12 villages being included in the study. Respondents were chosen based on the criterion that they owned at least one Deoni cattle that had completed at least one lactation at the time of the investigation. Ten dairy farmers were then randomly selected from each village, leading to a total of 120 dairy farmers being included in the data collection process. The data were collected using a semi-structured interview schedule designed to assess various aspects of cattle rearing, including feeding practices, breeding practices, healthcare practices, and general management practices. The data collected from the respondents were then analyzed using frequency and percentage to arrive at meaningful conclusions.

RESULTS AND DISCUSSION

Feeding practices in Deoni cattle: Feeding is one of the crucial factors that determines the performance of Deoni cattle in terms of milk production, body growth, and better health status. As shown in Table 1, the majority of the respondents (85.83%) practice a combination of grazing and stall method of feeding. However, grazing was exclusively practiced by 11.67 per cent, followed by only 2.50 per cent of stall feeding for breeding bulls and replacement bull calves. These findings are consistent with the findings of Kumar *et al.* (2017) and Narsimha (2018) who reported that a combination of grazing and stall feeding system was adopted by indigenous cattle owners.

None of the farmers practiced fodder conservation in the form of silage or hay or fodder enrichment with urea or molasses. The only method of fodder preservation was the preparation and storage of stover in the form of bundles. The most commonly used crops for fodder were maize, sorghum, wheat straw, green gram, black gram, Bengal gram, pigeon pea, hybrid sorghum, and bajra. Among these, sorghum (91.67%) was the most frequently used crop for dry fodder, followed by maize and wheat straw. The proportion of the respondents who were given non-leguminous crops like maize, sorghum as green fodder was 80.83 per cent, followed by green grass (70.83%), leguminous green (69.17%), and wigs of fodder tree (33.33%). Lactating cows were fed with 2 to 3 bundles of sorghum straw every day, each weighing 2.0 to 2.5 kg, while bullocks were fed with 4 to 5 bundles of sorghum straw daily. Chaff cutting was not a common practice among the respondents, as only 17.50 per cent practiced chaff cutting regularly to feed their animals. These findings are in line with the findings of Mahadev (2014) and Patel *et al.* (2016), who reported that the majority of the farmers used to feed fodder to their animals without chaffing.

About 91.67 per cent of the respondents fed concentrates to their animals, in that, 74.17 per cent were using home-made concentrates, similar to previous studies by Mahla (2013), Kuralkar *et al.* (2015), Dongre *et al.* (2017), and Kumar *et al.* (2017). The majority of the respondents (91.67%) purchased concentrates to feed bullocks and breeding bulls. A maximum number of respondents (86.36%) obtained concentrates from the milled by-products like bran and chunni, followed by mustard/groundnut oil

cakes (77.27%) and broken grains and seeds (64.55%). Only 18.33 per cent of the farmers fed their animals mineral mixture and 14.17 per cent of the farmers fed extra ration to cows during the advanced stage of pregnancy, indicating that most of the farmers followed traditional feeding practices. Furthermore, 65.83 per cent of respondents reported that new-born calves suckle colostrum within 1-2 hours of birth, with 27.50 per cent and 6.67 per cent reported colostrum feeding between 2-4 hours and more than 4 hours, respectively. Similar findings are reported by Mahadev (2014) and Narasimha (2018).

Table 1: Feeding practices in Deoni cattle (N=120)

Practices	Frequency	Percentage (%)
1. Method of Feeding		
Grazing	14	11.67
Stall feeding	03	2.50
Both	103	85.83
2. Dry fodder *		
Maize	91	75.83
Jowar/Sorghum	110	91.67
Wheat straw	64	53.33
3. Green fodder*		
Green grass	85	70.83
Fodder tree	40	33.33
Leguminous green	83	69.17
Non-leguminous green	97	80.83
4. Fodder chaff cutting		
Never	65	54.17
Occasionally	34	28.33
Regularly	21	17.50
5. Concentrate		
No concentrate feeding	10	8.33
Homemade	89	74.17
Market purchased	21	17.50
6. Ingredients of concentrate*		
Grains and seed (Maize, Barley, Sorghum)	71	64.55
Mill by-product (Bran, Chunni)	95	86.36
Oil cakes (Mustard, Groundnut)	85	77.27
7. Feeding of Mineral mixture		
	22	18.33
8. Feeding of pregnant animals with extra ration during the advanced stage of pregnancy		
	17	14.17
9. Time of colostrum feeding		
Within 2 hrs	79	65.83
Between 2-4 hrs	33	27.50
After 4 hrs	08	6.67

* Multiple responses

Breeding practices in Deoni cattle: The breeding practices followed in Deoni cattle illustrated in Table 2 revealed that the majority of respondents (93.33%) were going for natural service with bulls to impregnate their animals, while only 6.67 per cent utilized artificial insemination with Deoni semen. This aligns with the previous research by Singh *et al.* (2008), Muhammad

(2009), Mahal (2013), Kuralkar *et al.* (2015), and Saharan (2016). The most common signs of oestrus in Deoni cattle as observed by respondents were bellowing (100.00%), followed by transparent vaginal discharge (88.33%), restlessness (84.17%), and mounting (81.67%). The most preferential time of breeding as chosen by the respondents was morning time (77.50%), which is consistent with the findings from Mahadev (2014) and Narasimha (2018). After heat detection, most respondents (71.67%) provided natural service to their cows after 16 hours of detection of heat, while 21.67 per cent respondents between 12-16 hrs, followed by 6.67 per cent respondents within 12 hrs of detection of heat. The average pregnancy diagnosis time was found to be 3.9 ± 0.03 months after service.

The respondents identified bodily changes (60.83%) as the primary indicator of pregnancy confirmation, followed by non-occurrence of oestrus (25.00%) and pregnancy diagnosis by veterinarians (14.17%). This finding was consistent with the results reported by Muhammad (2009), Mahadev (2014), and Narasimha (2018). The time of next service after calving as indicated by the majority of farmers (75.00%) was after 3 months of calving. Of the 112 respondents out of 120, who practiced natural service, 82.14 per cent preferred bulls reared by farmers in the village, followed by Government-provided bulls (12.50%) and any stray bull (5.36%). The results suggest that there is a need to promote the use of artificial insemination with high-quality semen to produce more productive Deoni animals.

Table 2: Breeding practices in Deoni cattle (N=120)

Practices	Frequency	Percentage (%)
1. Breeding method		
Artificial insemination	08	6.67
Natural service	112	93.33
2. Common sign of oestrus in cattle*		
Restlessness	101	84.17
Bellowing	120	100.00
Mounting	98	81.67
Transparent vaginal discharge	106	88.33
3. Time of breeding		
Morning	93	77.50
Afternoon	09	7.50
Evening	18	15.00
4. Time of insemination after the onset of oestrus signs		
After 16 hrs	86	71.67
Between 12 to 16 hrs	26	21.67
Within 12 hrs	08	6.67
5. Pregnancy diagnosis time (months after service)		
	3.9 ± 0.03 months	
6. Early indicators of pregnancy		
Bodily changes	73	60.83
No oestrus	30	25.00
Pregnancy diagnosis	17	14.17
7. Time of next service after calving (Service period)		
2-3 months	30	25.00

After 3 months	90	75.00
8. Natural service with the bull**		
Govt. Provided bull	14	12.50
Bull reared by the farmer	92	82.14
Any stray bull	06	5.36

(* Multiple responses, ** Out of 112 respondents who prefer natural service in animal)

Healthcare practices in Deoni cattle: The healthcare practices followed by the Deoni cattle owners are presented in Table 3. As indigenous cattle, Deoni are well-adapted to local conditions and less prone to diseases. The majority of the respondents (68.33%) sought treatment for their diseased cattle from Government veterinarians. Some respondents resorted to self-medication and later consultation with veterinary doctors (22.50%), while others consulted with local quacks in the village (9.17%). Indigenous traditional treatments for curing diseases were also shared within and between communities.

The majority of respondents (91.67%) vaccinated their animals against foot and mouth disease, followed by 55.83 per cent vaccinated cattle against black quarter and 46.67 per cent against haemorrhagic septicaemia. Most respondents believed that vaccination once a year was sufficient to prevent these diseases. Similar findings were reported by Singh (2013), Mahadev (2014), Yadav *et al.* (2016), Yankam (2016), and Narasimha (2018) in different parts of the country. The majority of respondents (81.67%) were vaccinated their herd only during sponsored vaccination programs organized by the State Department of Veterinary and Animal Husbandry. Only a small percentage of respondents (11.67%) were aware of the vaccination schedule that needed to be followed. Deworming of dairy animals was practiced by over half of the respondents (65.83%). Similar findings were reported by Singh (2013) in Uttar Pradesh, Yankam (2016) in Maharashtra, and Narasimha in Telangana (2018), and Meena *et al.* (2021) in Rajasthan.

Table 3: Healthcare practices in Deoni cattle (N=120)

Practices	Frequency	Percentage (%)
1. Consultation about the encountered disease		
Govt. veterinarian	82	68.33
Local quack	11	9.17
Initially self-medication and later consultation with a veterinary doctor	27	22.50
2. Vaccination for disease*		
FMD	110	91.67
BQ	56	46.67
HS	67	55.83
3. Vaccination only at the time of Govt. or NGO organized vaccination program	98	81.67
4. Vaccination schedule followed	14	11.67
5. Deworming practices followed	79	65.83
6. Method of Deworming		
Traditional treatment	10	12.66
Consultation of a veterinarian	69	87.34

* Multiple responses

General management practices in Deoni cattle: Table 4 presents the general management practices followed by Deoni cattle owners. A significant proportion of animal sheds (50.00%) were of kachcha type, out of which 30.83 per cent were in sanitary

condition, while 19.17 per cent were not. Conversely, 36.67 per cent of respondents used pucca sheds, 13.33 per cent provided shelter to animals in an open area under a tree. It is essential to maintain clean and sanitary conditions in animal sheds to prevent disease infestation. Similar findings were reported by Gokhale *et al.* (2008), Nagre (2014), and Divekar and Saiyed (2010), indicating that most farmers used kachcha shed.

Regarding milking methods, the majority of farmer (50.83%) followed the full hand method, followed by knuckling and full hand milking (43.34%) and the stripping method (5.83%). Although full hand milking is the best method, it was practiced by a limited number of respondents, indicating a need for educating farmers on proper milking practices. After washing utensils, 31.67 per cent of the respondents used to keep the utensils under the sun for drying. Majority of the farmers (84.17%) allowed the placenta to shed naturally, while 10.53 per cent sought veterinary help for placenta removal, and only 5.00 per cent removed it by themselves. Most respondents (90.83%) allowed the navel cord to separate naturally and only 9.17 per cent used surgical instruments for separation. The majority (91.67%) did not practice disbudding of calf, similar to findings reported by Singh (2013) and Nagre (2014). The majority of farmers (89.17%) practiced castration of male calves, with 89.72 per cent using burdizzo method and 10.28 per cent using surgical method. More than of the respondents (60.00%) disposed of animal carcasses at a safe distance from the village and water sources.

Table 4: General management practices in Deoni cattle (N=120)

Practices	Frequency	Percentage (%)
1. Housing floor		
Kachcha floor in a clean saitary condition	37	30.83
Kachcha floor in an unsanitary condition	23	19.17
Pucca floor	44	36.67
In an open area under the tree	16	13.33
2. Method of milking		
Full hand method	61	50.83
Knuckling	52	43.34
Full hand followed by the stripping method	07	5.83
3. Regular cleaning of milking utensil		
	120	100.00
4. Sun drying of milking utensils after cleaning		
	38	31.67
5. Removal of placenta		
By self	06	5.00
By the help of a veterinarian	13	10.83
Natural shedding	101	84.17
6. Navel cord separation process		
Surgical instruments	11	9.17
Natural	109	90.83
7. Disbudding of calf		
Not practiced	110	91.67
Hot iron method/Caustic method	10	8.33
8. Castration of male calf		
Not practiced	13	10.83
Burdizzo/ bloodless castration	96	89.72
Surgical method	11	10.28
9. Disposal of the animal carcass		

Buried in agricultural land	35	29.17
Disposed at maximum distance from village and water source	72	60.00
Disposed of in community land in open	13	10.83

* Multiple responses

CONCLUSION

In a nutshell, proper following of scientific cattle rearing practices determine the productive and reproductive performance of Deoni cattle. The results indicated that many of the respondents did not follow proper feeding practices, which included the use of mineral mixture and also not following proper vaccination schedules, which can lead to nutrient deficiencies and increased risk of diseases. Furthermore, natural breeding was commonly practiced, with limited availability of Deoni cow semen at AI centers. To improve the genetic potential of Deoni cows, the government should provide indigenous cow semen at AI centers. Another noteworthy finding was that none of the respondents were practicing fodder conservation, which presents an opportunity to educate farmers on the benefits of silage or haymaking and the enrichment of fodder with urea or molasses to increase palatability. In conclusion, this study highlights the need for awareness and implementation of scientific cattle rearing practices, the introduction of breed up-gradation programs, and the provision of adequate inputs to optimize the rearing of Deoni cattle for the benefit of the rearers.

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