



Veterinary Identification, Traceability, Registration, And Monitoring of Livestock in Mufindi District, Tanzania

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ABSTRACT

Livestock identification and traceability systems are increasingly recognized as essential components of modern veterinary services and livestock value chain management. In Tanzania, the adoption of ear-tagging systems has been promoted to improve animal health surveillance, reduce livestock theft, and strengthen market access. This study examines veterinary identification, registration, and monitoring of livestock in Mufindi District, Tanzania, using ear-tag distribution data from 27 wards. A descriptive analytical approach was applied to assess the level and distribution of livestock identification coverage across wards.

Findings indicate a total of 40,183 ear-tagged animals distributed unevenly across wards, with Ikweha (5,678), Igombavanu (3,986), and Sadani (3,787) recording the highest numbers. Conversely, Kasanga (258), MpangaTazara (278), and Luhunga (301) recorded the lowest coverage. The study reveals significant disparities in implementation, suggesting variations in livestock density, veterinary outreach, and farmer participation.

The study concludes that while livestock identification systems are operational in Mufindi District, their effectiveness is constrained by unequal coverage and institutional limitations. Strengthening veterinary extension services and digital registration systems is recommended.

Keywords: Livestock identification, traceability, ear tagging, veterinary services, Mufindi District, Tanzania.

Received 06 June., 2026; Revised 15 June., 2026; Accepted 17 June., 2026 © The author(s) 2026.

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I. INTRODUCTION

Livestock production plays a central role in rural livelihoods and national economies in developing countries, including Tanzania. According to the Food and Agriculture Organization (FAO), “livestock contribute significantly to food security, rural income, and agricultural GDP in developing economies” (FAO, 2023, p. 14).

However, livestock systems in many African countries face persistent challenges such as inadequate identification systems, poor traceability, livestock theft, and weak disease surveillance mechanisms. The World Organisation for Animal Health (WOAH) emphasizes that “animal identification is the foundation of effective animal health management and disease control systems” (WOAH, 2023, p. 6).

In Tanzania, veterinary identification through ear tagging has been introduced to improve livestock registration and monitoring. Despite these efforts, implementation remains uneven across districts.

Mufindi District provides an important case for assessing livestock identification systems due to its mixed farming systems and growing livestock population.

II. PROBLEM STATEMENT

Despite national efforts to improve livestock identification and traceability, implementation in rural districts remains inconsistent. Lack of comprehensive registration systems limits the ability of veterinary authorities to track animal movements, control diseases, and support livestock markets.

As FAO (2023) notes, “weak traceability systems reduce the effectiveness of disease surveillance and limit access to high-value markets” (p. 22).

This study therefore examines the distribution and effectiveness of ear-tagging systems in Mufindi District.

III. OBJECTIVES OF THE STUDY

3.1 General Objective

To assess veterinary identification, registration, and monitoring of livestock in Mufindi District.

3.2 Specific Objectives

- To determine distribution of ear-tagged livestock across wards
- To assess coverage levels of livestock identification systems
- To analyze disparities in implementation
- To provide recommendations for improving traceability systems

IV. LITERATURE REVIEW

4.1 Livestock Identification

Livestock identification refers to assigning unique identifiers to animals for management and traceability. WOAHA (2023) defines it as “a systematic process of marking animals to ensure individual recognition throughout their lifecycle.”

Common methods include ear tags, branding, and electronic identification.

4.2 Livestock Traceability

Traceability enables tracking of animals from birth to slaughter. According to Zepeda et al. (2019), “traceability systems enhance food safety and improve disease outbreak response efficiency” (p. 51).

4.3 Importance of Registration Systems

Animal registration supports planning, disease control, and livestock marketing systems. FAO (2023) highlights that registration improves “transparency and accountability in livestock value chains.”

V. METHODOLOGY

5.1 Study Area

The study was conducted in Mufindi District, Tanzania, which consists of 27 wards.

5.2 Research Design

A descriptive quantitative design was used.

5.3 Data Source

Secondary field data on ear-tagged livestock distribution across wards was used.

5.4 Data Analysis

Data were analyzed using descriptive statistics including totals, percentages, and averages.

VI. RESULTS

6.1 Distribution of Ear-Tagged Livestock

A total of **40,183 livestock animals** were recorded as ear-tagged across 27 wards in Mufindi District.

Distribution of Ear-Tagged Livestock

(Idete 545, Idunda 1,097, Ifwagi 876, Igombavanu 3,986, Igowole 987, Ihalimba 567, Ihanu 456, Ihowanza 1,986, Ikongosi 549, Ikweha 5,678, Itandula 435, Kasanga 258, Kibengu 1,025, Kiyowela 2,679, Luhunga 301, Maduma 2,987, Makungu 2,349, Malangali 2,652, Mapanda 521, Mbalamaziwa 1,876, Mdabulo 654, Mninga 562, MpangaTazara 278, Mtambula 1,097, Mtwango 986, Nyololo 1,009, Sadani 3,787)

6.2 Summary Statistics

- Total animals: **40,183**
- Wards: **27**
- Average per ward: **1,488 animals**

6.3 High and Low Coverage Areas

High coverage wards:

- Ikweha (5,678)
- Igombavanu (3,986)
- Sadani (3,787)

Low coverage wards:

- Kasanga (258)
- MpangaTazara (278)
- Luhunga (301)

VII. DISCUSSION

The findings reveal significant disparities in livestock identification coverage across Mufindi District. This suggests uneven implementation of veterinary services.

According to FAO (2023), “effective livestock identification systems require consistent field-level implementation and farmer participation” (p. 19). The observed variation may be attributed to differences in livestock density, veterinary outreach, and awareness levels.

The high coverage in wards such as Ikweha and Igombavanu suggests stronger veterinary presence or higher livestock populations. Conversely, low coverage in Kasanga and MpangaTazara may reflect limited access to veterinary services.

WOAH (2023) further emphasizes that “unequal implementation of identification systems reduces the effectiveness of national traceability programs” (p. 11).

VIII. CONCLUSION

The study concludes that livestock identification systems exist in Mufindi District but are unevenly implemented. With a total of 40,183 ear-tagged animals, the system shows potential for strengthening livestock traceability, but disparities across wards limit its effectiveness.

IX. RECOMMENDATIONS

- Strengthen veterinary outreach in low-coverage wards
- Introduce digital livestock registration systems
- Train livestock keepers on importance of identification
- Improve funding for veterinary field operations
- Integrate livestock databases at district level

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