Journal of Animal Research: v.14 n.03, p. 223-226. June 2024

DOI: 10.30954/2277-940X.03.2024.8

Exploring the Biological Features of Wayanad Dwarf Cattle: A Qualitative Investigation

M. Muhammed Asif[1]* and P. Reeja George[2]

[1]Veterinary Surgeon, Animal Husbandry Department, Kerala, INDIA
[2]Department of Veterinary and AH Extension, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala, INDIA

**Corresponding author: M.M. Asif; E-mail: asifmasifvet@gmail.com*

Received: 18 Jan., 2024 **Revised:** 25 March, 2024 **Accepted:** 30 March, 2024

ABSTRACT

The Kuruma tribes in the Wayanad district of Kerala have traditionally raised the Wayanad Dwarf Cattle. This study employs a hermeneutic phenomenological methodology using unstructured interviews and thematic analysis to delve into the perceptions of Kuruma cattle keepers regarding the crucial biological attributes of the Wayanad Dwarf Cattle. The findings reveal notable perceived characteristics, including higher levels of non-fat solids and fat in the milk, superior quality dung, and the ability to rear these animals without resorting to expensive concentrates. The Wayanad Dwarf Cattle's robustness emerges as a significant perceived biological attribute, accompanied by advantages such as minimal housing requirements, rare disease occurrences, and resilience to diverse climates and terrains. Key recurring themes that were arrived at through the process of thematic analysis encompass the adaptability of these animals during water-scarce seasons and their distinctive grazing behavior, utilizing straight pointed horns to extract softer, green inner parts of tree stems by digging into the hard barks of tall trees in Wayanad forests. Any policy interventions aimed at fostering sustainable community-based conservation of the Wayanad Dwarf Cattle must necessarily consider the perspectives of the traditional stakeholders in this sector.

HIGHLIGHTS

- Identification of the biological features of the Wayanad Dwarf cattle as perceived by the Kuruma tribes people.
- Hermeneutic Phenomenological approach with thematic analysis of narrated lived experiences.

Keywords: Wayanad Dwarf Cattle, attributes of native cattle, tribal cattle keepers

Over the years, the contribution of Indigenous peoples and local communities to the conservation of biodiversity conservation has gained recognition (Diaz *et al.*, 2019). It is critical that IPLCs are involved in conservation activities not only because this makes conservation more equitable but because biodiversity outcomes are better when these communities are taken into confidence (Garnett *et al.*, 2018). However, more recently, these viewpoints have evolved to recognize the ecosystem's intricacies and the current global context as outcomes of a complex interplay involving economic and political activities, environmental changes, and climate shifts, all intertwined with transformative developments on the social and cultural fronts. This paradigm shift has redefined conservation practices to consider anticipated future challenges while allowing sufficient flexibility to accommodate genetic and ecological processes arising from communities adapting to change.

Socio-ecological systems result from communities interacting with their landscapes, encompassing elements like folklore, agro-biodiversity, and food sovereignty. It is this prolonged interaction that renders these systems sustainable. Indigenous communities, rooted in their traditional or ancestral environments, constitute integral components of these socio-ecological environments

How to cite this article: Muhammed Asif, M. and Reeja George, P. 2024. Exploring the Biological Features of Wayanad Dwarf Cattle: A Qualitative Investigation. *J. Anim. Res.,* **14**(03): 223-226.

Source of Support: None; **Conflict of Interest:** None

shaped by extended periods of interdependency and co-evolution. Their role in the conservation of native animals needs recognition in contemporary conservation discourse. This study specifically explores the perceptions of the Kuruma community in this context, given their reported role as traditional keepers of the Wayanad Dwarf Cattle. These cattle have been documented in tribal settlements within the Kurichiat Range of the Wayanad Wildlife and Muthanga Wildlife sanctuaries, the Periya area of the Manathavady block in Wayanad district, and the catchment areas of the Karapuzha Dam (Kerala Biodiversity Board, 2016).

MATERIALS AND METHODS

For this study, Wayanad district in the state of Kerala was purposefully chosen due to reports indicating that the Wayanad Dwarf cattle are indigenous to this region (Kerala Biodiversity Board, 2016; Anilkumar, 2018). The specific panchayats in Wayanad with a notable population of Wayanad Dwarf cattle were identified through Key Informant officials from the Department of Animal Husbandry, Government of Kerala. These panchayats included Noolpuzha, Amabalavayal, Thirunelly, and Thavinhal. The study aimed to explore the perceived attributes of the Wayanad Dwarf cattle as reported by the cattle keepers, constructed within their contextual and personal frames of reference during their daily stewardship of these animals. To achieve this objective, an interpretative/constructivist research design was employed, grounded in the epistemology of idealism and exploration. The research began by conducting unstructured interviews with sets of five key informants in tribal hamlets located in Noolpuzha, Amabalavayal, Thirunelly, and Thavinhal. An interview guide was developed based on the initial data gathered from these interviews. The interview guide was then pretested among eight non-sample respondents from the mentioned panchayats. Following the pretesting phase, the guide was used to collect data on the attributes of the Wayanad Dwarf cattle from 12 randomly selected respondents among the cattle keepers in these four panchayats. Where necessary, repeated interviews were conducted to delve into additional details.

Thematic analysis of the interviews followed the procedure outlined by Braun and Clarke (2023). The data from each interview were transcribed, read, and reread, with ideas generated during discussions noted. Codes were assigned to important features across the dataset, and relevant data for each code were collated. Themes were then generated by assembling codes and data pertinent to each theme. A two-level review ensured the alignment of themes with coded extracts and the entire dataset. Themes were refined through reanalysis to achieve clarity, and the final step involved combining various themes to create a comprehensive understanding of the biological attributes of the Wayanad Dwarf Cattle as perceived by the cattle keepers.

RESULTS AND DISCUSSION

Milk and dung of the Wayanad dwarf cattle

Upon analyzing the interview transcripts, a recurrent theme that was observed during thematic analysis of narratives of respondent farmers was that which stressed on emphasizing that while the milk yield of the Wayanad cow was low, it exhibited high levels of non-fat solids and fat. Additionally, these farmers firmly believed that the milk from the Wayanad dwarf cow, along with any value-added products derived from it, possessed exceptional nutritional and medicinal qualities. This perception was attributed to the practice of grazing these animals in the adjacent forestlands, enriched with diverse plants with various beneficial properties. In line with this, farmers consistently expressed the notion that the dung of the Wayanad dwarf was of superior quality compared to that of stall-fed cross-bred cows, asserting its greater benefits. The study's findings align with the observations of Savalia *et al.* (2019) reported a higher milk fat content of 5.2 percent in the Belahi cattle reared by the Gujjar community.

Zero input-based system

The distinctive adaptability of the Wayanad Dwarf cattle to the unpredictable local climate and flora of their breeding area proved to be a valuable asset for the resource-limited tribal communities. The Kuruma tribes people highlighted that these animals didn't necessitate elaborate housing or expensive concentrates. Instead, they could be raised with minimal housing facilities crafted from locally available natural resources. This approach allowed for the

utilization of the animals' products by enabling them to freely graze on local grasses and shrubs abundant in the adjoining forests of Wayanad. The process required no special labor; the animals were simply let out to roam into the nearby forest areas. The only exception was in hamlets deeply situated within the forests, where animals were accompanied during grazing to mitigate the risk of attacks by wild animals.

Hardiness and resilience

The robustness of Wayanad cows emerged as a consistent theme during the analysis of interview transcripts from respondent farmers. Further examination of the data highlighted the exceptional hardiness of Wayanad dwarf cows, with rare occurrences of diseases reported. Farmers noted that common issues encountered with cross-bred cows in Wayanad, such as mastitis, production-related diseases, and protozoan and endo-ectoparasitic infestations, were virtually unheard of among Wayanad dwarf cows. Similar findings have been observed in previous studies among various tribal groups in the country. For instance, the Soliga tribesmen in the hilly forest areas of Bili Giri Rangana Hills and Mahadeshwara Hills in Chamarajanagar district, Karnataka, have been reported to rear hardy cattle (Savalia *et al.,* 2019; Somagond *et al.,* 2020). Further analysis of the interview scripts shed light on the recurrent theme of the resilience of Wayanad cows in the challenging climatic conditions of the Wayanad forests. The farmer narratives shed light on the fact that these animals displayed persistence in navigating extremes of climate, whether rain or hot summer, and terrain, as they sought fodder during grazing. Respondent farmers consistently reiterated the theme of high adaptability, particularly in seasons of water scarcity and hot summers, where the cows adeptly scanned the forests for forage.

Unique grazing habits of the Wayanad Dwarf cattle

An exclusive grazing behaviour of the Wayanad cattle emerged during the analysis of interviews. Respondent farmers noted that these cattle exhibited a unique grazing behaviour of utilizing their straight pointed horns to dig into the hard barks of tall trees in the Wayanad forests. This action exposed the softer, green, inner parts of the stems, providing the cattle with a source of nourishment. This distinctive behaviour was particularly observed during summer when the forests faced a severe shortage of green grass for conventional grazing. In times of extreme scarcity of green grass, the Wayanad cattle resorted to using their horns to access the inner parts of tall trees, showcasing their adaptive foraging strategy.

Reproductive efficiency and longer life span

Thematic analysis of the narratives of the Kuruma keeper farmers highlighted the recurring themes that emphasised the additional characteristics of the Wayanad dwarf cattle and this included their reproductive efficiency and remarkable longevity of over 30 years. The recurring theme that recurred in the interviews indicated that these animals consistently calved annually, with some individual cows reported to have calved as many as fifteen times over their lifespan, as reported by the respondent farmers. This contrasts with the findings of Dash *et al.* (2022), who observed a higher incidence of reproductive problems, such as abortions, among the Motu cattle in Orissa.

In comparison to their crossbred counterparts, the Wayanad dwarfs exhibited an almost non-existent incidence of post-partum disorders, including dystocia, post-calving metritis, downer cow syndrome, and milk fever, according to the themes that recurred on thematic analysis of the interviews of the Kuruma farmers. This finding further underscores the robust health and reproductive resilience of the Wayanad dwarf cattle in contrast to other breeds.

CONCLUSION

The Convention on Biological Diversity (CBD) places explicit emphasis on the conservation of biodiversity within the environments that foster it. In this context, the term 'surroundings' encompasses the multitude of communities and associated communes that have, for centuries, played a vital role in preserving the diversity of domestic animals as we recognize it today. Among these communities, the *Kuruma* cattle keepers stand out as a group that closely tie their life and prestige to the well-being of the Wayanad Dwarf cattle. Achieving a comprehensive understanding of their traditional rearing practices and preferences is thus imperative for the success of any conservation program aimed at preserving this unique breed.

ACKNOWLEDGEMENTS

This study forms part of the Master of Veterinary Science thesis of the first author who was in receipt of institutional grant from the Kerala Veterinary and Animal Science University that is gratefully acknowledged.

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