

HOUSING MANAGEMENT PRACTICES FOLLOWED BY BUFFALO KEEPERS**V. K. Patel¹, D. V. Parmar² and K. J. Ankuya³**

1 Scientist (Animal Science), Krishi Vigyan Kendra, S. D. Agricultural University, Tharad - 385565

2 Assistant Professor, Polytechnic in Animal Husbandry, Kamdhenu University, Deesa - 385506

3 Professor, College of Veterinary Sci. and A. H., Kamdhenu University, Himmatnagar - 383010

Email: drvklpm@sda.u.edu.in

ABSTRACT

A field study was undertaken to find out the housing management practices followed by buffalo owners of north Gujarat region. Four districts Banaskantha, Mehsana, Patan and Sabarkantha were purposively selected. Three talukas from each district and three villages from each taluka were selected. Ten respondents from each village were selected and interviewed with the help of structured interview schedule. The present study revealed that majority of buffalo keepers (58.33%) were provided pucca type of housing to their animals. The chi-square value between districts was 19.55 ($p < 0.01$). About 80.00 percent of animal sheds were separate from dwelling but nearby to their dwelling. Majority buffalo owners (90.00%) followed single row housing system. About 88.06 and 94.72 percent respondents had adequate light and ventilation, respectively in their dairy farm. About 49.44 percent of respondents had earthen floor, 60.56 percent had slope towards back and more than half (53.06%) of the respondents used galvanized iron sheet roof in their animal shed. Facility of manger was observed in most of dairy farm (69.44%). The majority of respondents (65.00%) kept animal shed clean. It was noticed that 67.22 percent of the respondents had protected their buffaloes from extreme weather. About 80.28 percent had manure pit at distant location and 87.22 percent of respondents followed heap type manure storage system. Type of floor, type of roof, and provision of a manger differed significantly between districts at the 1% level, whereas practices to protect animals from extreme weather and the location of the manure pit were significant at the 5% level.

Keywords: housing, management practices, buffalo keepers, north Gujarat

INTRODUCTION

Livestock sector has been making rapid strides and remarkable growth in recent time, with positive impact on the lives of rural peoples mainly small farmers, marginal farmers and agricultural landless labours by raising their living standards considerably. The contribution of livestock sector to Indian agriculture and Indian economy is increasing steadily with a share of 30.47 percent in agriculture and allied sector GVAs and 4.75 percent in the country's total GVA (Anonymous, 2023^a). India has about 193.46 million cattle and 109.85 million buffalo population which is about 36.0 and 20.5 percent of the total livestock population of India, respectively (Anonymous, 2019). The livestock population of Gujarat was 26.96 million where cattle and buffalo population were 9.63 and 10.54 million, respectively which was 35.82 and 39.20 percent of total livestock population of the state. The Gujarat state produced 17.28 million tonnes of total milk, which was 7.49 percent of total milk production India and per capital availability was 670 grams per day during the year 2022-23. The state has attained fourth position in milk production across all the state and

union territories of India (Anonymous, 2023^b). Gujarat has buffalo population of 10.54 million, out of which 3.54 million are in the North Gujarat region, accounting for approximately 33.6 percent of the total buffalo population in the state. North Gujarat plays a significant role in milk production and processing. This area possesses very good number of quality dairy animals and has an excellent development of dairy sector through the co-operative network. Understanding of livestock management practices followed by farmers in a region is necessary to identify the strengths and weaknesses of the rearing systems and to formulate suitable intervention policies (Gupta *et al.*, 2008). The productivity of dairy animals mainly depends on upon the animal management practices followed by dairy farmers. Proper house with well ventilation, lighting, and proper flooring provides a comfortable atmosphere to animal. Ensuring proper shelter facilities to animals, maintain hygienic conditions, minimize the prevalence of diseases, protect the animals from predators and promote better working environments for dairy farmers. Therefore, it is necessary to collect the information regarding housing management practices adopted by buffalo owners of north Gujarat region.

OBJECTIVE

To study the housing management practices adopted by buffalo keepers of north Gujarat

METHODOLOGY

A field survey was conducted in four districts viz. Banaskantha, Mehsana, Patan and Sabarkantha of north Gujarat. These districts were selected purposively based on higher buffalo population among other districts of north Gujarat. Three talukas were selected purposively from each district having higher population of buffalo. Tharad, Deesa and Kankrej from Banaskantha district; Mehsana, Kadi and Vadnagar from Mehsana district; Sarswati, Santalpur and Radhanpur from Patan district and Himmatnagar, Idar and Vijaynagar talukas were selected from Sabarkantha district. Three villages from each taluka and ten respondents were

selected from each village. Thus, 360 respondents were selected for this study from four districts of north Gujarat area. While selecting respondents due care was taken to ensure that they were evenly distributed in the village and were a true representative of animal management practices prevailing in the area. A suitable interview schedule was developed for dairy farmers. A pre-test of interview schedule was conducted with ten buffalo keepers who were not included in the final sample. The purpose of study was explained to interviewees and based on their feedback, statements were refined to finalise the interview schedule. The selected dairy farmers were single interviewed and the desired information was collected regarding housing management practices with the help of pre-designed and pre-tested interview schedule. The suitable statistical analysis of data using SPSS 16.0 software such as mean, standard deviation, frequency and percentage were applied to draw meaningful inferences.

RESULTS AND DISCUSSION**Table 1 : Distribution of buffalo keepers according to housing type**

Sr. No.	Particulars	Banaskantha (n=90)	Mehsana (n=90)	Patan (n=90)	Sabarkantha (n=90)	Total (n=360)	Chi square value
A	Type of housing						
1	Open/Under tree	08 (8.89)	04 (4.44)	14 (15.56)	07 (07.78)	33 (9.17)	19.55**
2	Kutchha	31 (34.44)	23 (25.56)	39 (43.33)	24 (26.67)	117 (32.50)	
3	Pucca	51 (56.67)	63 (70.00)	37 (41.11)	59 (65.56)	210 (58.33)	
B	Location of shed						
1	Attached to human dwelling	09 (10.00)	10 (11.11)	13 (14.44)	17 (18.89)	49 (13.61)	9.80 ^{NS}
2	Separate from dwelling but nearby their dwelling	79 (87.78)	71 (78.89)	69 (76.67)	69 (76.67)	288 (80.00)	
3	At the field of farmers	02 (2.22)	09 (10.00)	08 (8.89)	04 (4.44)	23 (6.39)	
C	System of housing						
1	Single line	82 (91.11)	79 (87.78)	85 (94.44)	78 (86.67)	324 (90.00)	3.70 ^{NS}
2	Head to head	08 (8.89)	11 (12.22)	05 (5.56)	12 (13.33)	36 (10.00)	
3	Tail to tail	0	0	0	0	0	
D	Light						
1	Adequate	79 (87.78)	81 (90.00)	78 (86.67)	79 (87.78)	317 (88.06)	0.50 ^{NS}
2	In adequate	11 (12.22)	09 (10.00)	12 (13.33)	11 (12.22)	43 (11.94)	
E	Ventilation						
1	Adequate	87 (96.67)	82 (91.11)	87 (96.67)	85 (94.44)	341 (94.72)	3.72 ^{NS}
2	In adequate	03 (3.33)	08 (8.89)	03 (3.33)	05 (5.56)	19 (5.28)	

Housing management practices followed by buffalo keepers of north Gujarat are presented in table 1 to 3. Data presented in table 1 shows that more than half of the respondents (58.33%) provided pucca type of animal housing while 32.50 percent of respondents had kutcha animal shed and 9.17 percent kept their animals in open or under tree. Type of housing was significantly ($p < 0.01$) differed among four districts. Similar results were recorded by Pilaniya *et al.*, (2018) and Gaikwad *et al.*, (2019) observed that more than fifty percent of respondents provided pucca animal housing in their research area. However, Ashokbabu *et al.*, (2024) observed that 59.58 percent of respondents kept their dairy animals in kutcha animal shed in their surveyed area of northern Telangana.

It was revealed that the higher number of animal sheds (80.00%) were nearby to their dwelling followed by 13.61 and 6.39 percent of the animal sheds were attached to human dwelling and at the field of farmers, respectively. Location of shed was not significantly differed among different districts. It might be due to fact that animal shelter near to human dwellings help in efficient management of their dairy animals. The present findings are similar with results of Dodiya *et al.*, (2022), Kasondra *et al.*, (2022) and Ashokbabu *et al.*, (2024) found that majority of animal sheds were nearby to their dwelling. Contrary to present study, Patel *et al.*, (2019) observed that 53.33 percent of the buffalo shed were attached to human dwelling.

A major proportion of respondents (90.00%) followed single row animal housing system whereas remaining (10.00%) followed head to head animal housing system (Table 1). Trend of system of housing was not significantly differed among districts. The reason behind single row housing system may be that majority of dairy farmers had small to medium herd size of animals. These findings are in accordance with findings of earlier workers of Barman *et al.*, (2023) and Ashokbabu *et al.*, (2024) who reported that 87.50 and 82.08 percent of respondents followed single row animal housing system in his dairy farm. However, Pilaniya *et al.*, (2018) observed contradictory findings in their surveyed area.

Present study indicated that a higher number of respondents (88.06%) provided adequate light in the animal shed while remaining of respondents did not provided adequate light in shed. These results was statistically insignificant among selected district of north Gujarat. Similar findings were reported by Pata *et al.*, (2018), Hannure and Belsare, (2018), Dodiya *et al.*, (2022), Kasondra *et al.*, (2022) and Saurav *et al.*, (2023) in their study in different area of country. About 94.72 percent of buffalo keepers were provided adequate ventilation in animal shed while it was

not adequate in very few 5.28 percent of dairy farm. Trend of ventilation in dairy farm was not significant among four districts. Adequate ventilation is beneficial for health and production of dairy animals. Present findings are in favour with findings of Dodiya *et al.*, (2022) who reported that 98.12 percent had adequate provision of ventilation in dairy farms. Kasondra *et al.*, (2022) also revealed that 97.81 percent cattle owners had adequate ventilation in their sheds. Another researcher, Kapadiya *et al.*, (2022) reported that the majority of dairy farmers in the survey area provided well-ventilated housing.

Majority of dairy farm (49.44%) had earthen floor, while pucca cement floor, brick/stone paved and rubber mate floor were observed in 43.89, 5.00 and 1.67 percent of dairy farm, respectively. Type of floor was differed significantly ($p < 0.01$) among four districts. This could be because of the belief that animals are more comfortable sitting or standing on earthen floor. Similar outcomes were documented by earlier researchers, Pata *et al.*, (2018), Kumar *et al.*, (2020) and Saurav *et al.*, (2023) revealed that most of dairy farmers had earthen floor. However, results are contradictory to the findings of Mulgu *et al.*, (2018) and Rathva and Sorathiya (2020) who reported that majority of the dairy farm had pucca type of floor.

It was observed that majority of the dairy farm (60.56%) had slope in floor towards back, while 39.44 percent of dairy farm had no slope in floor. Trend of slope in floor was not differed significantly among different districts. These findings are in line with results of earlier researcher Ashokbabu *et al.*, (2024) who observed that 67.92 percent of dairy shed had slope in floor towards back. However, Dodiya *et al.*, (2022) reported that 73.13 percent of the buffalo owners had no slope in floors of buffalo sheds.

Present study revealed that more than half of respondents (53.06%) used galvanized irons sheet as roof material in the dairy farm, while asbestos sheet and thatched material as roofing for shelter were used by 28.61 and 9.17 percent of respondents, respectively. There was no provision of any type of roof in 9.17 percent of dairy farm. Trend for type of roof was differed significantly ($p < 0.01$) among districts. The present result are in agreement with result of Tadavi *et al.*, (2017), Pilaniya *et al.*, (2018) and Rathva and Sorathiya (2020) who revealed that majority of respondents used galvanised iron sheet as roof material in dairy farm in their surveyed areas.

Data in table 2 showed that majority of respondents (69.44%) were provided manger to their animals in the surveyed area, whereas 30.56 percent of respondents didn't provide manger to their animals. There was significant

($p < 0.01$) difference in provision of manger to their dairy animals among districts. The reason for providing a manger to dairy animals is likely due to the recognition of its importance in reducing feed wastage. Comparable findings were observed by researchers, Patel *et al.*, (2018), Pilaniya *et al.*, (2018) and Parmar *et al.*, (2025) in their studies. Another worker, Ashokbabu *et al.* (2024) also indicated similar results in their research. About 41.11 percent of respondents had pucca type

of manger, while 28.33 percent of respondents had kutcha type of manger. It was observed that type of manger was not differed significantly among districts. Present outcomes are in conformity with the results of Pilaniya *et al.*, (2018) and Kumar *et al.*, (2021) while contrary to results of Patel *et al.*, (2018) and Ashokbabu *et al.*, (2024) who reported that majority of respondents provided wooden assisted temporary manger to their animals.

Table 2 : Distribution of buffalo keepers according to type of materials used in shed

(n=360)

Sr. No.	Particulars	Banaskantha (n=90)	Mehsana (n=90)	Patan (n=90)	Sabarkantha (n=90)	Total (n=360)	Chi square value
A	Type of floor						
1	Pucca (Cement concrete)	33 (36.67)	44 (48.89)	27 (30.00)	54 (60.00)	158 (43.89)	23.65**
2	Earthen floor	50 (55.56)	41 (45.56)	57 (63.33)	30 (33.33)	178 (49.44)	
3	Brick/stone paved	06 (6.67)	04 (4.44)	05 (5.56)	03 (3.33)	18 (5.00)	
4	Rubber mate with concrete	01 (1.11)	01 (1.11)	01 (1.11)	03 (3.33)	06 (1.67)	
B	Slope in floor						
1	Towards back	53 (58.89)	56 (62.22)	46 (51.11)	63 (70.00)	218 (60.56)	6.93 ^{NS}
2	No slope	37 (41.11)	34 (37.78)	44 (48.89)	27 (30.00)	142 (39.44)	
C	Type of roof						
1	Asbestos sheet	41 (45.56)	27 (30.00)	24 (26.67)	11 (12.22)	103 (28.61)	30.96**
2	Galvanized irons	32 (35.56)	53 (58.89)	42 (46.67)	64 (71.11)	191 (53.06)	
3	Thatched roof	09 (10.00)	06 (6.67)	10 (11.11)	08 (8.89)	33 (9.17)	
4	No roof	08 (8.89)	04 (4.44)	14 (15.56)	07 (7.78)	33 (9.17)	
D	Provision of manger						
1	Yes	76 (84.44)	54 (60.00)	58 (64.44)	62 (68.89)	250 (69.44)	14.40**
2	No	14 (15.56)	36 (40.00)	32 (35.56)	28 (31.11)	110 (30.56)	
E	Type of manger						
1	Kutcha	28 (31.11)	24 (26.67)	24 (26.67)	26 (28.89)	102 (28.33)	0.83 ^{NS}
2	Pucca	48 (53.33)	30 (33.33)	34 (37.78)	36 (40.00)	148 (41.11)	

It was found that majority of the respondents (65.00%) kept their animal shed clean, whereas 35.00 percent of respondents didn't maintain cleanliness in animal shed. Trend of cleanliness of animal house was not differed significantly among different districts. Present findings are identical with results of Patel *et al.*, (2018) who reported that 81.25 percent dairy farmers had clean animal house. Contrary to present findings, Saurav *et al.*, (2023) who reported that

64.00 percent of respondents had dirty animal house.

Data in table 3 showed that above fifty percent of dairy farm had pucca drainage, while 48.89 percent had no drainage facility. It was observed significant ($p < 0.01$) difference in provision of drainage system in animal shed among four districts. Proper drainage helps maintain cleanliness in the farm and reduces the occurrence of diseases.

The results are supported by previous researchers, Patel *et al.*, (2018), Pilaniya *et al.*, (2018) and Ashokbabu *et al.*, (2024); Chaudhari *et al.* (2025); Chaudhary *et al.* (2024); Mahammad *et al.* (2022).

Table 3 : Distribution of buffalo keepers according to housing practices followed in shed (n=360)

Sr. No.	Particulars	Banaskantha (n=90)	Mehsana (n=90)	Patan (n=90)	Sabarkantha (n=90)	Total (n=360)	Chi square value
A	Cleanliness of house						
1	Dirty	29 (32.22)	30 (33.33)	40 (44.44)	27 (30.00)	126 (35.00)	4.93 ^{NS}
2	Clean	61 (67.78)	60 (66.67)	50 (55.56)	63 (70.00)	234 (65.00)	
B	Provision of drainage system						
1	Pucca drain	38 (42.22)	51 (56.67)	34 (37.78)	61 (67.78)	184 (51.11)	20.36**
2	Soaked at earthen floor	52 (57.78)	39 (43.33)	56 (62.22)	29 (32.22)	176 (48.89)	
C	Practice to protect animals from extreme weather						
1	Yes	65 (72.22)	59 (65.56)	51 (56.67)	67 (74.44)	242 (67.22)	7.81*
2	No	25 (27.78)	31 (34.44)	39 (43.33)	23 (25.56)	118 (32.78)	
D	Location of manure pit						
1	Adjacent	15 (16.67)	17 (18.89)	27 (30.00)	12 (13.33)	71 (19.72)	8.89*
2	Distant	75 (83.33)	73 (81.11)	63 (70.00)	78 (86.67)	289 (80.28)	
E	Storage of manure						
1	Pit	08 (8.89)	11 (12.22)	13 (14.44)	14 (15.56)	46 (12.78)	2.09 ^{NS}
2	Heap	82 (91.11)	79 (87.78)	77 (85.56)	76 (84.44)	314 (87.22)	

Majority of respondents (67.22%) followed practice to protect their animals from extreme weather, whereas 32.78 percent of respondents did not followed measure to protect their animals against extreme weather. The outcomes of these practices was statistically significant ($p < 0.05$) among districts. Various researchers, Pilaniya *et al.*, (2018), Rathva and Sorathiya (2020) and Ashokbabu *et al.*, (2024) noted comparable results in their study. However, Patel *et al.*, (2018) examined contrary findings in their investigation.

It was observed from table 3 that majority of respondents (80.28%) kept manure pit at distant location to animal shed followed by 19.72 percent kept adjacent to animal shed. The value of location of manure pit was differed significant ($p < 0.05$) among districts. Dodiya *et al.*, (2022) and Kasondra *et al.*, (2022) were observed same results in their study area. However, Ashokbabu *et al.*, (2024) reported that majority of respondents kept manure pit adjacent to their animal sheds. About 87.22 percent of dairy farmers practiced heap method for storage of manure, while 12.78

percent of respondents followed pit method. These outcome was insignificant between districts. The present findings are similar with findings of Dodiya *et al.*, (2022); Patel *et al.* (2025); Kumawat *et al.* (2025); Mahammad *et al.* (2021).

CONCLUSION

It can be concluded that most buffalo keepers in the surveyed area adopt scientific housing management practices, such as constructing pucca houses, ensuring adequate light and ventilation, providing mangers, maintaining shed cleanliness, and properly locating manure pits. The widespread adoption of these practices indicates that buffalo keepers are aware of the role of proper housing in promoting animal health and welfare. Implementation of such practices is likely to enhance productivity and overall farm efficiency.

RECOMMENDATION

Buffalo keepers should continue to strengthen and consistently follow scientific housing practices to further

improve animal health, welfare and overall farm productivity.

ACKNOWLEDGMENT

The authors are thankful to the Director of Research, Kamdhenu University, Gandhinagar, for providing the necessary facilities to conduct the study. The authors are also grateful to the buffalo keepers for sharing their valuable knowledge and experience, which greatly contributed to the completion of this study.

CONFLICT OF INTEREST

No conflict of interest

REFERENCES

- Anonymous (2019). 20th Livestock census-2019: All India Report. Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India. New Delhi.
- Anonymous (2023^a). Bulletin of Animal Husbandry Statistics, 2023. Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India, Krishi Bhavan, New Delhi.
- Anonymous (2023^b). 40th Survey Report on Estimates of Major Livestock Products for the year 2022-23, Gujarat State. Directorate of Animal Husbandry, Krishi Bhavan, Gandhinagar, Gujarat.
- Ashokbabu, Ch., Saratvandra, A., Harikrishna, Ch., and Venkateshwar, M. (2024). Study on housing management practices followed by dairy farmers in northern Telangana state of India. *Asian Journal of Dairy and Food Research*, 43(1): 162-166.
- Barman, B., Mohammad, A., Girish, C. E., Kisku, U., Lepcha, C. Y., and Yadav, P. (2023). Assessment of the existing feeding and housing management practices of dairy animals in Rajbanshi dairy farmers. *International Journal of Environment and Climate Chang*, 13(12): 513-521.
- Chaudhari, R. U., Tala, V. G. and Sruthi, C. O. (2025) Participation of farm women in dairy occupation. *Gujarat Journal of Extension Education*, 39(1):8–11. <https://doi.org/10.56572/gjoe.2025.39.1.0002>
- Chaudhary, V. M., Patel, U. M. and Ghasura, R. S. (2024) Knowledge of dairy farmers about scientific dairy farming practices. *Gujarat Journal of Extension Education*, 38(1):192-196. <https://doi.org/10.56572/gjoe.2024.38.1.0031>.
- Dodiya, V. A., Sabapara, G. P., Kasondra, S. M., Garg, D. D., Odedra, M. D., and Ahlawat, A. R. (2022). Housing management practices followed by Jaffarabadi buffalo owners in rural areas of Junagadh district of Gujarat, India. *The Pharma Innovation Journal*, 11(10): 227-232.
- Gaikwad, S. V., Awaz, H. B., Pawar, S. L., and Narwade, S. G. (2019). Studies on management practices of buffaloes in Marathwada region. *Bulletin of Environment, Pharmacology and Life Science*, 8(4): 38-43.
- Gupta, D. C., Suresh, A. and Mann, J. S. (2008). Management practices and productivity status of cattle and buffaloes in Rajasthan. *Indian Journal of Animal Science*, 78(7): 769-774.
- Hannure, W. M. and Belsare, V. P. (2018). Management and housing of dairy demonstration farms in Anand district. *Gujarat Journal of Extension Education*, 29(2):152-158.
- Kapadiya, P. S. Chaudhari, P. S. and Gadariya, M. R. (2022). Adoption level of scientific dairy management practices among livestock owners. *Gujarat Journal of Extension Education*, 33(2):32-37.
- Kasondra, S. M., Sabapara, G. P., Dodiya, V. A., Savsani, H. H., Odedra, M. D., and Ahlawat, A. R. (2022). Housing management practices followed by Gir cattle owners in Junagadh district of Gujarat, India. *The Pharma Innovation Journal*, 11(10): 1245-1250.
- Kumar, A., Upadhyay, V. K., and Singh, V. P. (2020). Existing dairy husbandry practices followed by livestock owners in Farrukhabad district of Uttar Pradesh, India. *International Journal of Current Microbiology and Applied Science*, 9(2): 1863-1873.
- Kumar, N., Upadhyay, P. K., Gupta, R., Yadav, M. P. S., Singh, D., and Kumar, S. (2021). Studies on adoption of housing management practices in district Kanpur Dehat. *International Journal of Current Microbiology and Applied Science*, 10(8): 26-33.
- Kumawat, H., Yadav, J. P. and Kumawat, S. (2025) Attitude of farm women towards improved dairy husbandry practices and its association with independent variables. *Gujarat Journal of Extension Education*, 39(2): 157–163. <https://doi.org/10.56572/gjoe.2025.39.2.0026>
- Mahammad Shafi R. Sk, Chauhan N. B. and Vinaya Kumar

- H. M. (2021). Predictable characteristics of young dairy farmers in shaping their animal husbandry workability. *Gujarat Journal of Extension Education* 32 (2): 209-211.
- Mahammad Shafi R. Sk, Chauhan N. B. and Vinaya Kumar H. M. (2022). Participation of young generation of practising dairy farmers in family dairy farming. *Gujarat Journal of Extension Education* 33 (2): 73-76. <https://doi.org/10.56572/gjoe.2022.33.2.0014>
- Mulgu, R., Neeradi, R., and Mallam, M. (2018). Housing and health care management practices of dairy farmers in urban and peri-urban areas of Telangana. *Journal of Animal Research*, 8(3): 467-472.
- Parmar, D. V., Ashwar, B. K. and Rajput, M. B. (2025). Adoption of scientific dairy farming practices by atma beneficiary and non- beneficiary dairy farmers. *Gujarat Journal of Extension Education*, 39(1):59-65.
- Pata, B. A., Odedra, M. D., Ahlawat, A. P.,Savsani, H. H., andPatbandha, T. K. (2018). Survey on housing and feeding practices of buffaloes owners in Junagadh and Porbandar district of Gujarat, India. *International Journal of Current Microbiology and Applied Sciences*, 7(8): 1195-1202.
- Patel, N. R., Gulkari, K. D. and Panchal, B. H. (2025) Participation of sons of dairy farmers in animal husbandry. *Gujarat Journal of Extension Education*, 39(2): 86–88. <https://doi.org/10.56572/gjoe.2025.39.2.0014>
- Patel, P. A., Patel, Y. G., Modi, R. J., and Trivedi, M. M. (2019). Study on housing practices followed by dairy animal owners in Anand district of middle Gujarat region. *Indian Journal of Veterinary Science and Biotechnology*, 15(2): 6-9.
- Patel, P. C.; Sabapara, G. B., and Sorathiya, L. M. (2018). Housing management practices followed by dairy animal owners in Valsad district of Gujarat. *Indian Journal of Animal Production and Management*, 34(3-4): 7-13.
- Pilaniya P., Desai, P. M., andMordia A. (2018). Existing housing management practices followed by rural dairy animal owners in sabardairy milk shed of Gujarat, India. *International Journal of Current Microbiology and Applied Sciences*, 7(8): 1642-1649.
- Rathva, A. L., and Sorathiya, L. M. (2020). Prevailing housing and healthcare management practices in urban and peri-urban dairy farms of Navsari district, Gujarat State. *The Indian Journal of Veterinary Sciences and Biotechnology*, 15(4): 15-18.
- Saurav, S. K., Chakravarty, R., Yadav, P., Pandey, S., Mishra, S., and Chandran, V. (2023). Feeding and housing management practices of dairy animals followed by dairy farmers of north Bihar. *Biological Forum – An International Journal*, 15(1): 69-74.
- Tadavi, F. R., Gaikwad, U. S., Mali, R. G., andTawadar, A. C. (2017). Studies on housing and management practices followed by Jaffrabadi buffalo owners under field condition, *Trends in Bioscience*, 10(38): 7987-7990.

Received : August 2025 : Accepted : October 2025