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Studies on management practices adopted by gaushalas in Parbhani and Latur districts

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Abstract
The present study conducted on "Studies on Management Practices Adopted by Gaushalas in Parbhani and Latur districts". Data were collected from 40 selected Gaushalas and grouped into 3 categories based on total number of animals as small (100 animals), medium (300 animals) and large (>300 animals), 15 Gaushalas in small whereas 15 Gaushalas medium and 10 Gaushalas in large category in Parbhani and Latur districts. About 37.50 percent of the Gaushalas possessed medium herd size (between 300 cattle), followed by 37.50 percent with small herd size (below 100 cattle) and 25.00 percent with large herd size (above 300 cattle). Gaushalas have also been identified as the centres for conservation of declining cattle breeds. It is important to mention that, majority (100%) of the Gaushalas comparised of indigenous cattle in general and among them most of them were found to be unproductive and old which could be related to their primary objective to serve the old, infirm and unproductive cattle. Among the indigenous cattle maintained in the Gaushalas, most of them were old and unproductive cattle in small (33.33%), medium (56.12%) and large sized Gaushalas (49.51%). For proper management of Gaushala and care of cattle, enough manpower is essential. The cattle's current feeding habits in the Gaushalas region of the research. It was noted that cattle in small, medium, and large Gaushalas were fed an average of 2–5 kg/day of dry fodder, 2.0–4.0 kg/day of green fodder, 0.1–0.4 kg/day of concentrate, and 50gms of mineral mixture.

Keywords: management, practices, gaushalas, categories

Introduction
Gaushala are the protective shelter for stray, abandoned, handicapped and infirm cattle, it prevents road accidents and crop damages, prevent immature death of these cattle due to consumption of polythene bags along with they also provide rescue and treatment of sick, injured and accidental animal. A few fore- front Gaushalas, however, are striving to maintain indigenous pure breed cows like Sahiwal, Gir, Hariana, and Kankrej, and produce quality males, thereby contributing to the improvement and conservation. But most of these are primarily catering to the needs of non-lactating, weak, unproductive, infertile, chronically sick and stray cattle having some physical or reproductive or mammary problem and are economically unsustainable either at individual owner household or at organized farm (Chandra & Kamboj, 2022) [2].

The first gaushala in India was established in Rewari, in the 1880. In 1882 the first society for the protection of cattle was established in Punjab. At present India is having more than 4500 gaushalas registered under animal welfare board of India (AWBI) according to Rastriya Gokul mission, (2014) development of integrated indigenous cattle centers.

In a recent study at National Bureau of Animal Genetic Resources several gaushalas have been reported as potential centers for breed conservation and improvement. Some Gaushalas in the country have followed innovative methods for raising additional income through various income generation activities *viz*, enhanced utilization of bull power for rural activities and electricity generation, production of young bulls for export to other States, production of Gobargas, and production of Panchagavya, vermicompost and bio- pesticide for use in natural and organic agriculture. Large scale practice of such value additions may lead to transformation of Gaushalas to play an additional but vital role in conservation of indigenous breeds of cattle. (Sharma *et al*. 2020) [6].

Material 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 percent 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 Parbhani and Latur 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 Parbhani and Latur 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 Parbhani and Latur 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 15 small sized, 15 medium sized and 10 large sized Gaushalas. The selected 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 schedule. 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

Breeding practices

According to Table 1, the majority of large-sized Gaushalas (70.00%), followed by medium-sized Gaushalas (20.00%) and small-sized Gaushalas (40.00%), were able to identify "the cows in heat." This is because timely detection of heat symptoms in cows requires technical knowledge and experience, and the majority of large-sized Gaushalas were better at this than medium- and small- sized Gaushalas. Breeding with Artificial Insemination/Natural Services was chosen by a huge majority of Gaushalas (60.00 percent of large Gaushalas), followed by 60.00 percent of medium- sized Gaushalas and 46.46 percent of small Gaushalas. Since bulls were Keptin the Gaushala herd, the majority of Gaushalas favored natural service over artificial insemination.

Gaushalas adopted 'pregnancy diagnosis by veterinarian' as compared to 86.86 percent in medium and 80.00 percent by large size Gaushalas. This could be due to 'inadequate knowledge and experience in case of small sized Gaushalas about pregnancy diagnoses therefore Veterinarians were preferred for such services. The findings of the present study are in line with the findings of Cheke (2015) [1], Singh (2015) and Gupta (2017) [3].

Table 1: Distribution of Gaushalas according to their breeding practices

Sl.no.	Breeding Practices	Small		Medium		Large	
		Adopted F (%)	Not Adopted F (%)	Adopted F (%)	Not Adopted F (%)	Adopted F (%)	Not Adopted F (%)
1	Detection of heat	6 (40.00%)	9 (60.00%)	3 (20.00%)	12 (80.00%)	7 (70.00%)	3 (30.00%)
2	Breeding through N.S/A.I.	7 (46.66%)	8 (53.33%)	9 (60.00%)	6 (40.00%)	6 (60.00%)	4 (40.00%)
3	Insemination of dairy cattle within 12-18hrs of onset of estrus	8 (53.33%)	7 (46.66%)	5 (33.33%)	10 (66.66%)	4 (40.00%)	6 (60.00%)
4	Pregnancy diagnosis by veterinarian	5 (33.33%)	10 (66.66%)	13 (86.66%)	2 (13.33%)	8 (80.00%)	2 (20.00%)
5	Pregnancy detection by external signs	14 (93.33%)	1 (6.66%)	7 (46.66%)	8 (53.33%)	3 (30.00%)	7 (70.00%)

Note: F- Frequency (Figures in parenthesis indicates percentages) N.S: Natural Service
A.I: Artificial Insemination

Feeding practices

The data presented in Table 2 indicates that the majority of large-sized Gaushalas (80.00%) adopted "green fodder cultivation," with medium-sized Gaushalas adopting it significantly (40.00%) and small- sized Gaushalas adopting it 33.33 percent of the time. This is because most large-sized Gaushalas had sufficient land for fodder cultivation. The majority of medium-sized Gaushalas (66.66%), small-sized Gaushalas (53.33%), and all large Gaushalas (60.00%) carried out "stall-feeding or semi-stall feeding" to ensure that the cattle received a balanced and equitable ration of grain and fodder. To provide the additional calories required and maintain health during the pregnancy, majority large-sized Gaushalas (80.00%), medium-sized Gaushalas (60.00%), and small-sized Gaushalas (40.00%) were "fed extra ration during pregnancy." it might happen because the Gaushalas being studied prioritize feeding, which is generally accepted to be significant. The results are consistent with studies by mandi (2020) [4], Singh (2018) [5] and Gupta (2017) [3].

Table 2: Distribution of Gaushalas according to their feeding practices

Sl. No.	Feeding Practices	Small		Medium		Large	
		Adopted F (%)	Not Adopted F (%)	Adopted F (%)	Not Adopted (%)	Adopted (%)	Not Adopted (%)
1	Cultivation of green fodder crops	5 (33.33%)	10 (66.66%)	6 (40.00%)	9 (60.00%)	8 (80.00%)	2 (20.00%)
2	Stall feeding or semi-stallfeeding	8 (53.33%)	7 (46.66%)	10 (66.66%)	5 (33.33%)	6 (60.00%)	4 (40.00%)
3	Feeding of extra ration during pregnancy	6 (40.00%)	9 (60.00%)	9 (60.00%)	6 (40.00%)	8 (80.00%)	2 (20.00%)
4	Preparation and feeding of silage	7 (46.66%)	8 (53.33%)	7 (46.66%)	8 (53.33%)	4 (40.00.%)	6 (60.00%)
5	Dipping of concentrate feed in water one hour before feeding	10 (66.66%)	5 (33.33%)	8 (53.33%)	7 (46.66%)	7 (70.00%)	3 (30.00%)
6	Provision for mineral mixture powder	7 (46.66%)	8 (53.33%)	6 (40.00%)	9 (60.00%)	8 (80.00%)	2 (20.00%)
7	Milch animals fed with extra concentrate feed @ 1kg to2.5kg	8 (53.33%)	7 (46.66%)	8 (53.33%)	7 (46.66%)	7 (70.00%)	3 (30.00%)

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

Healthcare practices

Data presented in Table 3 indicated that a large majority (70.00%) in large sized Gaushalas, followed by equal majority in small (73.33%) and medium sized (80.00%) Gaushalas adopted 'vaccination against HS/FMD/BQ diseases before onset of monsoon' as majority of the Gaushalas were aware of the vaccination schedule and timely vaccination services were provided by Department of Animal Husbandry & Veterinary Services against these common diseases. Since most large-sized Gaushalascould afford and had access to veterinary services, compared to small-sized Gaushalas, a huge majority (80.00%) of large-sized Gaushalas, followed by medium-sized Gaushalas (73.33%) and small-sized Gaushalas (80.00%) adopted the practice of "treatment of sick animals by veterinarian." In order to avoid an epidemic of disease and to maintain tight monitoring on the sick cattle, the majority of large-sized Gaushalas (90.00%), followed by medium-sized Gaushalas (93.33%) and exactly half of small-sized Gaushalas (20.00%), adopted the practice of "isolating sick animal from the herd." Similar findings were observed by Gupta (2017) [3] and Mandi and Subhash (2020) [4].

Table 3: Distribution of Gaushalas according to their healthcare practices

Sr. No.	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 (73.33%)	4 (26.66%)	12 (80.00%)	3 (20.00%)	7 (70.00%)	3 (30.00%)
2	Treatment of sick Animal by veterinarian	12 (80.00%)	3 (20.00%)	11 (73.33%)	4 (26.66%)	8 (80.00%)	2 (20.00%)
3	Isolation of sick animal from the herd	3 (20.00%)	12 (80.00%)	14 (93.33%)	1 (6.66%)	9 (90.00%)	1 (10.00%)
4	Deworming of cattle	9 (60.00%)	6 (40.00%)	13 (86.66%)	2 (13.33%)	7 (70.00%)	3 (30.00%)
5	Quarantine	10 (66.66%)	5 (33.33%)	9 (60.00%)	6 (40.00%)	6 (60.00%)	4 (40.00%)

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

General management practices

A examination of Table 4 reveals that a large majority in medium sized (80.00%) and in large sized Gaushalas (90.00%) and most of the small sized Gaushalas (60.00%) adopted 'provision of sufficient ventilation in cattle shed'. This is due to the fact that, majority of large sized Gaushalas provided sufficient space for ventilation for fresh air circulation in Gaushalas which directly impacts animal health and its performance. Further, large majority (70.00%) in large sized Gaushalas, followed by medium (60.00%) and 53.33 percent in small 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 milk production under hygiene condition by majority of large sized was more as compared to small and medium sized Gaushalas. All the Gaushalas (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. 90.00 percent in large sized Gaushalas, followed by medium (93.33%) and 86.66 percent in small sized Gaushalas had access to water source. The observations were fairly supported by the observations of Sharma (2020) [6], Singh (2018) [5] and Gupta (2017) [3].

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

Sl. No.	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	9	6	12	3	9	1
		(60.00%)	(40.00%)	(80.00%)	(20.00%)	(90.00%)	(10.00%)
2	Weaning of calf	10	5	10	5	8	2
		(66.66%)	(33.33%)	(6.66%)	(33.33%)	(80.00%)	(20.00%)
3	Daily cleaning of cattle shed before milking	8	7	9	6	7	3
		(53.33%)	(46.66%)	(60.00%)	(40.00%)	(70.00%)	(30.00%)
4	Record maintenance	9	6	8	7	6	4
		(60.00%)	(40.00%)	(53.33%)	(46.66%)	(60.00%)	(40.00%)
5	Milking of dairy cattle at fixed time	8	7	13	2	8	2
		(53.33%)	(46.66%)	(86.66%)	(13.33%)	(80.00%)	(20.00%)
6	Provide sufficient clean and fresh water to cattle.	13	2	14	1	9	1
		(86.66%)	(13.33%)	(93.33%)	(6.66%)	(90.00%)	(10.00%)
7	Disinfection of animal shed every week by disinfectant	11	4	12	3	6	4
		(73.33%)	(26.66%)	(80.00%)	(20.00%)	(60.00%)	(40.00%)
8	Care of new born	10	5	13	2	6	4
	calf	(66.66%)	(33.33%)	(86.66%)	(13.33%)	(60.00%)	(40.00%)

Clean milk production

It is inferred from the Table 5 that, majority (90.00%) in large sized Gaushalas, followed by 80.00 percent in medium and 86.66 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 80.00 percent in large sized Gaushalas, followed by majority 73.33 percent in medium and 80.00 percent in small 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. Additionally, a majority of large-sized Gaushalas (70.00%), medium- sized Gaushalas (93.33%), and small-sized Gaushalas (80.00%) adopted the practice of "using clean utensils for milking." This could be because the bulk of the huge Gaushalas were more aware and concerned, giving clean milk production procedures more weight. After milking, the milk was handled carefully and the process was completed in a hygienic manner. The results matched with the research conducted by Chandra (2020), Singh (2018) [5] and Gupta (2017) [3].

Table 5: Distribution of Gaushalas according to clean milk production

Sl. No.	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 & antiseptic solution before milking	13 (86.66%)	2 (13.33%)	12 (80.00%)	3 (20.00%)	9 (90.00%)	1 (10.00%)
2	Practicing full hand method of milking	12 (80.00%)	3 (20.00%)	11 (73.33%)	4 (26.66%)	8 (80.00%)	2 (20.00%)
3	Using of clean utensils for milking	12 (80.00%)	3 (20.00%)	14 (93.33%)	1 (6.66%)	7 (70.00%)	3 (30.00%)
4	Washing of milker hand with soap/antiseptic solution before milking	13 (86.66%)	2 (13.33%)	13 (86.66%)	2 (13.33%)	6 (60.00%)	4 (40.00%)
5	Personal hygiene while milking	14 (93.33%)	1 (6.66%)	10 (66.66%)	5 (33.33%)	6 (60.00%)	4 (40.00%)

Conclusions

The present study revealed that the composition of herd maintained in all the Gaushalas, 100 percent comprised of indigenous cattle. Data were collected from 40 Gaushalas selected and grouped into 3 categories based on total number of animals as small (100 animals), medium (300 animals) and large (>300 animals), 15 Gaushalas in small where as 15 Gaushalas medium and 10 Gaushalas in large category in Parbhani and Latur districts Gaushalas maintained ‘to serve the needs of charitable institutions’.

About 37.50 percent of the Gaushalas possessed medium herd size (between 300 cattle), followed by 37.50 percent with small herd size (below 100 cattle) and 25.00 percent with large herd size (above 300 cattle) The 40 registered Gaushalas were selected and covering 2 districts. For the purpose of primary data collection, well-structured, standardized, data collection tool interview schedule was constructed which included development of schedule to assess adoption of GMPs in Gaushalas. In case of overall adoption of GMPs, most of the large sized Gaushalas performed better than medium and small sized Gaushala. The results of this study clearly show that cattle in all of the Gaushalas were hungry because they did not follow the recommended level of feeding pattern. This could be because there was insufficient land used for fodder cultivation or because the farmers were not aware of balanced feeding practices.

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