(IJRSSH) 2025, Vol. No. 15, Special Issue No. VI **e-ISSN: 2249-4642 p-ISSN: 2454-4671**

Examining Methods for Sustainable Livestock Production in Rural India

Dr. J. Swami, Dr. K. Vijay Prasad Rao, K. Sugunavathi, Dr. P. Anuradha
Assistant Professor of Zoology, Government Degree College (A)
Khairatabad, Hyderabad, Telangana

DOI:10.37648/ijrssh.v15i06.012

[1]*Received: 01/11/2025; Accepted: 20/11/2025; Published: 25/11/2025*

Abstract

Livestock is an important factor in the expansion of the economy in rural areas, and it provides assistance to rural families in the form of employment, poverty reduction, and sustenance for agricultural operations. Additionally, it provides protein to rural residents in the form of meat, eggs, and milk. Nonetheless, because of the progressive rise in the number of animals, the alteration of the rural structure has created a situation that is difficult for livestock farming in India. As a result, the primary goal of this study is to analyze the livestock population in India, with a particular emphasis on the number of cattle, buffaloes, and goats from 1951 to 2019, as well as to examine the advantages of integrating crop production with animal husbandry. The Livestock Census report, which was published by the Ministry of Fisheries, Animal Husbandry & Dairying, served as the source for the collection of the secondary data. The findings of the study indicate that the buffalo and goat populations were experiencing a consistent growth rate, and that the growth rate of cattle populations was subject to some degree of variability. In comparison to the year 2011, the overall population of livestock dropped by a margin of 3.32 percent in the year 2012, with both the goat and cow populations showing a negative fall. The research came to the conclusion that the significant disparity that exists between the demand and availability of green and dry feed for livestock is indicative of the challenges that are faced by those who raise cattle. Therefore, the implementation of the idea of merging firms in livestock raising will result in greater economic benefits, including the provision of manure for crop development, feed for animals, value-added goods, and additional revenue, among other things. This paper draws the conclusion that the integration of crop cultivation (specifically, green fodder) and livestock rearing is a complementary form of production. It will increase the income of rural households, make the traditional practice of using cow dung manure in agricultural activities more efficient, decrease the amount of chemical fertilizers that are used, increase the cultivation of green fodder, and pave the way for the sustainable nurturing of livestock.

1. Introduction

Livestock rising is one of the most significant economic activities in rural regions of India, and it contributes to the improvement of the livelihood security of farm households. India has the highest livestock population in the world. The majority of the livestock is raised by farmers who are not wealthy, with the primary purposes being the production of milk, manure, and meat, the provision of power for agricultural operations, the fulfilment of socio-religious obligations, and the minimization of waste that occurs after the harvest. India is at the very top in the world in terms of both the number of buffaloes and the number of cattle, and the entire amount of meat that was produced came to 9.77 million tonnes, while the total amount of milk that was produced came to 230.58 million tonnes in the years 2022–2023. Ninety-six percent of the livestock population in India, which amounts to a total of 536.76 million, may be traced back to rural regions. According to the findings of the nineteenth livestock census report, the population of livestock in India has decreased by 3.32 percent. A number of obstacles are facing the livestock rearing industry in India, including the following: drought conditions, a shortage in the supply of fodder, a shortage of water, a decrease in the use of male cattle, or bulls, in the agricultural and related sectors, a shortage of labour, an increase in the price

[1]**How to cite the article**. Swami. J, Vijay.P.R.K., Sugunavathi.K., Anuradha.P.; (November, 2025); Examining Methods for Sustainable Livestock Production in Rural India:; Vol 6, Special Issue 5; 75-78, DOI: http://doi.org/10.37648/ijrssh.v15i06.012

Presented in National Seminar on "Viksit Bharat @ 2047: Public Policy, Governance & Digital Transformation" on 24-25, November 2025, GDC, Khairatabad, Hyderabad, T.G.

of fodder, a decrease in the availability of grazing land, and diseases. It was the Government that took the initiative to begin the Rashtriya Gokul Mission (RGM) in the month of December in the year 2014. The primary objective of this mission was to raise the number of livestock, to enhance genetic composition, and to create and protect indigenous bovine breeds. This is why the primary emphasis of this article is the analysis of the population of livestock in India, as well as a discussion of the idea of integrating companies in the production of livestock and how it is used. One of the principles of farm management, known as the "traditional method," is the idea of merging enterprises. This principle is used to figure out which goods are suitable for use in the agricultural system. The livestock has a synergistic relationship with crop production, and the implementation of an integrated crop-livestock farming system will improve the cultivation of crops, as well as the production of livestock. This will also provide protection to the environment and supplement production. In this particular scenario, the relationship between the two products is one of independence and complementarily. There is no dependency between them. Crop residues and by-products meet the requirements for animal feed and fodder, serve as a source of power for plowing agricultural fields, and provide manure for cropping. It provides a considerable impact in terms of raising additional income, providing assistance to human health, ensuring the sustainability of agricultural operations, and decreasing poverty in rural areas.

The significance of livestock in fostering sustainable development within the agricultural sector cannot be overstated. Livestock play a crucial role in ensuring the long-term viability and productivity of agricultural practices. The rearing of animals for food and other products is predominantly carried out by women, and a thriving livestock industry plays a crucial role in advancing their socio-economic status and serves as a significant source of income. It is noteworthy that close to 95 percent of livestock assets are situated in rural regions, with approximately three-quarters of these assets being managed by small-scale landowners. The research draws conclusions that suggest that the efficiency of India's livestock sector is not at an optimal level due to a lack of widespread implementation of technological advancements, limited availability of feed and forage resources, and substandard animal health conditions.

The significance of implementing the principle of integrating livestock farming with crop cultivation in rural areas cannot be overstated. This approach holds the potential to alleviate poverty, create more job opportunities, boost livestock output, decrease the scarcity of animal feed, enhance the manufacturing of high-quality goods, generate supplementary revenue, diminish the reliance on synthetic fertilizers, and provide ongoing assistance for agricultural and livestock activities.

The implementation of the principle of amalgamating enterprise will prove to be a viable and effective approach in mitigating the scarcity of animal feed. The amalgamation of crop cultivation with the incorporation of innovative technology has yielded significant advantages for farmers with limited resources. Assistance from governmental bodies is imperative for the successful establishment of an integrated farming system that combines crop production with livestock management. The conclusion drawn from the study is that the farming system which integrates both crop cultivation and livestock farming proved to be more economically advantageous for farmers. Moreover, it was found to promote the harmonious development of agricultural practices and animal husbandry in a sustainable fashion.

The program is put into effect nationwide with the aim of producing assessments for Major Livestock Products (MLP) like Milk, Eggs, Meat, and Wool. According to the program, the projections are required to be published on a yearly basis, and these are utilized for the development of policies and strategic planning. All of the States as well as the Union Territories are currently putting into effect the Scheme with Central Assistance at a rate of 50%, 90%, and 100% for the States, North Eastern States, and Union Territories respectively, in order to cover the costs related to salaries for the designated positions. Central Assistance is also granted in full for the following purposes: (i) Travel Allowance and Daily Allowance for Enumerators and Supervisors during the survey at a specified rate; (ii) additional training sessions on the Integrated Survey System methodology; and (iii) the procurement of Information Technology Solutions. The survey is carried out periodically, spanning from the month of March to February, and is structured into three distinct seasons: Summer, Rainy, and Winter. The estimates can be found in the Annual Publication of Basic Animal Husbandry Statistics (BAHS) of the Department.

The Livestock Census is carried out every five years in every district of all States and Union Territories throughout the nation, encompassing all households, non-households, enterprises, and institutions in both Rural and urban areas.

It is the sole origin that provides detailed data on different categories of animals and domestic fowl. The 20th Livestock Census was recently finalized in the year 2019 with the active involvement of the Animal Husbandry Department from all the States and Union Territories. The primary aim of the Livestock Census is to furnish comprehensive data regarding the population of livestock, categorized by species and breed, as well as details on age, sex distribution, and other relevant factors, extending down to the level of individual households in both rural and urban regions. The report titled "20th Livestock Census-2019" for the entire nation of India, which includes detailed data on the population of livestock categorized by species and states, has been officially released. Furthermore, the Division has also released a comprehensive report on Livestock and Poultry categorized by breed, which is based on the data from the 20th Livestock Census.

The most effective approach for enhancing the value chain within the recognized cluster is to foster entrepreneurship among young graduates, women, and new investors. The government has a requirement to commence programs focused on fostering entrepreneurship among young individuals and women in order to assist them in establishing their own enterprises, starting from a modest scale and gradually progressing towards achieving economic self-reliance. This would enable them to make a constructive contribution to the overall national economy. Livestock and poultry represent highly promising sectors for entrepreneurial endeavors on a small scale, such as engaging in dairy farming, raising heifers, breeding cattle, nurturing calves, fattening livestock in feedlots, producing silage and hay, delivering feed and total mixed rations (TMR), distributing semen, engaging in backyard poultry farming, producing broilers and layers, operating small-scale hatcheries, establishing milk and meat value-added outlets, setting up quality testing laboratories, and exploring various other domains within the industry.

Moreover, the livestock industry possesses the potential to offer numerous opportunities for the incorporation of digital technologies. The utilization of concepts like electronic commerce has the potential to be efficiently implemented in the trading of livestock and the marketing of input supplies, which could lead to a significant transformation of the currently complex landscape of animal and feed markets. The integration of software designed for creating feed formulations and programs for managing farms has the potential to shift the industry away from traditional methods towards contemporary, technologically advanced practices in the digital realm. The young researchers, along with the veterinarian who has acquired comprehensive knowledge and expertise in applying cutting-edge technologies, have the potential to offer their services to the agricultural community and emerge as trailblazers in transforming the livestock sector. The commerce sector, with its provision of financial and technical assistance to the pertinent public sector institutions such as academia, research and extension organizations, as well as private sector stakeholders, for the recognized innovative development models, might possess the capacity to transform them into exemplary methodologies and lucrative enterprises for farmers and individuals in the industry engaged in the dairy, meat, and poultry sector. This could enable the exploration of the complete potential of the livestock domain and its augmented contribution to the concept of sustainable development goals.

The livestock industry plays a crucial role in the worldwide food system and actively contributes to alleviating poverty, achieving the goal of zero hunger, ensuring food security, and fostering agricultural development. In conclusion, the implementation and integration of these strategies would play a crucial role in tackling the obstacles that the livestock sector is presently encountering. Furthermore, it would promote the sustainable growth of this industry and meet the needs of a rapidly growing human population, as well as contribute to the overall development and prosperity of the national economy. Therefore, instead of rapidly increasing the number of livestock each year in both the commercial and rural sectors, it is more important to focus on improving the productivity of each animal through the utilization of advanced sciences and technology. This includes advancements in breeding and genetics, ensuring animals have access to adequate and affordable nutrition and feed resources, optimizing feeding practices, implementing efficient livestock management techniques, improving housing conditions, establishing a well-organized marketing system, implementing preventive measures, conducting disease surveillance, and monitoring animal health indicators. Additionally, efforts should be made to address issues such as food wastage, deforestation, soil degradation, loss of biodiversity, environmental impacts, and water pollution in order to meet the growing demand for sustainable livestock production worldwide. All of these measures must take into account various socio-economic factors, including human health considerations and evolving socio-cultural values.

2. Conclusion

According to a research, there has been a progressive growth in the population of livestock in India; nevertheless, the rearing of livestock in India has been impacted by a number of factors, including a lack of fodder, a scarcity of water, an increase in the price of fodder, a decrease in the availability of area suitable for grazing, a shortage of labour, and illnesses. Therefore, one of the most effective solutions for reducing the shortage of fodder would be the application of the principle of combining enterprise. The integration of crop cultivation with the adoption of new technology has proven to be extremely beneficial for small and marginal farmers. In addition, government support is required for the integrated crop-livestock farming system. The integrated crop-livestock farming method was more economically advantageous for farmers, according to the findings of the study, and it guaranteed that agricultural operations and livestock raising would develop in a way that was balanced and sustainable.

The utilization of natural grasslands and meadows in elevated regions can also enhance the potential of organic livestock products. The strategy for policies in the long run should primarily concentrate on exploring the potential for creating innovative sources of protein that are less in direct competition with humans for food, such as insects. The availability of resources for evaluating the potential ability of current or innovative animal feed ingredients to inhibit methane production is also of great importance within this framework, in order to formulate the most efficient and environmentally sustainable approaches for the advancement of the livestock industry. Therefore, it is essential that forthcoming strategies for livestock development encompass various mechanisms (such as national funding for research) to encourage partnerships between researchers, academic institutions, and industry stakeholders in order to foster the growth of a sustainable livestock sector. This will involve ensuring optimal animal welfare, increasing productivity, and enhancing overall well-being through improved disease control measures. By implementing established health and farming practices, it is possible to achieve a reduction of 4.5% in greenhouse gas emissions, thereby streamlining production processes and boosting profitability for farmers.

References

Basic animal husbandry statistics. (2023). Ministry of Animal Husbandry, Dairying and Fisheries, Government of India. https://dahd.nic.in/sites/default/filess/BasicAnimalHusbandryStatistics2023.pdf

Birthal, P. S. (2022). *Livestock, agricultural growth and poverty alleviation* (NABARD Research and Policy Series No. 7). Department of Economic Analysis and Research, National Bank for Agriculture and Rural Development.

Government of Punjab. (2014). *The Punjab Livestock Breeding Act, 2014*. https://faolex.fao.org/docs/pdf/pak143420.pdf

Motet, A., & Tempio, G. (2017). Global poultry production: Current state and future outlook and challenges. *World's Poultry Science Journal, 73*(2), 245–256.

Otte, J., Costales, A., Dijkman, J., Pica-Ciamarra, U., Robinson, T., Ahuja, V., Ly, C., & Roland-Holst, D. (2012). *Livestock sector development for poverty reduction: An economic and policy perspective—Livestock's many virtues*. Food and Agriculture Organization of the United Nations.

Sonavale, K. P., Shaikh, M. R., Kadam, M. M., & Pokharkar, V. G. (2020). Livestock sector in India: A critical analysis. *Asian Journal of Agricultural Extension, Economics & Sociology, 38*(1), 51–62.

Yasmeen, Patil, S. S., Hiremath, G. M., Ram, J., & Koppalkar, B. G. (2019). Growth performance of livestock population in India, Karnataka, and north-eastern region of Karnataka. *Economic Affairs, 64*(4), 783–787.