

Role of Livestock in Global Food System

Farzana Rizvi^{1*}, Muhammad Shahzad Shafiq¹, Muhammad Zulqarnain Shakir¹, Muhammad Wasim Usmani²

1. Department of Pathology, Faculty of Veterinary Science, University of Agriculture Faisalabad.
2. Department of Veterinary Pathology, Faculty of Veterinary and Animal Sciences, Ziauddin University, Karachi.

*Corresponding author: farzana.rizvi@uaf.edu.pk

ABSTRACT

Livestock plays a pivotal role in shaping the dynamics of the global food system, serving as a cornerstone for human nutrition, economic livelihoods, and cultural practices across diverse societies. As integral components of agriculture, livestock, including cattle, sheep, goats, pigs, and poultry, contribute significantly to the world's food security by providing an essential source of protein, essential nutrients, and a variety of by-products.

Introduction:

Livestock plays a pivotal role in shaping the dynamics of the global food system, serving as a cornerstone for human nutrition, economic livelihoods, and cultural practices across diverse societies. As integral components of agriculture, livestock, including cattle, sheep, goats, pigs, and poultry, contribute significantly to the world's food security by providing an essential source of protein, essential nutrients, and a variety of by-products. Beyond their nutritional value, livestock are economic assets for millions of farmers, supporting livelihoods and contributing substantially to the economies of many nations. The global food system is intricately linked to livestock production, which not only meets the growing demand for animal-derived products but also influences agricultural landscapes, rural development, and environmental sustainability. However, the role of livestock in the food system is complex, presenting challenges related to environmental impact, resource use, and concerns about animal welfare. As the global population continues to rise and dietary patterns evolve, understanding the multifaceted role of livestock is imperative for fostering sustainable and resilient food systems that balance the needs of people, the planet, and the animals involved. Pakistan is an agricultural country where animals play a very important role in various ways in economic development and food production (1).

Food security and safety:

Livestock plays a dual and indispensable role in ensuring global food security and food safety. As a primary source of high-quality protein, essential nutrients, and micronutrients, livestock products such as meat, milk, and eggs contribute significantly to meeting the dietary needs of a growing global population. Livestock farming diversifies food sources, offering resilience against crop failures and climate-related challenges that can affect staple crops. Moreover, livestock contribute to food safety by undergoing stringent quality control measures, ensuring that products meet regulatory standards. Proper management practices in livestock farming, including vaccination and disease control measures, enhance the safety of animal products, mitigating the risk of zoonotic diseases. Additionally, sustainable livestock practices, such as organic farming and pasture-based systems, contribute to environmental conservation, preserving ecosystems for long-term food security. Overall, the role of livestock in providing a reliable and nutritious food supply is indispensable for addressing global food security challenges while simultaneously emphasizing the importance of ensuring the safety and sustainability of livestock production systems. Livestock, including cattle, sheep, goats, and poultry, are important sources of protein and essential nutrients for human diets worldwide. Animal products such as meat, milk, and eggs contribute significantly to global food security, helping meet the nutritional needs of diverse populations. Milk and meat from animals, especially cows, buffaloes, and sheep, increase the importance of food throughout the country (2).

Agricultural support: Animals also play an important role in agricultural reforms. Their dung is an excellent agricultural aid as fertilizer which helps in making quality compost. Livestock plays a crucial role in providing multifaceted support to agriculture, contributing to the sustainability and productivity of farming systems worldwide. Beyond the obvious provision of meat, milk, and other animal products, livestock serve as integral components of integrated farming practices by providing valuable organic manure, which enhances soil fertility and promotes better crop yields. Additionally, livestock, such as cattle, can be employed for draft power, facilitating plowing and transportation in agricultural activities. Animals like goats and sheep contribute to weed control through grazing, reducing the need for herbicides. Livestock also play a vital role in income generation for farmers,

acting as a source of livelihood diversification. Furthermore, they offer resilience to farmers by serving as insurance against crop failure, as animals can be sold or used for sustenance during times of food scarcity. In sustainable agriculture, well-managed livestock systems contribute to a closed nutrient cycle, fostering ecological balance and minimizing waste. Overall, the symbiotic relationship between livestock and agriculture underscores the interconnectedness of diverse agricultural practices, highlighting the multifunctional role of livestock in supporting and enhancing overall agricultural sustainability.

Livelihood and Rural Development:

Livestock farming provides livelihoods for millions of people, particularly in rural areas. Small-scale and subsistence farmers often rely on livestock as a source of income, nutrition, and a means to sustain their way of life. People rearing animals get an important source of employment. They also build local economies and strengthen the economic base between villages and cities. Which helps in agricultural and animal development in the country. Livestock plays a pivotal role in livelihoods and rural development by serving as a cornerstone for the economic, social, and nutritional well-being of rural communities. Livestock ownership provides a sustainable source of income through the sale of meat, milk, and other animal products, offering livelihood diversification for farmers. The sector also generates employment opportunities along the value chain, from animal husbandry to processing and marketing. In many rural areas, particularly in developing countries, livestock ownership represents a form of financial security and acts as a buffer during times of economic uncertainty or agricultural challenges. Moreover, livestock contribute significantly to food security by providing a readily available source of protein and essential nutrients (3). Beyond economic aspects, the cultural and social significance of livestock in rural communities fosters a sense of identity and community cohesion. Sustainable and well-managed livestock practices can lead to improved soil fertility, and ecosystem health, and contribute to environmental conservation. In essence, the role of livestock in livelihoods and rural development is multifaceted, encompassing economic, social, and environmental dimensions that collectively contribute to the holistic development of rural societies.

Conclusion:

In conclusion, the role of livestock in the global food system is multifaceted and indispensable, encompassing contributions to food security, livelihoods, rural development, and environmental sustainability. Livestock not only provides a vital source of high-quality protein and essential nutrients, ensuring a diverse and resilient food supply for a growing global population, but it also plays a central role in supporting the livelihoods of millions of people, particularly in rural areas. The economic, social, and cultural significance of livestock fosters community cohesion and represents a form of financial security. Moreover, sustainable livestock practices contribute to environmental conservation, highlighting the importance of responsible management to ensure long-term food security. As we navigate the challenges of feeding a burgeoning population while addressing environmental concerns, recognizing and promoting the integral role of livestock in a balanced and sustainable food system is paramount for the well-being of people, communities, and the planet.

References

- [1] Raza SA, Ali Y, Mehboob F. Role of agriculture in economic growth of Pakistan.
- [2] Faye B. Food security and the role of local communities in non-cow milk production. In *Non-bovine milk and milk products 2016 Jan 1* (pp. 1-13). Academic Press.
- [3] Sunderland T, Powell B, Ickowitz A, Foli S, Pinedo-Vasquez M, Nasi R, Padoch C. Food security and nutrition. Center for International Forestry Research (CIFOR), Bogor, Indonesia. 2013.