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Assessing Livestock Breeders' Knowledge about Livestock Health and Diseases in Ajdabiya, Libya

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Abstract

Background: Livestock breeders' knowledge is critical for controlling animal diseases and ensuring herd productivity, particularly in regions with limited veterinary infrastructure.
Objective: This study aimed to assess the knowledge, attitudes, and practices of livestock breeders in Ajdabiya, Libya, regarding livestock health and disease prevention.
Methods: A cross-sectional survey was conducted between January and March 2025 among 54 livestock breeders using a structured 12-question questionnaire. Descriptive statistics and graphical visualization were used to summarize the responses.
Results: The majority of respondents demonstrated strong awareness of general signs of illness (96.3%), the importance of veterinary consultation (92.6%), and vaccination (88.9%). However, only 20.4% used health records, and just 11.1% had participated in training workshops.
Conclusion: While basic awareness is high, deficiencies in record-keeping and training reflect the need for enhanced veterinary extension services and breeder education.

Keywords:

(Livestock health, Disease prevention, Breeders' knowledge, Veterinary services, Ajdabiya Libya, Animal husbandry practices)

Introduction

Livestock production is a critical component of food security, rural livelihoods, and national economies in many parts of the world, particularly in low- and middle-income countries (LMICs) (Herrero et al., 2013). However, the productivity and sustainability of the livestock sector are frequently threatened by health challenges, including infectious diseases, poor husbandry practices, and inadequate access to veterinary services (Grace et al., 2012). In this context, livestock breeders' knowledge and awareness regarding animal health and diseases play a pivotal role in disease prevention, early detection, and the adoption of appropriate health management strategies (Okello et al., 2014).

Understanding breeders' knowledge, attitudes, and practices (KAP) is essential for identifying knowledge gaps and designing targeted interventions to enhance animal health outcomes (Ali et al., 2021). In many rural and peri-urban regions, studies have shown that livestock keepers often lack sufficient knowledge about zoonotic diseases, vaccination schedules, and basic biosecurity measures, which contributes to the persistence and spread of preventable animal diseases (Mangesho et al., 2021; Dione et al., 2016). For example, in a study conducted in Tanzania, only 38% of livestock farmers could correctly identify signs of common cattle diseases, despite frequent outbreaks (Maziku et al., 2017).

Moreover, the effectiveness of disease control programs depends not only on the availability of veterinary infrastructure but also on the breeders' willingness and ability to implement recommended practices (Catley et al., 2002). Knowledge deficits are often exacerbated by socio-economic constraints, low literacy levels, limited veterinary extension services, and the informal transmission of animal health knowledge through traditional or familial sources (FAO, 2011).

Given the increasing importance of One Health frameworks—linking human, animal, and environmental health—there is a pressing need to systematically assess the level of knowledge among livestock breeders regarding disease transmission, prevention, and treatment. Such assessments provide evidence-based guidance for policy makers, extension workers, and animal health practitioners to develop education and outreach programs tailored to local needs and capacities (Zinsstag et al., 2011).

This study aims to evaluate the knowledge of livestock breeders regarding animal health and disease management in Ajdabiya region, focusing on key areas such as disease recognition, preventive measures, and veterinary service utilization. The findings will contribute to improving health education strategies and strengthening disease control at the grassroots level.

Literature Review

Livestock play a vital role in sustaining food security, economic stability, and rural livelihoods globally. In many low- and middle-income countries, including those in North Africa, the livestock sector contributes significantly to household

income and national GDP (FAO, 2020). However, livestock productivity is often undermined by diseases, poor veterinary infrastructure, and limited awareness among breeders about proper health management practices (Grace et al., 2012).

Studies in various contexts have highlighted that breeders' knowledge of livestock diseases directly affects the effectiveness of disease control programs (Mangesho et al., 2021; Dione et al., 2016). Inadequate awareness about symptoms, disease transmission, vaccination, and preventive practices leads to delayed treatment and poor herd management, increasing both mortality and economic losses (Maziku et al., 2017). In Uganda, for example, farmers' limited understanding of African Swine Fever was a major barrier to disease control (Dione et al., 2016).

Furthermore, evidence suggests that while many farmers can recognize basic signs of illness, their use of veterinary services, adoption of record-keeping, and participation in training programs remain low (Catley et al., 2002; Ali et al., 2021). The Food and Agriculture Organization (FAO) has emphasized the role of education, extension services, and veterinary outreach in bridging this knowledge gap (FAO, 2011).

Despite its agricultural significance, Libya has limited published research on livestock health awareness among local breeders. This study addresses that gap by evaluating the knowledge, attitudes, and practices of livestock breeders in the city of Ajdabiya.

Methods

Study Area and Population

The study was conducted in Ajdabiya, Libya, durin the period from January to March 2025 a key livestock-producing region. The target population consisted of local livestock breeders, including owners of cattle, sheep, and goats.

Study Design and Data Collection

A cross-sectional survey was conducted using a structured questionnaire composed of 12 closed-ended questions. The survey covered aspects of livestock health knowledge, disease prevention practices, veterinary consultation behavior, record-keeping, and training.

Face-to-face interviews were conducted with 54 livestock breeders selected using convenience sampling. Verbal consent was obtained prior to participation. Data were entered and analyzed using descriptive statistics.

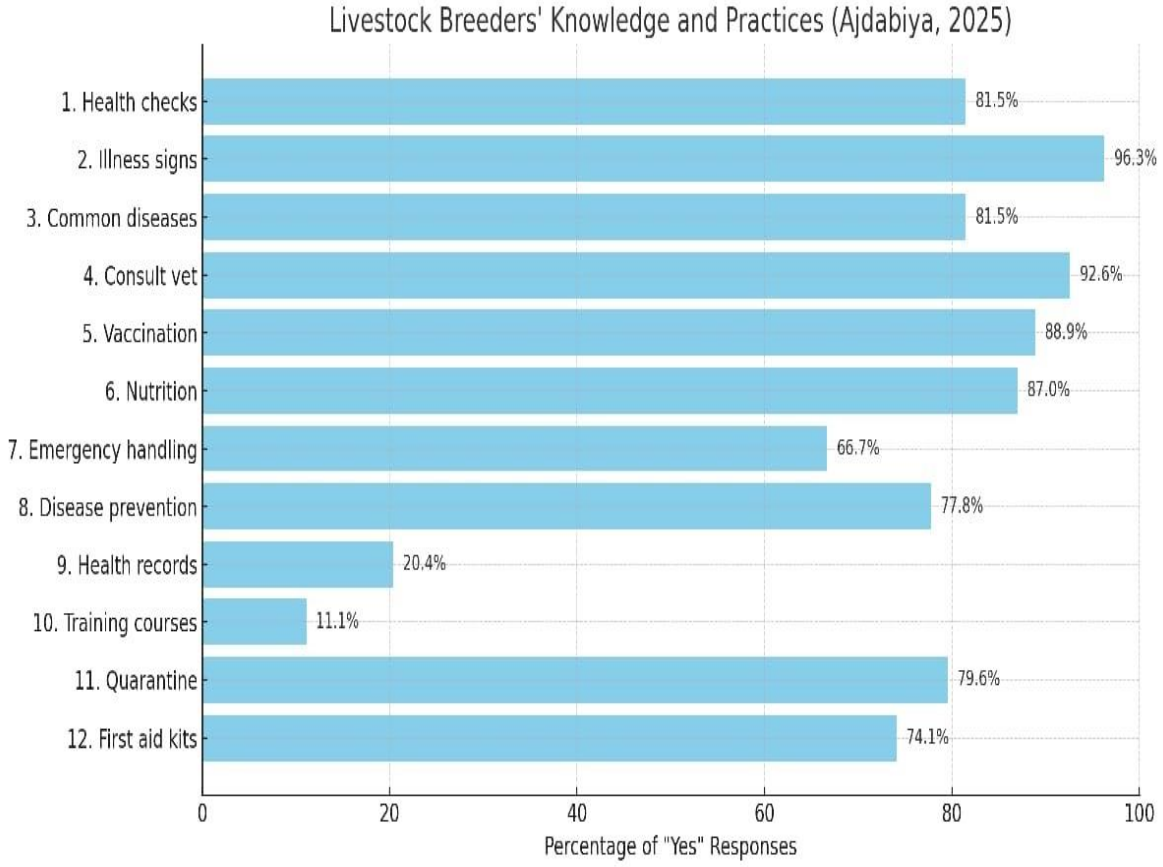
Ethical Considerations

Participants were informed of the voluntary and confidential nature of the study. No identifying personal data were collected.

Results

A total of 54 livestock breeders responded to the questionnaire. The key findings are summarized below:

Question	Yes (n)	No (n)	% Yes
1. Conduct regular health checks	44	10	81.5%
2. Know general signs of illness	52	2	96.3%
3. Aware of common diseases	44	10	81.5%
4. Consult veterinarian	50	4	88.9%
6. Provide balanced nutrition	47	7	87.0%
7. Know how to handle emergencies	36	18	66.7%
8. Know disease prevention methods	42	12	77.8%
9. Use health records	11	43	20.4%
10. Participated in training	6	48	11.1%
11. Know importance of quarantine	43	11	79.6%
12. Have first aid kits	40	14	74.1%



Discussion

The results reveal a generally high level of awareness among livestock breeders in Ajdabiya regarding disease symptoms (96.3%), the importance of veterinary consultation (92.6%), and vaccination (88.9%). These findings are consistent with studies in Tanzania and Rwanda that showed high basic disease recognition (Mangesho et al., 2021; Maziku et al., 2017).

However, significant gaps were noted in record-keeping (only 20.4% use health records) and training participation (11.1%). This is in line with research in Uganda and Pakistan, where lack of exposure to structured training limited the breeders' ability to adopt advanced disease management practices (Ali et al., 2021; Dione et al., 2016).

Emergency preparedness is also a concern: only 66.7% knew how to deal with injuries like fractures or wounds, suggesting a need for first aid training. Notably, only 74.1% reported having first aid kits, which may limit timely intervention during livestock injuries.

Low record-keeping and training engagement could be attributed to several factors, including lack of education, limited access to extension services, and absence of formal livestock management systems—challenges also reported in other North African and sub-Saharan contexts (Catley et al., 2002; FAO, 2011).

Despite these gaps, the high levels of basic awareness provide a strong foundation for future educational programs. Interventions focusing on practical skills—such as first aid, disease surveillance, and data recording—would significantly enhance livestock health management.

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