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Studies on management practices adopted by the Gaushalas in Marathwada Region of Maharashtra

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Abstract

The present study entitled, “Studies on Management Practices Adopted by the Gaushalas in Beed and Osmanabad District” was done during 2022-23 in Beed and Osmanabad districts of Marathwada region of Maharashtra state involving 40 Gaushalas, categorized as small (less than 100 cattle), medium (among 100-150 cattle), large (more than 300 cattle) Gaushalas based on herd size. Thus, the selected 40 Gaushalas were comprised of 14 small sized, 13 medium sized and 13 large sized Gaushalas. In the current study adoption was operationalized as the degree to which the management practices viz., breeding, feeding, healthcare, general management, clean milk production, were adopted in the Gaushalas. In breeding practices, the large gaushalas lead in adopting breeding practices, with highest rates in N.S./A.I. (76.92%), veterinarian pregnancy diagnosis (71.42%), and external sign pregnancy detection (69.23%). Conversely, Small gaushalas consistently have the lowest adoption rates, notably in heat detection (35.71%) and external sign pregnancy detection (30.76%). In feeding practices the small, medium and large sized Gaushalas adopted stall feeding and semi stall feeding were 85.71 per cent, 76.92 per cent and 84.61 per cent respectively. The non-adoption percentage was observed mainly for preparation and feeding of silage in all categories of Gaushalas. In healthcare practices vaccination against diseases is highly adopted in small, medium and large sized Gaushalas were 78.57 per cent, 69.23 per cent and 92.30 per cent respectively. In healthcare practices the non-adoption is mostly observed for deworming of cattle. The general management practices are mostly adopted by all Gaushalas. In Clean milk production practices, practicing full hand method of milking is adopted by small, medium and large sized Gaushalas were 85.71 per cent, 84.61 per cent, 100 per cent respectively.

Keywords: Gaushalas, adoption, management

Introduction

Stray cattle are defined as the one that has no owner, strays across road/public place and wander without any proper destination or have no shelter. The stray cattle population in India exceeds 5 million, in addition to the existing 193 million cattle in the country. The census indicates a slight decrease of about 3.2% in the stray cattle population compared to the previous count, but the concern remains as the figure remains around 5 million. While there is a national decline in stray cattle, certain states experience a significant increase, notably Madhya Pradesh (95%), Punjab (38.69%), Rajasthan (34.48%), Chhattisgarh (33.93%), Gujarat (17.59%), and Uttar Pradesh (17.34%) in 2019 compared to 2012. Conversely, some states witness a notable reduction in stray cattle, including Maharashtra (1.24%), Orissa (86.68%), West Bengal (73.59%), Bihar (66.54%), and Tamil Nadu (23.95%). Additionally, several states and union territories report minimal or no stray cattle population, such as Dadra and Nagar Haveli, Lakshadweep, Manipur, Mizoram, Nagaland and Pondicherry (Niha 2022) [4]. Farmers are abandoning unproductive cattle aged over 8-9 years due to the high monthly cost of 94.12 USD, causing severe economic deficits. In India, late lactation cows, with reduced production, vie for costly feed and are often left on urban streets. These abandoned cows scavenge on garbage dumps, risking ingestion of plastics and wires and facing potentially fatal traffic injuries. The contentious practice poses risks to human and animal health, with instances of injuries and even human mortality. The decline in agriculture and increased industrialization has replaced bullocks with mechanized instruments. The beef ban in India complicates the sale and disposal of unproductive cattle and male calves. Previously, farmers could sell dried-up cows for 251.03 USD to 627.58 USD, but the current situation leaves them

facing severe financial insufficiency, unable to profit from cattle sales (Niha 2022) [4]. Gaushalas play a crucial role in preserving the cattle wealth of our nation. They primarily offer shelter to cows, addressing the needs of non-lactating, weak, unproductive, and stray cattle. Some leading Gaushalas also maintain a nucleus herd for in-situ conservation of indigenous purebred cows and produce high-quality males to boost the productivity of indigenous breeds (Mandi and Subhash 2020) [3].

Materials and Methods

Location: Maharashtra with a total area of 3,07,713 Sq.km. is the third-largest state by area in terms of land area and constitutes 9.36 per cent of India's total geographical area. The state lies between 15°35'N to 22°02'N latitude and 72°36'E to 80°54'E longitude. From the state of Maharashtra, we selected the Gaushalas from Beed and Osmanabad districts.

The sources and collection of data: The data for present investigation i.e. Management practices, constraints, profile of Gaushalas was recorded from 40 Gaushalas of the Beed and Osmanabad districts. The data of Gaushalas was collected by actual questioning with respondents of Gaushalas.

Compilation of data: The data accumulated on selected parameter by questioning with respondents of Gaushalas with the help of schedule. For this study 40 Gaushalas were randomly selected from Beed and Osmanabad districts of Maharashtra. The selected Gaushalas for the study were classified into small (less than 100 cattle), Medium (between 100-150 cattle), and Large Gaushalas (more than 300 cattle). Thus, the selected 40 Gaushalas were comprised of 14 small sized, 13 medium sized and 13 large sized Gaushalas. The particular Gaushala-respondents were interviewed personally with the help of well-structured and pre-tested interview schedule in order to get relevant information. The detailed

information required for the study was collected from each of the selected Gaushalas during the year 2022-2023.

Analysis of data: The primary data was collected from the concerned individuals involved in maintaining the Gaushalas through well-developed interview questionnaires. The practices were classified into five categories namely, breeding, feeding, healthcare, general management and clean milk production. Each of practices have two columns representing adopted and not adopted with score of 1 and 0, respectively. The adoption scores were converted to percentage by their frequencies.

Results and discussion

1. Breeding practices

From the Table 1 it could be inferred that, a majority (69.23%) in case of large sized Gaushalas, followed by 38.46 per cent in medium and 35.71 per cent in small sized Gaushalas could identify 'the cows in heat', as detection of heat symptoms in cows on time, which requires experience and skilled technical manpower and hence majority of large sized Gaushalas could detect the heat symptoms (like mounting, bellowing, restlessness etc.) better than medium and small sized Gaushalas. However, majority of the Gaushalas preferred natural service to artificial insemination as bulls were maintained in the Gaushala herd.

A majority (71.42%) of small sized Gaushalas adopted 'pregnancy diagnosis veterinarian' as compared to 69.23 per cent in large, 61.53 per cent by medium sized Gaushalas.

This may be because veterinarians were selected for such services because they had "inadequate knowledge and experience in case of small sized Gaushalas about pregnancy diagnosis." The results of this investigation are consistent with those of Singh (2018) [6] and Mandi and Subhash (2020) [3].

Table 1: Distribution of Gaushalas according to their breeding practices

S.N	Breeding practices	Small		Medium		Large	
		Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)
1	Detection of heat	5 (35.71%)	9 (64.28%)	5 (38.46%)	8 (61.53%)	9 (69.23%)	4 (30.76%)
2	Breeding through N.S./A.I.	10 (71.42%)	4 (28.57%)	10 (76.92%)	3 (23.07%)	10 (76.92%)	3 (23.07%)
3	Insemination of dairy cattle within 12-18 hours of onset of estrus	6 (42.85%)	8 (57.14%)	6 (46.15%)	7 (53.84%)	5 (38.46%)	8 (61.53%)
4	Pregnancy diagnosis by veterinarian	10 (71.42%)	4 (28.57%)	8 (61.53%)	5 (38.46%)	9 (69.23%)	4 (30.76%)
5	Pregnancy detection by external signs	6 (42.85%)	8 (57.14%)	4 (30.76%)	9 (69.23%)	5 (38.46%)	8 (61.53%)

Note: F- Frequency (Figures in parenthesis indicates percentages)

N.S.: Natural Service

A.I.: Artificial Insemination

2. Feeding practices

It is inferred from the Table 2 that a large majority (76.92%) in large sized Gaushalas, followed by a significant (46.15%)

in medium and 28.57 per cent in small sized Gaushalas adopted green fodder cultivation as majority of the large sized Gaushalas possessed enough land for fodder cultivation.

Table 2: Distribution of Gaushalas according to their feeding practices

SN	Feeding practices	Small		Medium		Large	
		Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)
1	Cultivation of green fodder crops	4 (28.57%)	10 (71.42%)	6 (46.15%)	7 (53.84%)	10 (76.92%)	3 (23.07%)
2	Stall feeding or semi-stall feeding	12 (85.71%)	2 (14.28%)	10 (76.92%)	3 (23.07%)	11 (84.61%)	2 (15.38%)
3	Feeding of extra ration during pregnancy	9 (64.28%)	5 (35.71%)	8 (61.53%)	5 (38.46%)	9 (69.23%)	4 (30.76%)
4	Preparation and feeding of silage	4 (28.57%)	10 (71.42%)	4 (30.76%)	9 (69.23%)	7 (53.84%)	6 (46.15%)
5	Dipping of concentrate feed in water one hour before feeding	7 (50.00%)	7 (50.00%)	6 (46.15%)	7 (53.84%)	9 (69.23%)	4 (30.76%)
6	Provision for mineral mixture powder	7 (50.00%)	7 (50.00%)	8 (61.53%)	5 (38.46%)	11 (84.61%)	2 (15.38%)
7	Milch animals fed with extra concentrate feed @ 1 kg to 2.5 kg	8 (57.14%)	6 (42.85%)	8 (61.53%)	5 (38.46%)	12 (92.30%)	1 (7.69%)

All the large sized Gaushalas (84.61%), followed by majority (76.92%) in medium sized Gaushalas and small sized Gaushalas (85.71%) adopted 'stall-feeding or semi-stall feeding' for equitable supply of balanced ration of feed and fodder to the cattle.

Majority (69.23%) in large sized Gaushalas, followed by (61.53%) percent in medium sized Gaushalas and (64.28%) in small sized Gaushalas were 'fed extra ration during pregnancy' so as to supplement extra calories required and to maintain the health during the time of pregnancy. This might be due to the fact that importance of the feeding has been well known, and highlighted in the Gaushalas under study. The results are in accordance with the findings of Mandi and Subhash (2020)^[3], Chandra *et al.* (2022)^[1].

3. Healthcare practices

Data presented in Table 3 indicated that, a large majority (92.30%) in large sized Gaushalas, followed by majority in small (78.57%) and medium sized (69.23%) Gaushalas adopted 'vaccination against HS/FMD/BQ diseases before

onset of monsoon' as majority of the Gaushalas were aware of the vaccination plan and timely vaccination services were provided by Department of Animal Husbandry & Veterinary Services against these common diseases. A large majority (84.61%) in large sized Gaushalas, followed by small (71.42%) and medium sized Gaushalas (61.53%) adopted 'treatment of sick animals by veterinarian' as most of the large sized Gaushalas could afford as well as had access to veterinary services as compared to small sized Gaushalas. Majority (76.92%) in large sized Gaushalas, followed by (64.28%) in small and (53.84%) in medium sized Gaushalas adopted 'isolation of sick animal from the herd' in order to avoid outbreak of disease and to keep close supervision on the diseased cattle. Therefore, good management practices related to animal healthcare includes establishing the herd with resistance to disease, preventing the entry of disease in the Gaushalas; establishing effective herd health management, and using all chemicals and veterinary medicines as directed by the veterinarian. Similar findings were observed by Gupta (2017)^[2] and Mandi and Subhash (2020)^[3].

Table 3: Distribution of Gaushalas according to their healthcare practices

SN	Healthcare practices	Small		Medium		Large	
		Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)
1	Vaccination against HS/FMD/BQ disease before onset of monsoon	11 (78.57%)	3 (21.42%)	9 (69.23%)	4 (30.76%)	12 (92.30%)	1 (7.69%)
2	Treatment of sick animal by veterinarian	10 (71.42%)	4 (28.57%)	8 (61.53%)	5 (38.46%)	11 (84.61%)	2 (15.38%)
3	Isolation of sick animal from the herd	9 (64.28%)	5 (35.71%)	7 (53.84%)	6 (46.15%)	10 (76.92%)	3 (23.07%)
4	Deworming of cattle	8 (57.14%)	6 (42.85%)	8 (61.53%)	5 (38.46%)	8 (61.53%)	5 (38.46%)
5	Quarantine	12 (85.71%)	2 (14.28%)	7 (53.84%)	6 (46.15%)	9 (69.23%)	4 (30.76%)

4. General management practices

A perusal of Table 4 reveals that, a large majority (92.30%) in large sized and in medium sized Gaushalas (84.61%) and most of the small sized Gaushalas (92.85%) adopted 'provision of sufficient ventilation in cattle shed'. This is due to the fact that, majority of large and small sized Gaushalas provided sufficient space for ventilation for fresh air circulation in Gaushalas which directly impacts animal health and its performance. Further, large majority (85.71%) in small sized Gaushalas, followed by medium (76.92%) and (76.92%) in large sized Gaushalas adopted 'daily cleaning of cattle shed before milking'. This might be due to the reason that the care and concern for the cattle and clean milk production under

hygiene condition by majority of small sized was more as compared to large and medium sized Gaushalas.

All the Gaushalas in large and medium size (100.00%) adopted 'proper maintenance of record' as all the Gaushalas are registered under different organizations thus it becomes mandatory for Gaushalas to maintain proper records. In all sizes of Gaushalas, large majority of them provided 'sufficient and clean water' i.e. (92.30%) in medium sized Gaushalas, followed by large (69.23%) and (64.28%) percent in small sized Gaushalas had access to fresh water. The observations were fairly supported by the observations of Robbins *et al.* (2016)^[5], Gupta (2017)^[2], Mandi and Subhash (2020)^[3].

Table 4: Distribution of Gaushalas according to their general management practices

SN	General management practices	Small		Medium		Large	
		Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)
1	Provision of sufficient ventilation in cattle shed	13 (92.85%)	1 (7.14%)	11 (84.61%)	2 (15.38%)	12 (92.30%)	1 (7.69%)
2	Weaning of calf	11 (78.57%)	3 (21.42%)	12 (92.30%)	1 (7.69%)	11 (84.61%)	2 (15.38%)
3	Daily cleaning of cattle shed before milking	12 (85.71%)	2 (14.28%)	10 (76.92%)	3 (23.07%)	10 (76.92%)	3 (23.07%)
4	Record maintenance	10 (71.42%)	4 (28.57%)	13 (100%)	0 (0.00%)	13 (100%)	0 (0.00%)
5	Milking of dairy cattle at fixed time	10 (71.42%)	4 (28.57%)	10 (76.92%)	3 (23.07%)	11 (84.61%)	2 (15.38%)
6	Provide sufficient clean and fresh water to cattle	9 (64.28%)	5 (35.71%)	12 (92.30%)	1 (7.69%)	9 (69.23%)	4 (30.76%)
7	Disinfection of animal shed every week by disinfectant	8 (57.14%)	6 (42.85%)	11 (84.61%)	2 (15.38%)	9 (69.23%)	4 (30.76%)
8	Care of new born calf	11 (78.57%)	3 (21.42%)	13 (100%)	0 (0.00%)	13 (100%)	0 (0.00%)

5. Clean milk production

It is inferred from the Table 5 that, majority (84.61%) in large sized Gaushalas, followed by (76.92%) in medium and (71.42%) percent in small sized Gaushalas adopted 'cleaning of udder with clean water & antiseptic solution before milking', as it prevented harmful germs to contaminate with

milk. Almost 100.00 percent in large sized Gaushalas, followed by majority (85.71%) in small and 84.61 per cent in medium sized Gaushalas practiced adoption of 'full hand method of milking' as it was perceived and recommended as the right method of milking by majority of large sized Gaushalas.

Table 5: Distribution of Gaushalas according to clean milk production

SN	Clean milk practices	Small		Medium		Large	
		Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)	Adopted F (%)	Not adopted F (%)
1	Cleaning of udder with clean water and antiseptic solution before milking	10 (71.42%)	4 (28.57%)	10 (76.92%)	3 (23.07%)	11 (84.61%)	2 (15.38%)
2	Practicing full hand method of milking	12 (85.71%)	2 (14.28%)	11 (84.61%)	2 (15.38%)	13 (100%)	0 (0.00%)
3	Using of clean utensils for milking	9 (64.28%)	5 (35.71%)	10 (76.92%)	3 (23.07%)	12 (92.30%)	1 (7.69%)
4	Washing of milker hand by soap/antiseptic solution before milking	11 (78.57%)	3 (21.42%)	8 (61.53%)	5 (38.46%)	11 (84.61%)	2 (15.38%)
5	Personal hygiene while milking	10 (71.42%)	4 (28.57%)	9 (69.23%)	4 (30.76%)	12 (92.30%)	1 (7.69%)

Moreover, a significant majority (92.30%) of large-sized Gaushalas, followed by 76.92% in medium-sized and 64.28% in small-sized Gaushalas, implemented the practice of 'using clean utensils for milking.' This can be attributed to the heightened awareness and concern prevalent in the majority of large-sized Gaushalas, where there is a greater emphasis on adhering to clean milk production practices. Milking procedures were conducted under hygienic conditions, and proper handling of milk post-milking was ensured. The findings were in accordance with the study of and Gupta (2017)^[2], Mandi and Subhash (2020)^[3].

Conclusions

The present study elicits that the composition of herd maintained in all the Gaushalas, 96.68 percent comprised of indigenous cattle and 3.32 per cent of crossbred cattle. The milk production in large sized Gaushalas was more as compared to small and medium sized Gaushalas. Large-sized Gaushalas outperformed medium and small-sized ones in the overall adoption of management practices. The limited adoption of these practices in smaller Gaushalas was attributed to insufficient resources and inadequate training facilities.

In case of breeding practices there is adoption of natural service is better but there is strong need to increase in artificial insemination. In case of feeding practices stall feeding or semi stall feeding is adopted by all Gaushalas but it is need to increase use of silage in feeding. In healthcare practices vaccination against diseases is adopted on high level by the Gaushalas but its need to increase awareness about isolation, deworming and quarantine practices. The current study emphasizes the critical requirement to sensitize and train Gaushalas on effective management practices. Adequate extension, policy, and financial support are essential for the comprehensive and sustainable development of Gaushalas in our country.

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