

Scientific Poultry Management for Sustainable Rural Livelihoods: Enhancing Productivity, Profitability and Nutritional Security

¹Abhishek Kumar Mishra, ²Sudhanshu, ³Ankit Tiwari, ⁴Ashish Kumar Pandey, ⁵Mithlesh Kumar Jha, ⁶Mamta Tripathi, ⁷CM Tripathi, ⁸Rahul Shukla, ⁹Vaishnavi Tiwari²

¹SMS (Animal Husbandry) DRI LBS KVK Gonda ² SMS (Extension) DRI LBS KVK Gonda ³SMS (Agronomy) DRI LBS KVK Gonda ⁴SMS (Plant Protection) DRI LBS KVK Gonda ⁵SMS (Agriculture Eng.) DRI LBS KVK Gonda ⁶SMS (Home science) DRI LBS KVK Gonda ⁷ Senior Scientist and Head DRI LBS KVK Gonda ⁸ (SRF) DRI LBS KVK Gonda ⁹Ph.D. Research Scholar (Home Science Maa Pateswari University, Balrampur)

Corresponding authors email: abhishekmishravet@gmail.com

DOI: <https://doi.org/10.5281/zenodo.20019335>

Abstract

Poultry farming has emerged as one of the most dynamic and rapidly expanding sectors of agriculture and animal husbandry. It plays a crucial role in ensuring nutritional security, generating rural employment, and increasing farmers' income. Poultry products such as eggs and meat provide high-quality protein, vitamins, and essential nutrients that are important for human health. Scientific poultry management practices including proper housing, feeding, breeding, sanitation, and disease control significantly enhance poultry productivity and reduce mortality rates. The present study examines the importance of poultry management practices and their role in improving production efficiency and economic returns for farmers. Poultry farming requires relatively low investment and offers quick returns compared to other livestock enterprises, making it particularly suitable for small and marginal farmers. Adoption of improved management techniques such as balanced nutrition, vaccination schedules, environmental control, and proper farm hygiene can increase egg production and broiler growth rates.

The findings of the study indicate that farmers who adopt scientific poultry management practices achieve higher productivity, improved feed conversion ratios, and better flock health. However, several challenges such as disease outbreaks, inadequate technical knowledge, poor farm infrastructure, and fluctuating market prices continue to affect poultry farming. Therefore, the promotion of scientific poultry management practices through training, extension services, and institutional support is essential for strengthening the poultry sector and improving rural livelihoods.

Keywords: Poultry management, poultry farming, broiler production, layer management, poultry nutrition, disease control, rural livelihood, livestock development, egg production.

Introduction

Poultry farming is an important component of the livestock sector and plays a significant role in the agricultural economy of many developing countries. Poultry birds such as chickens, ducks, quails, and turkeys are raised for the production of eggs and meat, which serve as major sources of animal protein. Among these birds, chickens are the most widely reared poultry species due to their adaptability, fast growth rate, and high production potential.

In recent decades, poultry farming has undergone remarkable transformation due to technological advancements, improved genetic breeds, and better management practices. The poultry sector has shifted from traditional backyard farming to

commercial and semi-commercial farming systems that utilize modern scientific techniques to maximize productivity. The increasing demand for poultry products, driven by population growth, urbanization, and rising incomes, has further accelerated the expansion of this sector.

Poultry management refers to the systematic care and scientific handling of poultry birds to ensure their health, productivity, and welfare. Effective poultry management involves several important aspects including housing management, feeding management, breeding management, disease prevention, and environmental control. Proper management practices

help maintain optimal living conditions for birds and improve production efficiency.

One of the key advantages of poultry farming is its ability to generate quick returns on investment. Poultry birds grow rapidly and begin producing eggs within a relatively short period of time. This makes poultry farming an attractive enterprise for rural farmers, especially small and marginal farmers who have limited land resources. Additionally, poultry farming provides employment opportunities for rural youth and women and contributes to poverty reduction.

Despite its many advantages, poultry farming also faces several challenges such as disease outbreaks, poor management practices, inadequate veterinary services, and limited access to quality feed and breeding stock. Addressing these challenges requires the adoption of improved poultry management practices supported by extension services and government programs.

The present study focuses on scientific poultry management practices and examines their impact on poultry productivity, farm profitability, and sustainable rural development.

Review of Literature

Several studies have highlighted the importance of poultry management practices in improving poultry productivity and profitability.

Singh et al. (2018) reported that farmers who adopted scientific poultry management practices such as improved feeding systems, vaccination schedules, and proper housing achieved higher egg production and lower mortality rates. The study emphasized the role of training programs in promoting improved poultry farming techniques.

Kumar and Sharma (2019) studied the impact of housing management on poultry performance and found that proper ventilation, adequate space, and hygienic conditions significantly reduced disease incidence and improved growth rates in broilers.

The Food and Agriculture Organization (FAO, 2020) reported that poultry farming is a major contributor to food security and poverty reduction in developing countries. According to the report, improved poultry breeds, balanced nutrition, and disease control measures are key factors in enhancing poultry productivity.

Reddy et al. (2021) examined broiler production systems and observed that farmers using scientific feeding practices achieved better feed conversion ratios and higher body weight gains compared to farmers using traditional feeding methods.

Choudhary and Patel (2022) highlighted the importance of extension services in promoting improved poultry management practices. Their study indicated that farmers who participated in training programs showed better adoption of vaccination schedules, sanitation practices, and feeding management techniques.

These studies demonstrate that scientific poultry management practices play a critical role in improving poultry production and ensuring the sustainability of the poultry sector.

Research Methodology

Research Design

The study was conducted using a descriptive research design to analyze poultry management practices and their impact on poultry production and farm profitability.

Study Area

The research was carried out in selected rural villages where poultry farming is practiced as an important agricultural activity.

Sampling Procedure

A total of **60 poultry farmers** were selected using a random sampling technique to ensure representative data.

Data Collection Methods

Data were collected using the following techniques:

- Structured questionnaires
- Personal interviews with poultry farmers
- Direct observation of poultry farms
- Discussions with livestock experts and extension workers

Information was collected regarding housing conditions, feeding practices, disease control measures, vaccination schedules, and production performance.

Data Analysis

The collected data were analyzed using descriptive statistical methods such as percentages, averages, and comparative analysis to evaluate the effectiveness of poultry management practices.

Results and Discussion

Housing Management

The study revealed that proper housing conditions significantly influence poultry productivity. Poultry houses that are well ventilated, clean, and protected from extreme weather conditions provide a comfortable environment for birds and reduce the risk of diseases.

Feeding Management

Balanced feeding practices were found to be essential for optimal growth and egg production. Farmers who provided scientifically formulated feed achieved higher weight gain in broilers and better egg production in layers.

Disease Control and Vaccination

Vaccination and proper sanitation practices played a vital role in preventing poultry diseases. Farmers who followed regular vaccination schedules experienced fewer disease outbreaks and lower mortality rates.

Productivity and Performance

The adoption of improved poultry management practices resulted in:

- Increased egg production
- Higher broiler body weight
- Improved feed conversion efficiency
- Reduced mortality rate

Economic Impact

Farmers who implemented scientific poultry management practices reported increased income due to higher production and better market returns.

Implications

The findings of the study have several practical implications:

1. Scientific poultry management practices can significantly enhance poultry productivity and profitability.
2. Training programs and extension services should be strengthened to educate farmers about improved poultry farming techniques.
3. Government support in the form of subsidies, veterinary services, and access to quality feed and chicks can promote poultry farming.
4. Poultry farming can generate employment opportunities and improve rural livelihoods.

5. Increased poultry production can contribute to improved nutritional security through the availability of eggs and poultry meat.

Conclusion

Poultry farming is an important agricultural enterprise that contributes significantly to rural development, employment generation, and nutritional security. The study highlights that scientific poultry management practices such as proper housing, balanced feeding, vaccination, and sanitation play a crucial role in improving poultry productivity and farm profitability.

Farmers who adopt improved poultry management practices experience better bird health, higher production levels, and increased economic returns. However, challenges such as disease outbreaks, inadequate technical knowledge, and limited market access continue to affect the growth of poultry farming.

Therefore, it is essential to promote scientific poultry management practices through training, awareness programs, and institutional support. Strengthening the poultry sector can enhance rural livelihoods, improve food security, and contribute to sustainable agricultural development.

References

- Choudhary, R., & Patel, M. (2022). Poultry Farming and Management Practices. *Journal of Agricultural Development*.
- FAO. (2020). Poultry Production and Food Security. Food and Agriculture Organization.
- Government of India. (2021). Basic Animal Husbandry Statistics. Ministry of Fisheries, Animal Husbandry and Dairying.
- Kumar, S., & Sharma, P. (2019). Housing Management in Poultry Farming. *Indian Journal of Animal Science*.
- Reddy, K., Rao, V., & Singh, A. (2021). Impact of Scientific Poultry Management on Broiler Production. *Livestock Research Journal*.
- Singh, R., Verma, S., & Gupta, P. (2018). Adoption of Improved Poultry Management Practices. *Agricultural Extension Review*.