



Livestock Diversity in Cattle: Focus on Indigenous and Improved Breeds – A Case Study of Metikuppe

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Abstract

Livestock diversity plays a vital role in sustaining rural livelihoods, agricultural productivity, and ecological balance. In India, cattle are central to farming systems, providing milk, manure, and draught power, while also holding socio-cultural significance. This study explores the diversity of indigenous and improved cattle breeds in **Metikuppe village, Hunsur taluk, Mysuru district, Karnataka**. Using a case study approach, data were collected through household surveys, interviews, focus group discussions, and secondary sources such as livestock census reports and cooperative records. The findings reveal that farmers rear both indigenous breeds like **Hallikar, Amrit Mahal, and Malenadu Gidda**, and improved crossbreeds such as **Holstein Friesian and Jersey crosses**. While improved breeds provide higher milk yields and market returns, they require intensive inputs, veterinary care, and are more vulnerable to climatic stress. Indigenous breeds, although lower in productivity, show greater adaptability, disease resistance, and cultural importance. The study highlights the socio-economic trade-offs between breed choices and emphasizes the need for **sustainable livestock strategies** that balance productivity with conservation of indigenous genetic resources. The case of Metikuppe reflects broader trends in India's cattle rearing practices, where modernization and traditional knowledge coexist in shaping rural development.

Keywords: *Livestock diversity, Indigenous cattle breeds, Improved cattle breeds, Crossbreeding, Hallikar, Amrit Mahal, Malenadu Gidda, Holstein Friesian crossbred, Jersey crossbreed, Metikuppe village, Dairy cooperatives, Sustainable livestock management*

1. Introduction

- Livestock diversity plays a vital role in sustainable agriculture, food security, and rural livelihoods.
- Cattle are central to India's agrarian economy, providing milk, manure, draught power, and socio-cultural value.
- Indigenous breeds are adapted to local climatic conditions, whereas improved (crossbred/exotic) breeds enhance productivity.

- This case study of **Metikuppe**, a village near Nagarhole National Park (Karnataka), examines the dynamics between indigenous and improved cattle breeds.

2. Study Area: Metikuppe

- Location: Border area of Hunsur taluk, Mysuru district, Karnataka.
- Agro-ecological setting: Semi-arid to moist deciduous climate; agriculture mixed with livestock rearing.
- Close to forest fringes → dependency on cattle for milk and manure is high.
- Cultural context: Livestock rearing is integrated with farming and daily livelihoods.

3 Objectives

1. **To study the livestock diversity in Metikuppe village** with a special focus on cattle rearing practices.
2. **To identify the major indigenous and improved breeds** of cattle reared in the region.
3. **To analyze the comparative advantages and limitations** of indigenous and improved breeds in terms of productivity, adaptability, and sustainability.
4. **To examine the socio-economic significance of cattle rearing** for farming households in Metikuppe.
5. **To assess the challenges faced by farmers** in maintaining indigenous and improved cattle breeds.
6. **To understand the role of dairy cooperatives, government schemes, and local practices** in shaping livestock diversity.
7. **To suggest measures for the conservation of indigenous breeds** while promoting sustainable livestock development.

4 Methodology

4.1. Research Design

- The study adopts a **case study approach**, focusing on Metikuppe village in Hunsur Taluk, Mysuru district, Karnataka.
- A **mixed-methods design** combining qualitative and quantitative techniques was used to understand cattle diversity, management, and socio-economic implications.

4.2. Data Collection

a) Primary Data

- **Field Survey:** Household-level survey conducted among cattle-rearing families.
- **Questionnaire/Interview Schedule:** Structured and semi-structured questions covering:
 - Types of breeds owned (indigenous & improved).
 - Milk yield, maintenance cost, and veterinary care.
 - Socio-economic dependence on cattle.

- Farmers' perceptions on indigenous vs. improved breeds.
- **Focus Group Discussions (FGDs)** with farmers, dairy cooperative members, and women engaged in cattle rearing.
- **Direct Observation:** Recording housing, feeding practices, and herd composition.

b) Secondary Data

- Published reports from **Karnataka Animal Husbandry & Veterinary Services**,
- Data from **Nandini Dairy Cooperative (KMF)**,
- Research articles, government livestock census, and NGO reports.

4.3. Sampling Method

- **Purposive Sampling:** Metikuppe selected due to its mixed practice of rearing indigenous and improved breeds.
- **Household Sample:** Around 30–50 households selected representing small, medium, and large farmers.

4.4. Data Analysis

- **Quantitative Analysis:**
 - Tabulation of breed-wise population, milk yield, input cost, and income.
 - Comparative analysis between indigenous and improved breeds using averages and percentages.
- **Qualitative Analysis:**
 - Farmers' perceptions coded and categorized (e.g., adaptability, cultural value, challenges).
- **Mapping:** Preparation of a village livestock diversity map.

4.5. Limitations

- Limited sample size may not represent the entire taluk/district.
- Farmers' responses may be influenced by recall bias regarding yield and costs.
- Seasonal variations in fodder availability may affect observations.

5. Indigenous Breeds in Metikuppe

- **Hallikar:** Known for draught power, endurance, and disease resistance.
- **Amrit Mahal:** Famous for strength and resilience.
- **Malenadu Gidda** (small-sized, hardy breed from Western Ghats, sometimes found here).
- Key traits:
 - Lower milk yield but high adaptability.
 - Require minimal external inputs (fodder, medicines).
 - Play role in cultural practices and rituals.

6. Improved / Crossbred Breeds

- **Holstein Friesian (HF) Crossbred** and **Jersey Crossbred** are common in Metikuppe.
- Farmers adopt crossbreeds to increase milk productivity and income.
- Characteristics:
 - High milk yield, shorter lactation cycles.
 - Require better feed, veterinary care, and management.
 - More prone to heat stress and diseases compared to indigenous breeds.

7. Comparative Analysis

| Parameter | Indigenous Breeds | Improved Breeds |
|----------------------|--|----------------------|
| Milk Yield | Low to moderate (1–4 L/day) | High (8–20 L/day) |
| Adaptability | High (local climate, fodder, diseases) | Low to moderate |
| Maintenance Cost | Low | High |
| Lifespan | Longer, sturdy | Shorter under stress |
| Socio-cultural Value | High (rituals, heritage) | Low |
| Market Income | Limited | High (dairy demand) |

8. Socio-Economic Implications

- Farmers with small landholdings prefer indigenous breeds due to low cost.
- Medium to large farmers, and those linked to dairy cooperatives, prefer improved breeds.
- Dairy cooperatives in Karnataka (like Nandini) encourage crossbreeding for higher milk production.
- Challenges:
 - Decline in indigenous populations.
 - Over-dependence on external veterinary care.
 - Fodder shortages during dry season.

9. Conservation and Sustainability

- Indigenous breeds are crucial for genetic diversity and climate resilience.
- NGOs and government schemes promote **Ksheera Bhagya**, **Amrit Mahal conservation**, and **Hallikar breed promotion**.
- Mixed herd strategy (keeping both indigenous and improved breeds) seen in some households of Metikuppe.

10. Conclusion

- Metikuppe reflects a microcosm of India's cattle diversity transition.
- While improved breeds dominate due to economic incentives, indigenous breeds remain vital for ecological balance, cultural heritage, and long-term sustainability.

- A balanced approach—encouraging crossbreeding alongside conservation of native breeds—can ensure sustainable livestock diversity in the region.

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