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Assessment of technological gap of scientific animal husbandry practices in Gaushalas

[1]Rashmi, [2]Sanjeev Kumar Singh, [2]Amit Singh, [3]Muneendra Kumar, [4]Dr. Alok Kumar Chaudhary and [3]Dr. Raju Kushwaha

[1]Department of Dairy Business Management, College of Dairy Science, DUVASU, Mathura, Uttar Pradesh, India

[2]Department of Veterinary and Animal Husbandry Extension, DUVASU, Mathura, Uttar Pradesh, India

[3]Department of Animal Nutrition, College of Veterinary Science and Animal Husbandry, DUVASU, Uttar Pradesh, India

[4]Department of Veterinary Medicine, College of Veterinary Science and Animal Husbandry, DUVASU, Uttar Pradesh, India

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Corresponding Author: Rashmi

Abstract

The Gaushalas are essential to maintaining our nation's cow wealth. Its main purpose is to sheltered and serves the needs of stray, weak, unproductive, and non-lactating animals. The gaushalas who raise stray cattles are yet ignorant with scientific management practices. If feeding, breeding, health care and other management practices fit in proper operation, it would be possible to achieve self sustainability. With this view, present study was undertaken with the objective of understanding the level of adoption of scientific practices by the Gaushalas. The study was conducted purposively in Agra division and total of 100 gaushalas were selected randomly from study area. The result findings revealed that highest adoption was found for timely heat detection (97.50%), feeding of colostrum fed to newborn calf (97.50%), timely vaccination of FMD/H.S vaccine in gaushalas (95.50%) and all gaushalas were adopting burial method for disposal off dead animal under four group of management practices *viz*., breeding, feeding, health care and management respectively. The result of overall adoption of scientific management practices stated that highest adoption was observed for health care practice (72.40%) followed by management practice (65.86%). Further it was found that 55.00 percent of gaushalas were classified as high adopter category followed by medium (29.00%) and low adopter category (16.00%).

Keywords: Adoption, cattle, gaushalas, management practices, Uttar Pradesh

Introduction

India has a rich pool of cattle genetic resources that include 50 recognized cattle breeds, both in terms of genetic variety and population (Annual Report 2019-20, NBAGR). The average daily milk production of indigenous cows is 3.54 kg, whereas nondescript cows produce 2.7 kg (Annual Report, DAHD&F 2021-2022) [3] showing that these animals productivity is significantly lower than their genetic potential. Further, their genetic dilution has been done through uncontrolled crossbreeding and interbreeding programme resulted in neglecting their genetic strength. In this process, these cattle become uneconomical and abandoned, seeking shelter in gaushalas rather household. These abandoned cattle are referred as stray cattle. According to the 20th livestock census, there are currently more than 5 million stray cattle in India and shelter houses are the only alternatives to shelter these stray cattle. Sarkar and Sarkar (2016) [15] also reported that cow slaughter is illegal mostly in all Indian states so that it is increasing their numbers every year due to their religious affiliations and ownership (Evans, 2013) [5]. According to Ghatak and Singh (2015) [6], street cow overpopulation in India is a growing social and public health issue because street cows are frequently wounded, can even result in human fatalities and pose potential public health concerns to both humans and animals. Due to the social and religious sensitivities associated with stray cattle, the government is resolving this complicated issue by building numerous gaushalas with sufficient space for their management and could provide shelter to large number of unproductive, old and stray cattle and its functioning runs with government grants or through public donations. Despite gaushalas being non-profit organizations and not required to operate for profit, it is crucial to research all facets of gaushalas, including breeding, feeding, health care and management for their economic sustainability. Considering the vitality of above stated facts, the study was taken up with specific objective to find out the extent of adoption of scientific animal husbandry practices in gaushalas.

Materials and Methods

The present study was conducted in Agra division of Uttar Pradesh, as it has the highest number of gaushalas. Based on the information available from Gau Seva Aayog, Department of Animal Husbandry, a list of gaushalas of Agra division was prepared and 100 gaushalas were

randomly selected with the condition that they must have minimum 50 stray cattle in gaushala. Thus a total sample size of 100 gaushalas involved in rearing and caring of stray cattle was selected for the study. Quantitative and qualitative data were collected through informal discussions with the president, secretary and staff of gaushalas. An interview schedule was developed to measure the adoption level of animal scientific management practices possessed at the time of investigation as evident from his response to a set of questions. Statements were framed under four practices i.e., breeding, feeding, health care and management. The gaushalas respondents were asked to give their responses about adoption of these practices on three point's continuum i.e., strongly agree, agree and disagree and the scores of 2, 1 and 0 were allotted respectively. The adoption index was calculated by using following formula:

$$\text{Adoption Index} = \frac{\text{obtained score}}{\text{Maximum obtainable score}} \times 100$$

The extent of adoption was calculated on the basis of total score secured by the gaushalas. Based on total scores, gaushalas were classified into three categories i.e., low, medium and high by using mean and standard deviation. The adoption index was calculated by using following formula.

Results and Discussion

Adoption of breeding practices

The result presented in table 1 revealed that highest adoption was found for timely heat detection. This might be due to the fact that in most of the gaushalas all male and female cattle were kept together and gaushalas members easily can detect the heat period of cattle was observed from showing the mounted behavior of animals in gaushalas. It was further observed that taking assistance from veterinary professionals during parturition and pregnancy diagnoses between 60 to 90 days of service which were ranked second and third respectively. The result findings are in line with Mandi and Subhash (2019) [9] who states that majority (60.00%) of gaushalas adopted pregnancy diagnosis by a veterinarian. However, keeping breeding records and artificial insemination were least adopted practices in study area. Low adoption of these practices might be due to the fact that most of animal were unproductive and old in gaushalas. Yadav *et al.* (2010) [18] also examined that due to lack of scientific record keeping and linkage with the research institutions have limited the breed improvement programme in gaushalas. Mandi and Subhash (2019) [9] findings also line with present study that majority of the gaushalas preferred natural service in the gaushala herd.

Table 1: Adoption of breeding practices in gaushala (n=100)

Sl. No.	Breeding Practices	SA	A	DA	Adoption Index	Ranks
1.	Artificial insemination practice to be followed in gaushalas	7	11	82	12.50	V
2.	Practice of keeping breeding records of gaushalas animals	9	10	81	14.00	IV
3.	Timely heat detection to be followed in animal	95	5	0	97.50	I
4.	Practice of pregnancy diagnosis between 60 to 90 days after service	13	87	0	56.50	III
5.	Assistance from veterinary professional during parturition	63	18	19	72.00	II

SA= Strongly Agree, A= Agree, DA= disagree

Adoption of feeding practices

The results for adoption of feeding practices (Table 2) reveals that higher adoption was observed for colostrum feeding to the new born calf (97.50%). The reason behind it that all calves were kept together with cow because motive of gaushalas is survivable of new born calves irrespective of income generation from milk produced. Rashmi *et al.* (2016) [12] also reported that (57.50%) of the respondents was providing colostrums feeding to newborn kid within half an hour of birth. The study further state that practice of feeding salt (80.00%), feeding extra concentrate to pregnant animal (38.50%) and regular feeding of green fodder (30.00%) were ranked second, third and fourth respectively. This might be due to fact that people also donate salt, green fodder and concentrate for feeding of stray cattle in gaushalas. Whereas low adoption was found for feeding of mineral mixture and feeding of concentrate on the basis of milk production. The reason of low adoption of these practices may be due to high price of mineral mixture and concentrate in the market and gaushalas staff also felt that there is no need of feeding of concentrates and mineral mixture for unproductive animals in gaushalas. Meena *et al.* (2012) [10] also reported that adoption level of tribal farmers regarding feeding of dry fodder (100%), feeding of colostrum to newly born calves (86.25%) and green fodder feeding (50.00%) was quite high. Rashmi *e t al.* (2022) [14] also reported that (79.90%) and (62.13%) of gaushalas managers said that inadequate supply of green fodder round the year and non-availability of land for fodder production were most important constraints in gaushalas.

Table 2: Adoption of feeding practices in gaushala (n=100)

Sl. No.	Feeding Practices	SA	A	DA	Adoption Index	Ranks
1.	Colostrum feeding to newborn calf	95	5	0	97.50	I
2.	Feeding of concentrate mixture on the basis of milk production	9	10	81	14.00	VI
3.	Regular feeding of green fodder	11	83	6	30.00	IV
4.	Advance pregnant animals are fed with extra concentrate ration	13	87	0	38.50	III
5.	Feeding of mineral mixture	7	23	70	18.50	V
6.	Feeding of salt	66	28	6	80.00	II

SA= Strongly Agree, A= Agree, DA= disagree

Adoption of health care practices

Health care is one of the important parameter about the performance of gaushalas. The study observed that highest adoption was found for timely vaccination for FMD/H.S (95.50%) followed by treatment of sick animals by veterinary professional (91.00%) and for adoption of practice for effective control of ectoparasite (85.00%) and endoparasite by regular deworming (55.00%). This could be due to the fact that government is running door to door vaccination campaign of FMD and H.S free of cost. Thus, most of gaushalas's animals are vaccinated. Kumar *et al.* (2021) [8] also reported that all the respondents got their calves vaccinated against foot and mouth disease and hemorrhagic septicemia. The least adopted practice was treatment of repeat breeder animal by veterinarian. This might be due to lack of awareness about repeat breeding condition in gaushalas. The result of deworming practice was in accordance with Sharma (2011) [16] who reported that 59.00 percent livestock owner adopted deworming practice for prevention and control of parasitic infestation. Katheria *et al*. (2016) [7] reported that 70.00 percent service provider said that farmer do not come at early stage of diseases occurrence.

Table 3: Adoption of health care practices in gaushala (n=100)

Sl. No.	Health Care Practices	SA	A	DA	Adoption Index	Ranks
1.	Treatment of sick animals by veterinary professionals	82	18	0	91.00	II
2.	Treatment of repeat breeder animals by veterinary professionals	11	48	41	35.00	V
3.	Timely vaccination of FMD/H.S vaccine in gaushalas	91	9	0	95.50	I
4.	Tick control measures to be followed in gaushalas	71	29	0	85.50	III
5.	Regular de-worming for prevention of parasitic infestation	17	76	7	55.00	IV

SA= Strongly Agree, A= Agree, DA= disagree

Adoption of management practices

The management practices that were followed by all the gaushalas were adopting burial method for disposal off dead animal. It was also observed that the adoption of cleaning of animal shed (94.50%) and practice of providing clean drinking water to animals (90.50%) were ranked second and third respectively. This might be due to the fact that social and religious sentiments attached with stray cattle. Further adopted practices were found that washing of udder, teats before milking, washing of hands before milking and practice of full hand milking method, whereas low adoption was found for mastitis detection on regular basis. Low adoption of mastitis detection test might be due to fact that most of the animals are unproductive in gaushalas. Ralte *et al.* (2021) [11] reported that total 395 quarter samples were examined and 171 quarters (43.32%) were found positive for subclinical mastitis. Dubey *et al.* (2013) [4] reported that highest adoption gap (47.89%) was found in the use of improved management practices.

Table. 4: Adoption of management practices in gaushala (n=100)

Sl. No.	Management Practices	SA	A	DA	Adoption Index	Ranks
1.	Providing clean drinking water to animals	81	19	0	90.50	III
2.	Regular cleaning of animal shed	89	11	0	94.50	II
3.	Burial method use for disposal off dead animal	100	0	0	100.00	I
4.	Washing of hands before milking	11	82	7	52.00	V
5.	Washing of udder and teats before milking	18	70	12	53.00	IV
6.	Practice of full hand milking method	8	73	19	44.50	VI
7.	Mastitis detection tests conducted on regular basis	14	25	61	26.50	VII

SA= Strongly Agree, A= Agree, DA= disagree

Overall adoption of scientific management practices

The results of overall adoption of scientific management practices stated that highest adoption was observed for health care practice followed by management practice. Further adoption was found for feeding and breeding practices in study area. It can be concluded from the findings of result that maximum adoption was found in case of health care practices, whereas minimum adoption was found for breeding practices. Akhter *et al.* (2013) [1] reported that adoption of the animal husbandry practices were observed in health & hygiene (56.30%) feeding of dairy animals (26.6%), breeding of dairy animals (17.20%) and clean milk production (6.70%). Rashmi *et al.* (2014) [13] reported that majority of the respondents (87.50%) in ravine region had medium adoption score of scientific breeding practices followed by 10.83% had high and 1.67% had low adoption. The better understanding of farmer on adoption of scientific practices which can reduce animal and human health risk and it will be very helpful for veterinarians, advisers, policymakers and industrial agents (Wera *et al.*, 2016) [17].

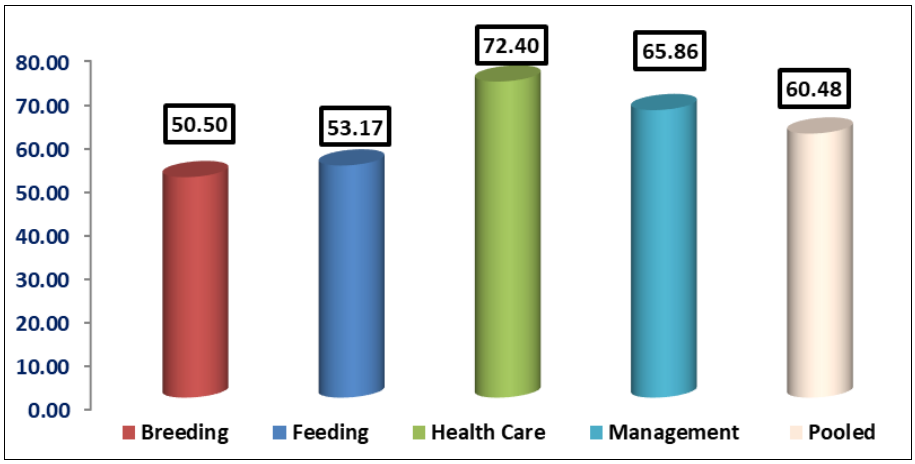

Fig 1: Overall adoption of scientific management practices

Distribution of gaushalas according to their adoption level of scientific management practices

Gaushalas were classified into low, medium and high adoption categories on the basis of mean and standard deviation. The results shows that (55.00%) of gaushalas were having high level of adoption of scientific management practices followed by (29.00%) of gaushalas having medium level of adoption and (16.00%) of gaushalas had low level of adoption. The main reason of low adoption of scientific management practices in gaushalas due to lack of resources in gaushalas. More and less similar findings also reported by Mandi and Subash (2019) [9] revealed that distribution of gaushalas according to their overall adoption of good management practices majority of gaushalas (60%) belonged to high adopter categories and 40% belonged to medium adopter categories.

Table.5: Distribution of gaushalas according to their adoption level of scientific management practices (n=100)

Sl. No.	Variable	Category	Frequency	Percentage
1.	Adoption (Mean: 60.63 SD: 5.187)	Low (up to 55)	16	16.00
		Medium (55-60)	29	29.00
		High (>60)	55	55.00

Conclusion

The study concluded that higher extent of adoption was observed in health care practices followed by medium in management practices, while lower extent of adoption was in breeding and feeding practices indicating the need to educate the gaushalas staff on these practices Most of gaushalas adopted traditional system of management and have lack of awareness about different scientific practices related to animal scientific management practices. Animal husbandry department and state universities must periodically conduct training and awareness programmes with respect animal health care and management aspect to boost up level of adoption of scientific management practices. It would be a little but very crucial step to provide sustainable security for the smoothly running of gaushalas.

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