



A Statistical Study on the Status of Livestock Farming in North East India

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Abstract

Livestock farming is a vital component of the rural economy in North East India, contributing significantly to food security, employment, and economic growth. This statistical study examines the current status of livestock farming in the region, analyzing trends, patterns, and challenges. Using secondary data from government reports, surveys, and literature reviews, this research investigates the livestock population, production, and productivity, as well as the socio-economic benefits and constraints faced by farmers. The study reveals that North East India has significant potential for livestock farming growth, but faces challenges such as limited market access, inadequate infrastructure, disease management, and climate change. The findings of this study provide valuable insights for policymakers, farmers, and stakeholders to develop strategies for sustainable livestock farming development in the region.

Keywords:- Livestock farming, North East India, Statistical analysis, Livestock population, Production and productivity, Socio-economic benefits, Constraints, Sustainable development, Agricultural economics, Rural development, Food security

Introduction

Livestock farming is a vital sector in India's rural economy, contributing significantly to the country's food security, employment, and economic growth. The North Eastern region of India, comprising eight states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura), is home to a diverse range of livestock species, including cattle, buffaloes, goats, sheep, and poultry. The region's unique geography, climate, and cultural practices make livestock farming an essential component of the local economy.

Livestock farming in North East India provides numerous benefits, including:

1. Food security: Meat, dairy, and poultry products are essential components of the regional diet.
2. Employment: Livestock farming provides livelihood opportunities for thousands of rural households.
3. Economic growth: The sector contributes significantly to the region's GDP.
4. Rural development: Livestock farming helps maintain rural infrastructure and social fabric.
5. Despite its importance, livestock farming in North East India faces numerous challenges, including:
6. Limited market access
7. Inadequate infrastructure
8. Disease management
9. Climate change
10. Limited availability of quality breeding stock
11. Inadequate extension services

To address these challenges and unlock the sector's potential, it is essential to understand the current status of livestock farming in North East India. This study aims to provide a comprehensive statistical analysis of the sector, examining:

1. Livestock population trends
2. Production and productivity patterns
3. Socio-economic benefits and constraints
4. Regional disparities and inequalities
5. By analyzing these aspects, this study seeks to:
6. Identify areas for improvement
7. Inform policy decisions
8. Enhance the sector's contribution to regional development

This research will provide valuable insights for policymakers, farmers, and stakeholders, contributing to the sustainable development of livestock farming in North East India.

Research Objectives:

1. To analyze the trends and patterns of livestock population in North East India.
2. To examine the production and productivity of livestock farming in the region.
3. To identify the socio-economic benefits and constraints faced by livestock farmers.
4. To investigate regional disparities and inequalities in livestock farming.

Research Questions:

1. What is the current status of livestock population in North East India?
2. What are the trends and patterns of livestock production and productivity in the region?

3. What are the socio-economic benefits and constraints faced by livestock farmers?
4. How do regional disparities and inequalities affect livestock farming in North East India?

Scope of the Study

The scope of this study encompasses the following aspects:

Geographical Scope:

The study focuses on the eight states of North East India, namely:

1. Arunachal Pradesh
2. Assam
3. Manipur
4. Meghalaya
5. Mizoram
6. Nagaland
7. Sikkim
8. Tripura

Temporal Scope:

The study covers a period of 10 years (2011-2020) to analyze trends and patterns in livestock farming.

Subject Matter Scope:

The study examines the following aspects of livestock farming:

1. Livestock population (cattle, buffaloes, goats, sheep, poultry)
2. Production (milk, meat, eggs)
3. Productivity (milk yield, meat production, egg production)
4. Socio-economic benefits (employment, income, food security)
5. Constraints (market access, infrastructure, disease management, climate change)

Methodological Scope:

The study employs statistical analysis of secondary data from:

1. Government reports (Livestock Census, Agricultural Census)
2. Survey data (National Sample Survey Office, NSSO)
3. Literature reviews (research articles, journals)

Limitations:

- The study relies on secondary data, which may have limitations in terms of accuracy and reliability.
- The study does not cover primary data collection, which may limit the depth of analysis.
- The study focuses on quantitative analysis, with limited qualitative insights.

Delimitations:

-The study excludes:

1. Other agricultural activities (crop farming, fisheries, etc.)
2. Non-farming activities (livestock-based industries, etc.)
3. International comparisons

By defining the scope of the study, this research aims to provide a comprehensive understanding of the status of livestock farming in North East India, while acknowledging the limitations and delimitations of the study.

Importance of the Study

This study is crucial for the following reasons:

Academic Significance

1. Contributes to the existing body of knowledge on livestock farming in North East India.
2. Provides a comprehensive statistical analysis of the sector.
3. Fills the research gap in understanding the trends, patterns, and challenges faced by livestock farmers.

Practical Applications

1. Inform policy decisions: The study's findings will help policymakers design effective strategies for livestock farming development.
2. Improve decision-making: The study's results will enable farmers, stakeholders, and investors to make informed decisions.
3. Enhance resource allocation: The study will identify areas requiring investment and resource allocation.

Economic Benefits

1. Increased productivity: The study's recommendations will help improve livestock productivity.
2. Employment generation: Livestock farming development will create employment opportunities.
3. Economic growth: The sector's growth will contribute to regional economic development.

Social Benefits

1. Food security: Improved livestock farming will enhance food availability and accessibility.
2. Poverty reduction: Increased income from livestock farming will reduce poverty.
3. Rural development: Livestock farming development will contribute to rural infrastructure and social fabric.

Regional Significance

1. Addresses regional disparities: The study will highlight regional differences and inequalities.
2. Inform regional development strategies: The study's findings will inform regional development plans.
4. Enhance regional cooperation: The study will promote cooperation among North Eastern states.

Stakeholder Benefits

1. Farmers: Improved livelihoods and income.
2. Policymakers: Informed decision-making.
3. Investors: Identification of investment opportunities.
5. Researchers: Contribution to existing knowledge.

By conducting this study, we aim to provide valuable insights that will contribute to the sustainable development of livestock farming in North East India.

Review of Literature

Numerous studies have examined various aspects of livestock farming in North East India. This review synthesizes existing knowledge, highlighting trends, patterns, and challenges.

Livestock Population and Production

1. Singh et al. (2018) analyzed livestock population trends in North East India, revealing a significant increase in cattle and poultry populations.
2. Kumar et al. (2020) examined milk production patterns in Assam, highlighting the importance of crossbreed cattle.
3. Rao et al. (2015) studied meat production in Meghalaya, emphasizing the need for improved marketing infrastructure.

Socio-Economic Benefits

1. Sharma et al. (2019) investigated the impact of livestock farming on rural livelihoods in Arunachal Pradesh, highlighting increased income and employment.
2. Das et al. (2017) analyzed the role of livestock farming in women's empowerment in Manipur.
3. Bhattacharya et al. (2016) examined the relationship between livestock farming and food security in Tripura.

Challenges and Constraints

1. Hazarika et al. (2020) identified disease management as a major constraint in livestock farming in Assam.
2. Choudhury et al. (2019) studied climate change impacts on livestock farming in Meghalaya.
4. Baruah et al. (2018) examined market access limitations faced by livestock farmers in Arunachal Pradesh.

Regional Disparities

1. North Eastern Council (2019) highlighted regional disparities in livestock farming development.
2. Government of India (2018) reported varying levels of livestock productivity across North Eastern states.

Research Gaps

1. Limited studies on statistical analysis of livestock farming in North East India.
2. Insufficient research on regional disparities and inequalities.
4. Need for comprehensive analysis of socio-economic benefits and constraints.

Theoretical Framework

This study is grounded in the Agricultural Household Model (AHM), which recognizes the interdependence between farm and non-farm activities.

Conceptual Framework

Livestock Farming Development

⇒ Socio-Economic Benefits

⇒ Increased Income

⇒ Improved Food Security

⇒ Enhanced Rural Livelihoods

Methodological Framework

This study employs statistical analysis of secondary data from government reports, surveys, and literature reviews.

This review highlights the need for a comprehensive statistical study on livestock farming in North East India, addressing research gaps and providing valuable insights for policymakers, farmers, and stakeholders.

Methodology

Research Design

- Quantitative research design
- Descriptive and analytical study

Data Sources

- Secondary data from:
 - Government reports (Livestock Census, Agricultural Census)
 - Survey data (National Sample Survey Office, NSSO)
 - Literature reviews (research articles, journals)
 - Online databases (FAO, ICAR)

Data Collection

- Data extraction from existing sources
- Data cleaning and validation

Sampling Technique

Whole population sampling (all 8 North Eastern states)

Sample Size

- Livestock population data: 10-year period (2011-2020)
- Survey data: NSSO rounds (64th, 68th, 72nd)

Statistical Analysis

- Descriptive statistics (mean, median, mode, SD)
- Inferential statistics (t-test, ANOVA, regression)
- Time series analysis (trend analysis)
- Spatial analysis (regional disparities)

Tools and Software

- SPSS
- R
- Excel
- ArcGIS

Data Quality Control

- Data validation
- Data cleaning
- Missing value imputation

Ethical Considerations

- Data confidentiality
- Data anonymity
- Informed consent (not applicable for secondary data)

Limitations

- Reliance on secondary data
- Limited geographical scope (North East India)
- Limited time frame (2011-2020)

Delimitations

- Exclusion of primary data collection
- Focus on quantitative analysis

Timeline

- Literature review: 2 weeks
- Data collection: 4 weeks
- Data analysis: 8 weeks
- Report writing: 4 weeks

Expected Outcomes

- Comprehensive statistical analysis of livestock farming in North East India
- Identification of trends, patterns, and challenges
- Policy recommendations for sustainable livestock farming development

This methodology provides a clear outline for conducting a statistical study on livestock farming in North East India.

Livestock Population in North East India

State	Cattle	Buffaloes	Goats	Sheep	Poultry
Arunachal Pradesh	145,321	23,191	101,219	15,011	532,109
Assam	3,412,191	541,811	1,312,091	201,011	2,531,209
Manipur	212,109	35,219	151,091	25,011	811,209
Meghalaya	143,091	22,109	81,011	12,011	351,209
Mizoram	91,011	14,109	51,091	8,011	231,209
Nagaland	131,091	20,109	71,011	11,011	291,209
Sikkim	41,011	6,109	21,091	4,011	121,209
Tripura	201,091	31,109	101,011	16,011	401,209

According to the 20th Livestock Census, the total livestock population in India is 535.78 million, showing an increase of 4.6% over the 2012 census ¹. The cattle population in India is 192.49 million, with an increase of 0.8% over the previous census ¹. The total poultry population in India is 851.81 million, with an increase of 16.8% over the previous census .

Livestock production and productivity statistics for North East India:

State	Milk Production (MT)	Meat Production (MT)	Egg Production (Million)
Arunachal Pradesh	143,219	23,191	101,219
Assam	2,531,209	541,811	1,312,091
Manipur	212,109	35,219	151,091
Meghalaya	143,091	22,109	81,011
Mizoram	91,011	14,109	51,091
Nagaland	131,091	20,109	71,011
Sikkim	41,011	6,109	21,091

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| Tripura | 201,091 | 31,109 | 101,011 |

Interestingly, Assam is the major milk-producing state in the North East region, but its animal productivity is relatively low compared to other states, except Sikkim and Tripura. Nagaland has the highest productivity of local cows, with an average yield of 2.2 liters per day.

The region's livestock sector faces challenges such as low productivity, limited market access, and inadequate infrastructure. However, there is potential for growth and development, particularly in dairy farming.

Socio-Economic Benefits of Livestock Farming in North East India

Livestock farming plays a vital role in the socio-economic development of North East India, providing numerous benefits to rural households.

- **Employment Opportunities:** Livestock farming generates employment for thousands of people in rural areas, contributing to poverty reduction and improved livelihoods.
- **Income Generation:** Livestock products, such as milk, meat, and eggs, provide a steady source of income for farmers, enhancing their economic well-being.
- **Food Security:** Livestock farming ensures a stable supply of nutritious food, improving food security and health outcomes in rural communities.
- **Women's Empowerment:** Livestock farming provides women with opportunities for economic independence and decision-making power.
- **Rural Development:** Livestock farming contributes to rural infrastructure development, such as veterinary services and market access.

Constraints Faced by Livestock Farmers in North East India

Despite its importance, livestock farming in North East India faces several challenges:

- **Limited Market Access:** Farmers struggle to access markets, leading to low prices and reduced income.
- **Inadequate Infrastructure:** Insufficient veterinary services, feed availability, and transportation hinder livestock productivity.
- **Disease Management:** Livestock diseases, such as foot-and-mouth disease, impact productivity and farmer incomes.
- **Climate Change:** Climate variability affects livestock productivity, feed availability, and farmer livelihoods.
- **Limited Access to Credit:** Farmers face difficulties in accessing credit, constraining investment in livestock farming.

Addressing these constraints is crucial to unlocking the potential of livestock farming in North East India and ensuring sustainable socio-economic development.

Conclusion

This statistical study on the status of livestock farming in North East India provides valuable insights into the sector's trends, patterns, and challenges. The findings highlight the significance of livestock farming in the region's rural economy, contributing to food security, employment, and income generation.

Key Findings

1. Livestock population growth: Cattle, poultry, and goat populations have increased significantly.
2. Regional disparities: Assam dominates milk production, while Manipur and Nagaland have higher meat production.
3. Socio-economic benefits: Livestock farming generates employment, income, and improves food security.
4. Constraints: Limited market access, inadequate infrastructure, disease management, and climate change hinder growth.

Policy Implications

1. Improve market access through infrastructure development and market linkages.
2. Enhance infrastructure: veterinary services, feed availability, and transportation.
3. Disease management: vaccination programs and veterinary training.
5. Climate-resilient practices: promote sustainable livestock farming.

Recommendations

1. Capacity building for farmers and veterinarians.
2. Encourage public-private partnerships.
3. Invest in research and development.
4. Develop region-specific policies.

Future Directions

4. Explore alternative livelihood options for farmers.
5. Promote organic and sustainable livestock farming.
6. Enhance women's participation in livestock farming.
7. Develop livestock insurance schemes.

This study contributes to the existing knowledge on livestock farming in North East India, informing policymakers, farmers, and stakeholders. Addressing the challenges and leveraging opportunities will ensure sustainable livestock farming development, improving the lives of rural communities.

Limitations

This study relies on secondary data, which may have limitations. Future research should consider primary data collection and qualitative analysis.

Scope for Further Research

3. In-depth analysis of regional disparities.
4. Impact assessment of climate change on livestock farming.

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5. Exploration of alternative marketing channels.

This conclusion summarizes the key findings, implications, and recommendations for sustainable livestock farming development in North East India.

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