with their socio-economic traits in Bundelkhand region. *Indian Journal of Dairy Science*. **65** (4):342-347

Ravi, S., Ropan, B., Sarju, P., Acharya, G. K., and Chandresh, D. (2015) Constraints perceived by farmers in crop-dairy mixed farming system on small farms in Parbhani district of Marathwada region (Maharashtra), India. Plant Archives **15**(1):41-46.

Sabapara, G.P., Fulsoundar, A.B., and Kharadi,V.B. (2014) Knowledge of dairy animal owners in improved dairy husbandry practices in Surat district of south Gujarat.

Sandeep. (2012) Economics of Milk Production and Utilization Pattern in Malwa Plateau of Madhya Pradesh. M.V. Sc thesis submitted to the National Dairy Research Institute, Karnal.

Sandeep. (2020) An economic analysis of costs and returns of buffalo milk production in Gwalior District of Madhya Pradesh. M.Sc, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior.

Sharma, A. (2013) Economic viability of Commercial Dairy Farms in Jabalpur District of Madhya Pradesh,M.V.Sc. Thesis, NDRI, Karnal.

Shashi. S., Mandal, K. G., and Vijay, K. (2009) Constraints perceived by the dairy farmers in rearing buffaloes in and around Patna. Indian Journal of Animal Production and Management, **25** (1/2): 45-47.

Surkar, S. H., Sawarkar, S., Kolhe, R. P., and Basunathe, V. K. (2014) Constraints perceived by dairy farmers in quality milk production. Agriculturalrural development Journal Homepage:www.jakraya.com/journal/ard Pages 05,7.

Vishwas. (2016) Production and Marketing of indigenous cow and buffalo milk in Dharwad district of Karnataka – an economic analysis. M.Sc (Agri) Thesis submitted to university of agricultural sciences, Dharwad.

Yedukondalu. R., Rao, B. V. R., and Rao, K. S. (2000) Problems and prospects of dairying in Medak district of Andhra Pradesh. Indian Journal of Dairy Science **53** (6): 434-440.

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Housing and Summer Management Practices Followed by Buffalo Farmers in Yanam Region of Puducherry

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Abstract

A study was carried out to find out the housing management practices of buffaloes in Yanam region, Union Territory (UT) of Puducherry. A total of 150 respondents were selected at random for the study. The study revealed that 88.0 per cent of the farmers housed their buffaloes in kutcha type sheds with thatched roof (74.8%) and mud flooring (89.4%). Manger was provided by (85.3%) of the respondents. Majority of the buffalo farmers were heaping dung on the land and later used as farm yard manure. Proper ventilation facility was observed in the buffalo sheds. The study suggested that improving knowledge on housing management among the buffalo farmers of Yanam region would result in better buffalo management leading to better livelihood.

Key words: buffalo, management, manger, ventilation, wallowing

Buffaloes are considered as the backbone of rural economy in India and they occupy a prominent place in social, economic and cultural life of Indian rural community. In order to improve buffalo production, it is essential to investigate the housing and summer management practices for buffaloes adopted by farmers

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at the field level. Provision of proper housing facilities to the animals not only reduces stress but also helps in maintaining optimum micro environment and provides good hygienic surroundings thereby, reducing the incidence of diseases. Hence, the present study was conducted to explore the different housing management practices and summer management measures of buffaloes in Yanam region of Puducherry.

Materials and Methods

The UT of Puducherry has a total area of 480 sq.km comprising four geographically discontiguous regions viz. Pondicherry, Karaikal, Mahe and Yanam. A field survey was conducted in the region of Yanam which is a municipality consisting of six revenue villages. By random sampling method data was collected from150 buffalo farmers. The sample size of 150 was randomly distributed based on the population of buffaloes in all the six revenue villages. A structured interview schedule was used to collect the details regarding housing management practices of buffaloes. Data was collected by oral appraisal and observations were recorded on the type of housing, type of floor and roof material, type of manger, ventilation, disposal of manure and summer management measures.

Table I. Type of shed, orientation, type of floor, roof and the details of manger and drainage facilities in the study region.

Particulars		Municipality (150)		Total	
		n	%	n	%
Provision of shed	Present	75	50.0	150	100
	Absent	75	50.0		
Location of shed	Separate shed	67	44.7	150	100
	Attached with residence	8	5.30		
	Under tree shade	23	15.3		
	Road side	52	34.7		
Type of shed	Kutch type	66	88.0	75	100
	Semi pucca type	9	12.0		
Type of orientation	East west	51	68.0	75	100
	North south	24	32.0		
Type of floor	Mud	67	89.4	75	100
	Concrete	8	10.6		
Type of roof	Thatched	56	74.8	75	100
	Asbestos	11	14.6		
	Tarpaulin	4	1.30		
	Others	4	1.30		
Manger	Concrete	28	43.7	75	100
	Aluminium	26	40.7		
	Plastic	6	9.40		
	Wood	4	6.20		
Drainage system	Present	6	8.0	75	100
	Absent	69	92.0		
Manure pit	Present	110	73.3	150	100
	Absent	40	26.7		

Results and Discussion

Housing

It is observed that out of 150 respondents, one half (50%) were providing shelter for buffaloes. Separate housing facility was noted in 44.7 per cent and part of the residence for housing buffaloes was noted in 5.3 per cent of buffalo farmers. Other half (50%) respondents who were not providing shelter for buffaloes were housing their animals tree shade (15.3%) and by the side of road (34.7%) respectively. This is in agreement with Divyalakshmi *et al.* (2020), who observed that 88.7 per cent of farmers were providing housing to the buffaloes, with 11.3 per cent of the farmers housing the buffaloes under tree shade and temporary structures. Also the result of the present study is in agreement with those of Mishra *et al.* (2018) and Tiwari *et al.* (2018).

Type of shed

It was noted that majority of the farmers were providing kutcha type of shed (88%) for buffaloes in all the six revenue villages and semi pucca type of shed was provided by 12 per cent of the farmers. The results is in agreement with Sabapara *et al.* (2010) who reported that in the tribal areas of South Gujarat 90 per cent of the buffalo farmers provided kutcha type of housing This is in contradiction to the findings of Senthil Kumar *et al.* (2005) in which kutcha type of shed was provided by only 19 per cent of the farmers and remaining did not provide shelter in Chennai.

Type of orientation

Majority of the buffalo sheds were oriented in the east-west direction (68%) when compared to north-south direction (32%). The observation is similar with the result of Divyalakshmi *et al.* (*loc cit.*) who stated that in Tamil Nadu about 69 per cent of the buffalo sheds were in the east to west orientation and 31 per cent of sheds in north to south orientation. Paramasivam (2012) also observed that animal houses had east to west orientation in Tamil Nadu. This type of orientation helps in protecting the animals from heat stress in the tropics (Sastry and Thomas, 2015). The results of the present study indicated that majority of the buffalo farmers were giving importance to orientation of the animal house.

Type of floor

It is observed that out of 150 respondents, shelter for buffaloes was provided by only 75 respondents; among this, 67 respondents were providing mud as floor material (89.4%) and only 8 respondents provided concrete. The results were in agreement with Kishore *et al.* (2013) and Pata *et al.* (2018) where buffalo farmers provided mud flooring and concrete flooring and in contradiction with Divyalakshmi *et al.* (*loc cit.*) who observed that the floor provided to buffalo sheds was concrete (80%) and the rest (20%) of the farmers provided mud flooring, Swathi *et al.* (2017) reported that in YSR Kadapa district of Andhra Pradesh, majority of the buffalo farmers were using pucca flooring (70%) in both rural and urban areas, while the rest of the farmers used kutcha flooring.

Type of roof

Majority of the buffalo farmers used coconut or palmyra leaf thatch (74.8%) in all the six revenue villages followed by asbestos (14.7%), tarpaulin (5.3%) and others like concrete, galvanized iron (GI) sheet, tiles and corrugated cement sheet (5.3%) as roofing material. The results are in agreement with those of Kishore *et al.* (*loc cit.*) where majority of buffalo farmers provided thatched roof followed by asbestos roof in Khammam district of Telangana. The results were not in agreement with Divyalakshmi *et al.* (*loc cit.*) who observed in Thiruvallur district of Tamil Nadu, majority of the buffalo sheds were constructed with aluminium tin roof (80.19%) remaining 12.11 per cent had asbestos sheet, and 7.7 per cent had thatch roof. Rajadurai *et al.* (2020) in Villupuram district of Tamil Nadu, specified that 72.2 per cent of the dairy sheds were made of asbestos and 27.8 per cent of the sheds were made with thatch roof.

Ventilation

Cross ventilation was observed in all buffalo sheds of the study region. This observation is similar with those of Kishore *et al.* (*loc cit.*) and Viswkarma *et al.* (2018) in Khammam district of Telangana and Jabalpur district of Madhya Pradesh.

Manger

On personal observation and on oral appraisal it was found that proper manger was provided by 85.3 per cent of the respondents and the rest (14.7%) did not have manger and were using floor for providing feed and fodder. Concrete type manger was common (43.7%), followed by aluminium type (40.7%), plastic type (9.4 %) and 6.2 per cent of farmers used wooden type of manger. The observed results were in line with Sabapara *et al*. (*loc cit*.) who observed that 80.19 per cent of the sheds were equipped with cement manger and only 19.81 per cent were provided with plastic buckets and temporary materials. The observations is also in line with the findings of Reddy *et al*. (2017) who reported that majority (80%) of the buffalo farmers in Guntur district of Andhra Pradesh provided pucca type of manger; only 20 per cent of the farmers provided kutcha type of manger. According to Sabapara *et al*. (2017) pucca type of manger was provided by 72 per cent of farmers and 28 percent of farmers used wooden assisted temporary manger for feeding their buffaloes in coastal areas of south Gujarat. The results were contradictory to the findings of Divyalakshmi *et al*. (*loc cit*.) who found that majority of farmers (86.11%) provided temporary manger in Tamil Nadu. The results of the present study indicated that majority of the buffalo farmers provided manger for feeding concentrates and fodder and that the respondents were aware of the importance of providing manger in the animal sheds.

Drainage system

Even though, one-half of the buffalo farmers in the study region were providing housing facilities, drainage facility was recorded only in 8.0 per cent of the sheds. The observed result is in agreement with Pata *et al*. (*loc cit*.) with only about 21 per cent of buffalo owners having drainage system in the sheds. The finding is not in agreement with Kishore *et al*. (*loc cit*.) who found that around 94 per cent of the farmers were having proper drainage system and only 6 per cent of the farmers did not provide proper drainage system.

Manure pit

Majority of the buffalo farmers (73.3%) were heaping the dung on the land near the shed without dumping into any pit and the rest (26.7%) of the farmers used to store manure in temporary manure pits. This observation is not in line with that of Paramasivam (*loc cit*.) who observed that 85 per cent of the dairy farmers stored manure in manure pits in Tamil Nadu.

Summer management

Majority of the respondents (96%) were allowing the buffaloes for wallowing during day time in all the six revenue villages of the study region. Wallowing is the process of evaporative heat loss and serves as the major heat dissipation mechanism in buffaloes under thermal stress due to high ambient temperature and humidity Singh *et al*. (2021). The presence of large number of water bodies in Yanam region facilitates wallowing.

The different summer management practices followed by the respondents are provided in Table II. Keeping the animals under the shade of trees during day time is practiced by almost all the farmers, in all the six revenue villages. In addition, splashing of water on the body of the animals was practiced by two per cent of the farmers in Kanakalapet, Mettacur and Kursampet revenue villages. Provision of fans inside the shed was practiced by two per cent of farmers in Kanakalapet, Kursampet and Adavipolam revenue villages.

Similar practice of allowing for wallowing buffaloes in village tanks during hotter parts of the day and splashing of water on the animals manually were suggested by Kishore *et al*. (*loc cit*.). The results of the study were similar to the observations by Kour *et al*. (2019) wherein

Table II. Summer management practices

Management practices	Frequency*	Percentage
Under shade of trees	150	100
Wallowing	144	96
Splashing of water	3	2.0
Fans	3	2.0

*multiple response

almost all the buffalo farmers practiced bathing, tying the animals under tree shade during hotter times of the day and provision of cool drinking water as a part of summer management. Similar summer management practices were followed by the farmers in Madhya Pradesh (Viswkarma *et al*., 2018).

Summary

In Yanam region of Puducherry, proper housing was provided by only 50 per cent of the farmers. Among the farmers who provided housing facility, majority had manger in the sheds. Proper ventilation was present in all the sheds, but drainage facility was observed only in eight per cent of the sheds. The presence of water bodies in Yanam region 96 per cent of respondents were allowing buffaloes for wallowing during day time. Scientific housing management is significant for accelerating the production performance of dairy buffaloes. The farmers of the study region must be trained on various aspects of scientific buffalo management with more emphasis on housing management. This will help in improving the production performance of the buffaloes resulting in better economic returns.

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References

20th Livestock census (2019). Department of Animal Husbandry, Dairying and Fisheries. Government of India.

Divyalakshmi D, Kumaravelu N and Balan C (2020) Housing management practices of dairy buffaloes in Thiruvallur district of Tamil Nadu. *J. Entomol. and Zool. Stud.*, **8** (5): 1733-1735.

Kishore K, Mahender M and Harikrishna Ch (2013) A Study on buffalo management practices in Khammam district of Andhra Pradesh. *Buffalo Bull.,* **3**(2): 97-119.

Kour S, Khan A, Brahma B, Jeelani R, Khursheed I and Dua S (2019) A study on buffalo management practices followed by Gujjar tribe of Jammu. *J. Pharmacogn and Phytochem.*, **8**(3): 218-221.

Mishra RK, Baghel RPS, Sharma R and Sharma S (2018) Housing and feeding practices of buffaloes in Katni district of Madhya Pradesh. *J. Entomol and Zool Stud*., **6** (2): 3124-3128.

Paramasivam S (2012) Impact of shelter designs on the production performance of dairy cattle in east and southern regions of Tamilnadu. M.V.Sc thesis, TANUVAS.

Pata BA, Odedra MD, Ahlawat AR, Savsani HH and Patbandha TK (2018) Survey on housing and feeding practices of buffaloes owners in Junagadh and Porbandar District of Gujarat, India*. Int. J. Curr. Microbiol. App. Sci.,* **7** (8): 1195-1202.

Rajdurai A, Sameer Ali M, Rajamanickam K and Kumeravelu N (2020) Breeding management practices of dairy cows in Viluppuram district of Tamil Nadu. *J. Pharma. Innov.* **9**(3): 64-66.

Reddy GCS, Jagadeeswararao S, Anitha A and Subrahmanyeswari B (2017) Existing breeding, feeding and housing management practices followed by the milk producers in Guntur district of Andhra Pradesh. *Indian J. Anim. Prod. Mgmt.* **33** (1-2): 26-32.

Sabapara GP, Desai VB, Kharadi VB, Saiyad LH, Singh RR (2010) Housing and feeding management practices of dairy animals in the tribal area of South Gujarat. *Indian J. Anim. Sci.*, **80**(10):1022-27.

Sabapara GV (2017) Housing and health care management practices of dairy animals followed by farmers in coastal areas of south Gujarat. *Indian J. Anim. Prod. Mgmt.,* **33** (1-2): 1-6.

Sastry NSR and Thomas CK (2015) Livestock Production and Management. Fifth revised and enlarged edition, Kalyani Publishers, Ludhiyana, pp 912.

Singh D, Prakash V, Upadhyay PK, Yadav MPS, Kumar N and Kumar S (2021) Existing breeding management practices by the farmers of Kanpur Nagar, Uttar Pradesh. *Int. J. Curr. Microbiol. App. Sci.*, **10**(2): 625-630.

Senthil kumar T, Sudeepkumar NK, Subramanian (2005) Profile of urban dairy farmers utilising mobile artificial insemination services in Tamil Nadu. *J. Extension Education*. **16**(1&2):3745-3748.

Swathi Y, Reddy YR, Babu DS and Rao DS (2017) Milking management practices by crossbred milk producers in rural and urban areas of YSR Kadapa district, Andhra Pradesh. *Int. J. Sci. Environ. Technol.*, **6**(2):1315-1320.

Tiwari H, Kumar S, Rajashree R and Tyagi K (2018) Existing housing and breeding management practices adopted by dairy farmers in Tarai region of Uttarakhand, India. *Indian J. Anim. Res*., **52** (3): 449-453

Viswkarma R, Ruchi S, Priyanka K, Sandeep KS and Shivangi S (2018) Existing status of buffalo husbandry practices in Jabalpur. *J. Pharma. Innov.*, **7**(2): 8-10.