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The Management Practices Adopted by Gaushalas in Hingoli and Nanded district

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Abstract
The study was conducted in Hingoli and Nanded district with a view to find out the adoption of improved Animal Husbandry practices by the Gaushalas. The 40 selected Gaushalas were categorized as small (14), medium (16) and large size (10) based on the herd size. The major findings revealed that about 40.00 percent of the Gaushalas possessed medium herd size (100-300 cattle), followed by 35.00 percent with small herd size (50-100 cattle) and 25.00 percent with large herd size (above 300 cattle). Average herd size of small, medium and large Gaushalas was 1032, 2537 and 4925, respectively. Majority of large sized Gaushalas had more cultivable lands (31.84%) followed by grazing land (22.72%) as compared to small and medium sized Gaushalas. More than 37.73 percent of manpower used in all the Gaushalas comprised of daily labour. The total inflow and outflow of cattle in all the Gaushalas per annum was 605 and 166, respectively. In the case of overall level of adoption of Good Management Practices in Gaushalas, 10.00 percent of the large sized Gaushalas belongs to high adopter categories, 60.00 percent Gaushalas belongs to medium adopter categories and 30.00 percent Gaushalas belongs to low adopter categories. In medium sized Gaushalas 43.75 precent belongs to high adopter categories, 25 percent Gaushalas belong to medium adopter categories and 31.25 percent Gaushalas belong to low adopter categories. In case of small sized Gaushalas 31.71 percent belong to high adopter categories, 42.85 percent Gaushalas belong to medium adopter categories and 21.42 percent Gaushalas belong to low adopter categories.

Keywords: Adoption, Gaushalas, management, practices

Introduction
As per the 20th Livestock census, India possess about 192.49 million cattle population showing an increase of 0.8% over the previous census. The Exotic/crossbred and Indigenous/ Non-descript cattle population in the country is 50.42 million and 142.11 million respectively. The indigenous /Non-descript female cattle population has increased by 10% in 2019 as compared to previous census. The population of the total exotic/crossbred cattle has increased by 29.3% in 2019 as compared to previous census. There is a decline of 6% in the total Indigenous cattle population over the previous census. The total milch animals (in milk and dry) in cows and buffaloes is 125.34 million, an increase of 6.0% over the previous census. The indigenous /non-descript cows contribute 20% of the total milk production in the country. The contribution of exotic cows in total milk production is 2%. The total meat production during 2021-22 was 9.29 million tonnes. As per the 20th Livestock census the livestock population of maharashtra is 19.50 million out of which cattle population is 13.90 million (7.22% of national population). Stands fifth position next to West Bengal, Uttar Pradesh, Madhya Pradesh and Bihar. There is a decline of 10.07% cattle population over the previous census. (Livestock Census 2020) [4].

The old, abandoned, unproductive, infertile and infirm cows are sheltered in shelter houses, referred as “Gaushalas” is a traditional practice in India. The exact origin of these shelters is not known but documentary evidence of their existence is available from ancient time (Lodrick, 1981) [5]. The gaushalas movement is synonymous with the protection of stray cattle and these cattle are wealth of India. It is being practiced for the last five thousand years and its origin can be traced in the Vedic period when social customs and rules laid great emphasis on protection, preservation and development of cows for home and oxen for agricultural fields. Gaushala play a vital role in safeguarding the cattle wealth of our country.

It is primarily occupied with providing shelter to cows and caters mostly to the needs of non-lactating, weak, unproductive and stray cattle. Gaushala become a model for the sustainable conservation of indigenous cattle and development of cattle population in future. However, the growing consensus for the protection and conservation of our cattle resources due to drastic decline in the indigenous cattle population over the past few decades, institution like gaushalas have gained significant importance over the time, but still the potential of gaushalas are yet to be tapped by its stakeholders especially in India. (Mandi *et al*, 2020) [8].

Materials and Methods

The study was conducted in Hingoli and Nanded district during the year 2022-2023 in 40 Gaushalas**, s**elected randomly. The 40 selected Gaushalas were further categorized as small (n=14), medium (n=16), large size (n=10) Gaushalas based on the herd size defined as below (50-100) as small, medium (100-300) and large (above 300), respectively. The primary data was collected from the concerned individuals/stakeholders involved in maintaining the Gaushalas through well-developed interview schedule. Good Management Practices (GMPs) was operationally defined as the degree to which a respondent actually adopts a practice for the purpose of measurement of extent of adoption of GMPs in their Gaushalas at the time of investigation and it was determined by a simple adoption schedule developed by the investigator. The practices were classified into five categories namely, breeding, feeding, healthcare, general management, and clean milking practices. Against each of the practices, there were two columns representing 'adopted', and 'not adopted' with score of 1 and 0, respectively. The adoption scores were then converted to adoption index by applying the following formula.

$$\text{Level of adoption} = \frac{\text{Total score obtained by the respondents}}{\text{Maximum possible score}} \times 100$$

According to the final score values obtained, the Gaushalas were categorized into three groups namely, 'Low', 'Medium' and 'High' adopter categories considering the mean and standard deviation. The total score obtained by Gaushalas was calculated and with the help of above formula their adoption level for various practices and overall adoption level were calculated.

Result and Discussion

The effective functioning of Gaushalas can be studied through assessing the level of GMPs adopted by the selected Gaushalas. Hence, effort has been undertaken to study the adoption level of GMPs by the selected Gaushalas in the study area. The GMPs play an important role in improving the production performances of cattle, enhancing efficiency of managing animal welfare practices in Gaushalas. In the present study, ''adoption' was operationalised as the degree to which the good management practices *viz.* breeding, feeding, healthcare, general management, clean milk production and animal welfare practices were adopted in the Gaushalas.

Adoption level of Gaushala in breeding practices

From the Table no. 1 it could be inferred that, a majority (25.00%) in case of medium sized Gaushalas, followed by 21.00% in small and 20.00% in large 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. A large majority (88.00%) in case of medium Gaushalas, followed by 71.00 percent of small sized Gaushalas and 70.00 percent of large sized Gaushalas adopted 'breeding through Artificial Insemination/Natural Services'. However, majority of the Gaushalas preferred Natural Service to Artificial Insemination as bulls were maintained in the Gaushala herd. A large majority (100%) of larged sized Gaushalas adopted 'pregnancy diagnosis by veterinarian' as compared to 100 percent in medium Gaushala and 79.00 percent by small sized Gaushalas. This could be due to 'inadequate knowledge and experience in case of large sized Gaushalas about pregnancy diagnoses therefore Veterinarians were preferred for such services.

Cheke (2015) [1] revealed that majority (72.50%) of the dairy farmers belonged to medium level of adoption followed by 15.83 percent in low and 11.67 percent in high level of adoption category.

Gupta (2017) [3] revealed that more than half of the respondents (55.83%) belonged to medium level of adoption category, followed by 27.56 percent and 16.67 percent in low and high level of adoption category, respectively.

Table 1: Distribution of Gaushalas according to their adoption level in breeding practices

(n= 40)

Sr. No.	Breeding Practices	Small		Medium		Large	
		Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)
1	Detection of heat	3	11	4	12	2	8
		(21%)	(79%)	(25%)	(75%)	(20%)	(80%)
2	Breeding through N.S/A.I.	10	4	14	2	7	3
		(71%)	(29%)	(88%)	(12%)	(70%)	(30%)
3	Insemination of dairy cattle within 12-18 hrs onset of	5	9	3	13	1	9
	Estrus	(36%)	(64%)	(19%)	(81%)	(10%)	(90%)
4	Pregnancy diagnosis by Veterinarian	11	3	16	0	10	0
		(79%)	(21%)	(100%)	(00%)	(100%)	(00%)
5	Pregnancy detection by external Signs	12	2	14	2	9	1
		(86%)	(14%)	(88%)	(12%)	(90%)	(10%)

Adoption level of Gaushala in feeding practices

It is inferred from the Table 2 that a large majority (44.00%) in medium sized Gaushalas, followed by a significant (36.00%) in small and 30.00 percent in large sized Gaushalas adopted 'green fodder cultivation' as majority of the large sized Gaushalas possessed adequate land for fodder cultivation. All the large sized Gaushalas (50%), followed by majority (37.00%) in medium sized Gaushalas and small sized Gaushalas (14.00%) adopted 'stall-feeding or semi-stall feeding' for equitable supply of balanced ration of feed and fodder to the cattle.

Majority (70.00%) in large sized Gaushalas, followed by 64.00 percent in small sized Gaushalas and 56.00 percent in medium 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 prioritized in the Gaushalas under study.

The results are in accordance with the findings of Madke *et al.* (2006) [6] revealed that grazing of animal and soaking of concentrates were followed by only 16% farmers, whereas feeding extra dose concentrates to pregnant animals, feeding of mineral mixture was followed by 44.67, 3.33, 32.67 and 33.33% farmers of all categories.

Also similar result Meena *et al.* (2012) [9] conducted study to know adoption level of tribal farmers and reported that the adoption level of regarding feeding of dry fodder was (100%) followed by feeding of colostrum to newly born calves (86.25%) was quite high and around 50% of farmer fed green fodder to animals.

Table 2: Distribution of Gaushalas according to their adoption level in feeding practices

(n= 40)

Sr. No.	Feeding Practices	Small		Medium		Large	
		Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)
1	Cultivation of green fodder crops	5 (36%)	9 (64%)	7 (44%)	9 (56%)	3 (30%)	7 (70%)
2	Stall feeding or semi-stall feeding	2 (14%)	12 (86%)	6 (37%)	10 (63%)	5 (50%)	5 (50%)
3	Feeding of extra ration during pregnancy	9 (64%)	5 (36%)	9 (56%)	7 (44%)	7 (70%)	3 (30%)
4	Preparation and feeding of silage	0 (00%)	14 (100%)	2 (13%)	14 (87%)	1 (10%)	9 (90%)
5	Dipping of concentrate feed in water one hour before feeding	0 (00%)	14 (100%)	2 (13%)	14 (87%)	4 (40%)	6 (60%)
6	Provision for mineral mixture powder	0 (00%)	14(100%)	1 (6%)	15 (94%)	2 (20%)	8 (80%)
7	Milch animals fed with extra concentrate feed @ 1 kg to 2.5 kg	10 (71%)	4 (29%)	8 (50%)	8 (50%)	7 (70%)	3 (30%)

Adoption level of Gaushalas in healthcare practices

Data presented in Table 3 indicated that a large majority (94.00%) in medium sized Gaushalas, followed by equal majority in small (86.00%) and large 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. A large majority (88.00%) in medium sized Gaushalas, followed by small (79.00%) and large sized Gaushalas (60.00%) 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 (80.00%) in large sized Gaushalas, followed by 50.00 percent in small and exactly half in medium sized Gaushalas (38.00%) 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 Mali (2014) [7] and Sharma (2010) [12] which observed that 91.66% of dairy farmers had knowledge about time of vaccination against infectious diseases and majority of the dairy farmers (94.44%) had complete knowledge about major disease of dairy animals and symptoms of foot and mouth disease. Supported the above observations.

Table 3: Distribution of Gaushalas according to their adoption level in healthcare practices

(n= 40)

Sr. No.	Healthcare Practices	Small		Medium		Large	
		Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)
1	Vaccination against HS/ FMD / BQ disease before onset of monsoon	12 (86%)	2 (14%)	15 (94%)	1 (6%)	8 (80%)	2 (20%)
2	Treatment of sick animal by veterinarian	11 (79%)	3 (21%)	14 (88%)	2 (12%)	6 (60%)	4 (40%)
3	Isolation of sick animal from the herd	7 (50%)	7 (50%)	6 (38%)	10 (62%)	8 (80%)	2 (20%)
4	Deworming of cattle	4 (29%)	10 (71%)	7 (44%)	9 (56%)	3 (30%)	7 (70%)

Adoption level of Gaushalas in general management practices

A perusal of Table no. 4 reveals that a large majority in medium sized (88.00%) and in small sized Gaushalas (71.00%) and most of the large sized Gaushalas (70.00%) 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 (79.00%) in small sized Gaushalas, followed by medium (75.00%) and 70.00 percent 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 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. 93.00 percent in small sized Gaushalas, followed by large (90.00%) and 88.00 percent in medium sized Gaushalas had access to water source.

The observations were fairly supported by the observations of Cheke (2015) [1], and Parmar (2016) [10].

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

(n= 40)

Sr. 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	10 (71%)	4 (29%)	14 (88%)	2 (12%)	7 (70%)	3 (30%)
2	Weaning of calf	9 (46%)	5 (36%)	14 (88%)	2 (12%)	8 (80%)	2 (20%)
3	Daily cleaning of cattle shed before milking	11 (79%)	3 (21%)	12 (75%)	4 (25%)	7 (70%)	3 (30%)
4	Record maintenance	14 (100%)	0 (0%)	16 (100%)	0 (0%)	10 (100%)	0 (0%)
5	Milking of dairy cattle at fixed time	12 (86%)	2 (14%)	13 (81%)	3 (19%)	5 (50%)	5 (50%)
6	Provide sufficient clean and fresh water to cattle.	13 (93%)	1 (7%)	14 (88%)	2 (12%)	9 (90%)	1 (10%)
7	Disinfection of animal shed every week by Disinfectant	7 (50%)	7 (50%)	10 (63%)	6 (37%)	7 (70%)	3 (30%)
8	Care of new born calf	14 (100%)	0 (0%)	16 (100%)	0 (0%)	10 (100%)	0 (0%)

Adoption level of Gaushalas in clean milk production practices

It is inferred from the Table no. 5 that, majority (90.00%) in large sized Gaushalas, followed by 88.00 percent in medium and 86.00 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 71 percent in small sized Gaushalas, followed by majority 63.00 percent in medium and 20.00 percent in large 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.

Further, large majority (75.00%) of medium sized Gaushala, followed by 71.00% in small and 70 percent in three-fourth in large sized Gaushalas adopted 'using of clean utensils for milking'. This might be due to the reason that majority of the large sized Gaushalas had better awareness and concern, attached more importance to the clean milk production practices. The milking was carried out under hygienic conditions and the milk was handled properly after milking.

The findings were in accordance with the study of Taggar *e. al* (2008) [13] reported that animals varied from 10-12 liters of milk per day of the 40 buffaloes, 27 were lactating cows, 12 were non-lactating and was one male. Out of 40 animals, 15 cattle (37%) showed signs of acute inflammation and the remaining 25 cattle showed only a mild degree of inflammation.

Also found similar result Dandapat *et.al* (2010) [2]. found average daily milk yield during first lactation as 9.19±0.43 kg in crossbred.

Table 5: Distribution of Gaushalas according to their adoption level in clean milk production

(n=40)

. No.	Clean Milk Practices	Small		Medium		Large	
		Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)	Adopted Frequency (%)	Not Adopted Frequency (%)
1	Cleaning of udder with clean water & antiseptic solution before milking	12 (86%)	2 (14%)	14 (88%)	2 (12%)	9 (90%)	1 (10%)
2	Practicing full hand method of milking	10 (71%)	4 (29%)	10 (63%)	6 (37%)	2 (20%)	8 (80%)
3	Using of clean utensils for milking	10 (71%)	4 (29%)	12 (75%)	4 (25%)	7 (70%)	3 (30%)
4	Washing of milker hand with soap/antiseptic solution before milking	12 (86%)	2 (14%)	13 (81%)	3 (19%)	9 (90%)	1 (10%)
5	Personal hygiene while milking	11 (79%)	3 (21%)	15 (94%)	1 (6%)	8 (80%)	2 (20%)

Overall adoption level of Gaushalas in good management practices

Data presented in Table no. 6 indicated that the distribution of Gaushalas according to their overall adoption of good management practices revealed that in case of large sized Gaushalas majority of 10.00 percent belonged to 'high adopter categories' and 60.00 percent belonged to 'medium adopter categories'. In medium sized Gaushalas, a majority (25.00%) of them belonged to 'medium adopter category' and high adopter category 43.75 percent and low adopter category (31.25%). Among the Gaushala exactly half (42.25%) of the Gaushalas belonged to 'medium adopter category', another 35.71 percent and 21.42 percent belonged to high and low adopter category', respectively. This indicted that the majority of Gaushalas, both small and medium sized, lacked sufficient knowledge of good management practices (GMPs). It's probable that a few important factors, like insufficient funding and training, play a role in Gaushalas inability to perform GMPs.

Table 6: Distribution of Gaushalas according to their overall adoption level in good management practices

(n= 40)

Sr. No.	Adoption category	Small Frequency (%)	Medium Frequency (%)	Large Frequency (%)
1	Low (up to 4)	3 (21.42%)	5 (31.25%)	3 (30%)
2	Medium (5-8)	6 (42.85%)	4 (25%)	6 (60%)
3	High (above 9)	5 (35.71%)	7 (43.75%)	1 (10%)
	Total	14 (100%)	16 (100%)	10 (100%)

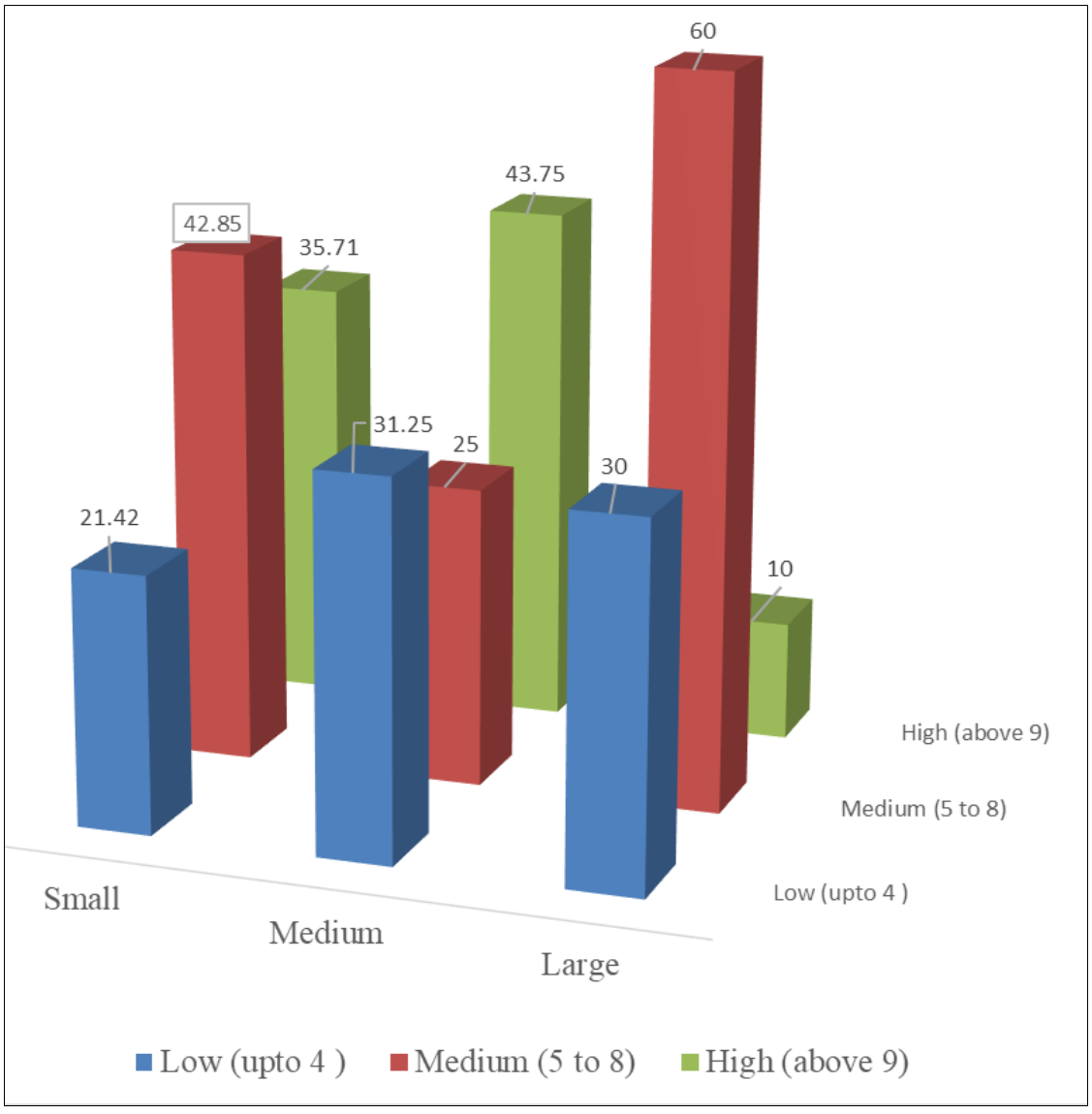

Fig 1: Overall adoption of GMPs by the Gaushalas

Conclusion

In case of overall adoption of GMPs, most of the medium sized Gaushalas performed better than small and large Gaushalas. The non-adoption of GMPs in small and large Gaushalas was attributed to lack of resources and adequate training facilities. The major constraints of Gaushalas were 'incidence of reproductive disorders in cattle', 'poor knowledge about cattle health management', 'inadequate funds/capital and training' for effective management. In conclusions, there is strong need to sensitize and train the Gaushalas management about the GMPs through adequate extension, policy and financial support for holistic development of Gaushalas in the country.

References

1. Cheke SS. Constraints faced by dairy cattle farmers in adoption of Improved Dairy Management Practices. (Master's Thesis). Mahatma Phule Krishi Vidyapeeth, Rahuri; c2015.
2. Dandapat A, Banerjee D, Chakraborty D. Genetic studies on various production and reproduction traits of Sahiwal and crossbred cattle (HF× Jersey× Sahiwal) of an organised farm. Vet World. 2010;3(4):167-168.
3. Gupta J. Adoption of Good Dairy Management Practices with reference to Animal Welfare in Central Plain Zone of Uttar Pradesh. (Master's Thesis). ICAR- National Dairy Research Institute, Karnal, Haryana; c2017.
4. Livestock Census 2020. 20th Livestock Census released by the Union Ministry of Fisheries, Animal Husbandry and Dairying. Government of India; c2020.
5. Lodrick DO. Sacred Cows, Sacred Places: Origins and Survival of Animal Homes in India; University of California Press: Berkeley, CA, USA; c1981. ISBN 13: 9780520041097.
6. Madke PK, Murkute JS, Upadhye SV, Vedpathak CP. Adoption of scientific feeding practices by dairy farmers. Indian J Anim Res. 2006;40(2):155-157.
7. Mali KN, Belli RB, Guledagudda SS. A study on knowledge and adoption of dairy farmers about improved dairy management practices. Agric. Update. 2014;9(3):391-395 Manipur.
8. Mandi K, Subash S. Adoption of Good Management Practices by the Gaushalas (cowshed) in Karnataka State, India. Asian J Agric Ext Econ Sociol. 2020;37(4):1-9.
9. Meena GL, Tailor R, Sharma L. Adoption of scientific dairy husbandry practices by tribal farmers. Rajasthan J Ext Educ. 2012;20:121-124.
10. Parmar SV, Patel JA, Dhami AJ, Shah RG. Impact of post-breeding hormonal treatment on conception in repeat breeding Gir cattle at a Gaushala. Indian J Anim Reprod. 2016, 37(1).
11. Singh AK. A Comparative study on the Adoption of good dairy farming practices in the Central plain and Eastern plain zones of Uttar Pradesh. (Master's Thesis). ICAR-National Dairy Research Institute, Karnal, Haryana; c2015.
12. Sharma D, Joshi G, Singathia R, Lakhotia R. Fungal Infections in Cattle in a Gaushala at Jaipur. Haryana Vet. 2010;49:62–63.
13. Taggar RK, Bhadwal MS. Incidence of tuberculosis in a heterogenous cattle herd. North-East Veterinarian. 2008;8(1):14-15.