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Constraints in adoption of management practices by gaushalas

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Abstract
This study was carried out in Jalna and Aurangabad district to identify various constraints faced by the gaushalas in adoption of good package of practices. The data were collected through interview schedule from 40 gaushalas of study area. In small gaushalas inadequate capital for infrastructure development was major problem followed by high cost of inputs, inadequate knowledge of scientific management, inadequate knowledge of cattle waste management, inadequate government support for training and development, high rate of calf mortality. In medium sized gaushalas inadequate knowledge of scientific management major constraint followed by inadequate knowledge of cattle waste management, inadequate government support for training and development, inadequate government support for training and development, inadequate capital for infrastructure development, high cost of inputs and high rate of calf mortality. In large gaushalas inadequate government support for training and development was major problem followed by inadequate knowledge of scientific management, high rate of calf mortality, high cost of inputs, inadequate capital for infrastructure development and inadequate knowledge of cattle waste management respectively.

Keywords: Guashalas, constraints, package of practices, adoption

Introduction
India rank first in cattle and buffalo population. The total livestock population is 535.78 million in the country during 2020- 21showing increase of 4.8% over livestock census 2012. The total number of cattle in the country is 192.49 million in 2020-21 showing an increase of 0.8% over previous census. The stray cattle population in India is about 5 million which is over and above the 193 million cattle present in the country. The census further trends the population of stray cattle show marginal decrease of about 3.2% over the previous census but the figure still hovers around 5 million which is worrisome (Anonymous 2020-21) [1]. According to the Bureau of Indian Standards, a gaushala is a protective shelter, abode, or sanctuary for cows, set up to improve their health and life, sell pure milk products, conserve germplasm, and stop animal cruelty (BIS, 1987) [2]. Analyzing the barriers gaushalas experienced in implementing effective management practices is one of the study's goals. Gaushalas faced many limitations and practical challenges, which contributed to the low GMP implementation rate. With the aid of a semi-structured interview schedule, the respondents were personally interviewed to learn about the obstacles they encountered when implementing GMPs.

Materials and Methods
A field survey was conducted to collect the information on various management practices followed by Gaushala owners in Jalna and Aurangabad district of Maharashtra. The data were recorded during a period of 1 March 2023 to 31 June 2023 by using pretested interview schedule, interview guide and direct observations method.

Analysis of Constraints faced by Gaushalas
The constraints include the various problems encountered by the Gaushalas in maintaining a large population of cattle, most of which are unproductive and uneconomical.

In order to find out the various problems faced by the Gaushalas, the broad categories of constraints were made namely housing constraints, breeding constraints, and feeding constraints, animal healthcare constraints and institutional constraints. These constraints were then ranked by the selected respondents and analyzed accordingly using Garrett Ranking Method.
It is operationalized as all the factors which hinder the rearing of stray cattle. Then, the data was tabulated and analyzed by using Garret ranking technique to interpret the results. By using this technique, the orders of the merit given by the respondents were transformed into ranks by using the following formula

$$\text{Percent Position} = \frac{100\ (Rij-0.5)}{Nj}$$

Where,
Rij = Rank given for the i^{th} variable by j^{th} respondents
Nj = Number of variable ranked by j^{th} respondents

The percent position was converted into scores as referring table given by Garrett and Woodworth (1969) [4]. For each factor or problem, the average score was worked out to arrive at mean scores and thus based on the mean scores, the ranks were given and the most important factor was ranked first and the least important problem was ranked as the last.

Statistical analysis
The data obtained from survey was analyzed statistically by using suitable methods. The collected data were classified and tabulated in order to measure the objectives of the study. Based on the nature of the study, the tabulated data were analyzed statistically with the help of the explained statistical methods

Frequency
This was used to find out the number of respondents in each cell.

Percentage
The percentage value was calculated to make simple comparisons. Percentage value was calculated by dividing the frequency in the particular cell by number of respondents and multiplies it by 100.

$$\text{Percentage (P)} = \frac{n}{N} \times 100$$

Where,
n= Frequency of particular cell
N=Total number of the respondents in a particular cell.

Mean
The Arithmetic average of the set of data had to be often computed during the analysis of data. This measurement was used to see the central tendency of the data. The mean score of a series of data was equal to the sum of individual measures divided by the total number of respondents. The mean scores for each group were worked out by computing with this formula.

$$X = \frac{\sum Xi}{N}$$

Where,
X= Mean
ΣXi= Sum of each of the individual, measurement of the scores.
N= Number of respondents.

Standard Deviation
The Standard Deviation is defined as the square root of the mean of the squared deviations of individual values from their means. It indicates a sort of group standard spread of values around their mean.

Standard Error of the Mean
Standard Error of the Mean is defined as the standard deviation of the sampling distribution of the mean. The formula for the standard deviation of error of the mean is as follows.

$$\sigma_M = \frac{\sigma}{\sqrt{N}}$$

Result and Discussion
The primary limitations encountered by the gaushala management were examined under five sub-topics, namely breeding, feeding, healthcare, institutional, and general limitations. The limitations were ranked using Garret's ranking technique for this purpose. The following was the list of the main restrictions, ranked in order of priority:

1. Housing constraint

Table 1: Constraints faced by the Gaushalas in housing practices (n= 40)

Sr. No.	Constraints	Small		Medium		Large	
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
1	Less Space (shed)	11.368	5	28.769	3	233.875	1
2	Less Space (open)	12.157	4	27	4	147.5	3
3	Poor quality roofing material	12.578	3	31.307	2	126.25	5
4	Lack of cleanliness	17.684	1	26.538	5	138.875	4
5	Lack of provision of cooling in summer	12.631	2	44.932	1	149.25	2

From table no.1 it was revealed that the lack of cleanliness was the major constraint in small gaushalas (17.68), followed by lack of provision of cooling in summer (12.63), poor quality roofing material (12.57), less Space (open) (12.15), less Space (shed) (11.36) respectively. In Medium level of gaushalas lack of provision of cooling in summer was major problem (44.93) followed by poor quality roofing material(31.30), less space (shed) (28.76), less space (open) (27), lack of cleanliness (26.53). In the large sized gaushalas less space for shed was major constraint (233.87), followed by lack of provision of cooling in summer (149.25), less Space (open) (147.5), lack of cleanliness (138.87) and poor quality roofing material (126.25), respectively.

The findings of the present study was comparable with the researchers Prajapati *et al.* (2015) [11] revealed that major constraints observed in the adoption of improved housing practices for dairy animals in Navsari district were high construction cost, lack of own capital and lack of adequate space were major constraints for the 87.5, 49 and 28 per cent of the respondents in the rural areas and 35, 18 and 9 per cent of the respondents in the urban areas, respectively.

2. Breeding constraint: From table no. 2 it was revealed that in small gaushalas inadequate supply of quality breed specific semen (22.63) was the major constraint followed by inferior bulls used for natural Service (N.S) (16.63), incidence of reproductive disorders in cattle (14.21). In the medium and large gaushalas major constraint was inadequate supply of quality breed specific semen i.e.57.69 and 310.5, followed second constraint was inferior bulls used for natural Service (N.S) 39.53 and 188.75, third constraint incidence of reproductive disorders in cattle 34 and 180.87 and then timely heat detection 29.61 and 115.62, respectively.

Table 2: Constraints faced by the Gaushalas in breeding practices (n= 40)

Sr. No.	Constraints	Small		Medium		Large	
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
1	Inferior bulls used for Natural Service (N.S)	16.631	2	39.53	2	188.75	2
2	Inadequate supply of quality breed specific semen	22.631	1	57.69	1	310.5	1
3	Timely heat detection	12.526	4	29.61	4	115.625	4
4	Incidence of reproductive disorders in cattle	14.21	3	34	3	180.875	3

The findings of present study was similar with the researchers of Mohi and Bhatti (2006) [8] studied that constraints encountered by dairy farmers in adoption of improved dairy farming practices. Poor results of A.I., unavailability or distance location of A.I. centers, inadequate facilities at A.I. center were important constraints in adoption of breeding practices.

Umar *et al.* (2011) [13] observed that major constraints with respect to breeding were ill equipped A.I services, repeat breeding and lack of pedigree bull for natural services.

3. Feeding constraint

From table no.3 it was revealed that in small gaushalas non-availability of good quality concentrate feed ranked 1th with mean score 19, low availability of dry fodder ranked 2nd with mean score 13.105, non-availability of land for fodder production/grazing ranked 3rd with mean score 12.157, inadequate knowledge on balanced feeding ranked 4th with mean score 11.578 and inadequate supply of green fodder round the year ranked 5th with mean score 10.442, respectively.

Table 3: Constraints faced by the Gaushalas in feeding practices (n= 40)

Sr. No.	Constraints	Small		Medium		Large	
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
1	Inadequate supply of green fodder round the year	10.442	5	25.615	5	149.75	2
2	Non availability of good quality concentrate feed	19.00	1	26.846	4	139.00	4
3	Low availability of dry fodder	13.105	2	30.23	2	135.00	5
4	Non-availability of land for fodder production/grazing	12.157	3	28.461	3	225.75	1
5	Inadequate knowledge on balanced feeding	11.578	4	48.153	1	141.87	3

In medium gaushalas inadequate knowledge on balanced feeding ranked 1th with mean score 48.153, low availability of dry fodder ranked 2nd with mean score 30.23, non-availability of land for fodder production/grazing ranked 3rd with mean score 28.46, non-availability of good quality concentrate feed ranked 4th with mean score 26.84, and inadequate supply of green fodder round the year ranked 5th with mean score 25.615, respectively. Then in large gaushalas non-availability of land for fodder production/grazing ranked 1th with mean score 225.75, inadequate supply of green fodder round the year ranked 2nd with mean score 149.75, inadequate knowledge on balanced feeding ranked 3rd with mean score 141.87, non-availability of good quality concentrate feed ranked 4th with mean score 139 and low availability of dry fodder ranked 5th with mean score 135, respectively.

Kothari *et al.* (2002) [7] reported that 57.00 per cent of respondents conveyed dissatisfaction regarding provision for veterinary aid to gaushalas, 75.00 per cent affirmed about poor fodder arrangement, 66.70 per cent responded that there was no provision for water supply to gaushalas at concessional rates.

Shweta *et al.* (2019) [12] reported that the constraints faced by gaushalas in Haryana. The major overall constraints found in the study area were lack of green fodder (71.40), high cost of concentrates (67.44).

4. Healthcare constraints

Table 4: Constraints faced by the Gaushalas in healthcare practices (n= 40)

Sr. No.	Constraints	Small		Medium		Large	
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
1	Poor knowledge about cattle health management	27.368	1	45.076	2	376.75	1
2	Lack of timely access to veterinary services	20.894	2	43.769	3	218.125	2
3	Prevalence of poor environmental hygiene	18.421	3	69.307	1	200.875	3

From table no. 4 observed that the in small gaushalas poor knowledge about cattle health management was major constraint (27.368), lack of timely access to veterinary services was second constraint (20.894) and then prevalence of poor environmental hygiene(18.421). In medium gaushalas poor knowledge about cattle health management was rank second constraint (45.076), lack of timely access to veterinary services was third constraint (43.769) and prevalence of poor

environmental hygiene (69.307) was major constraint. In large gaushalas poor knowledge about cattle health management was major constraint (376.75), lack of timely access to veterinary services was second constraint (218.125) and then prevalence of poor environmental hygiene (18.421), respectively.

The result of present study similar with Yadav (2007) [14] revealed that animal health care was a major challenge before the Gaushala management constrained by meager resources, Besides common prevalent diseases, major reproductive problems in Gaushalas were anestrous, repeat breeding, uterine infection, cervicitis, pre and postpartum vaginal prolapse, retention of placenta, dystocia and mastitis.

Patil *et al*. (2009) [9] from his study observed that inadequate knowledge of disease, non-availability of veterinary services, high cost of concentrate feed, shortage of green fodder and lack of clean water were the major constraints.

5. Institutional constraints

Table 5: Constraints faced by the Gaushalas in institutional practices (n= 40)

Sr. No.	Constraints	Small		Medium		Large	
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
1	Difficulty in registration procedures	12.631	4	41.538	2	171.5	3
2	Inadequate infrastructure	14	3	57.23	1	138.5	4
3	Insufficient trained technical manpower	17.736	2	33.153	3	278.625	1
4	Inadequate credit facilities/funds/donations	21.578	1	30.076	4	194.375	2

From table no.5 observed that the in small gaushala inadequate credit facilities/funds/donations was major constraint (21.578), insufficient trained technical manpower was second constraint (17.736), inadequate infrastructure was third (14), and difficulty in registration procedures was fourth constraint (12.631). In medium gaushalas inadequate infrastructure was major constraint (57.23), difficulty in registration procedures was second (41.58), third constraint was insufficient trained technical manpower (33.153), inadequate credit facilities/funds/donations was fourth constraint (30.076). In large sized gaushalas insufficient trained technical manpower was major problem (278.625), inadequate credit facilities/funds/ donations was second (194.375), difficulty in registration procedures was third (171.5) and inadequate infrastructure was 4th (138.5), respectively.

The findings of the present study were similar with the findings of Jadhav *et al.* (2014) [5] stated that the biggest challenges facing female dairy cooperative society members were a lack of funding, a lack of scientific knowledge, a lack of confidence, irregular veterinary facilities, a delay in payment, a lack of knowledge about banking procedures, and a lack of knowledge about the advantages and operation of dairy cooperatives.

Khyalia *et al.* (2015) [6] reported that lack of interest in maintaining simple records (81.67%), respectively.

6. General Constraint

From table no.6 reported that the in small gaushalas inadequate capital for infrastructure development was major problem followed by high cost of inputs, inadequate knowledge of scientific management, inadequate knowledge of cattle waste management, inadequate government support for training and development, high rate of calf mortality. In medium sized gaushalas inadequate knowledge of scientific management major constraint followed by inadequate knowledge of cattle waste management, inadequate government support for training and development, inadequate government support for training and development, inadequate capital for infrastructure development, high cost of inputs and high rate of calf mortality. In large gaushalas inadequate government support for training and development was major problem followed by inadequate knowledge of scientific management, high rate of calf mortality, high cost of inputs, inadequate capital for infrastructure development and inadequate knowledge of cattle waste management respectively.

Table 6: Constraints faced by the Gaushalas in institutional practices (n= 40)

Sr. No.	Constraints	Small		Medium		Large	
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
1	Inadequate capital for infrastructure development	15.789	1	24.153	4	123.125	5
2	Inadequate knowledge of cattle waste management	9.842	4	25.769	2	120.25	6
3	High rate of calf mortality	9.631	6	23.461	6	125.625	3
4	Inadequate Government support for training and development	9.684	5	25.076	3	176.25	1
5	High cost of inputs	11.157	2	23.846	5	123.625	4
6	Inadequate knowledge of scientific management	10.052	3	38.538	1	126.875	2

Similar finding of present study with Chakravarthi *et al.* (2017) [3] revealed that constraints related high construction cost (85.00%)

Pilaniya *et al.* (2019) [10] observed that constraints perceived by dairy farmers and reported that the lack of knowledge of balancing ration (24.66 per cent) was the major constraint.

Shweta *et al.* (2019) [12] reported the constraint faced by gaushalas in Haryana wereas lack of adequate processing of waste 49.24 per cent, irregular government grants (62.95 per cent) and delay in fund availability (46.79 per cent) followed by inadequate funds to meet operational expenses (48.41 per cent) and lack of ease of finance (41.85 per cent), respectively.

Conclusion

The major constraints of gaushalas was poor knowledge about cattle health management, inadequate credit facilities/funds/ donations, inadequate supply of quality breed specific semen, inadequate capital for infrastructure development.

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