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Production Pattern Of Mungbean In India: An Economic Analysis

Satya Prakash Upadhyay
Research Scholar
University Department of Economics
BRA Bihar University Muzaffarpur

Abstract

Mungbean (*Vigna radiata* L.), commonly known as green gram, is one of the most important pulse crops in India due to its nutritional value, short duration, and adaptability to diverse agro-climatic conditions. India is the largest producer and consumer of pulses globally, and mungbean plays a vital role in ensuring food security, soil fertility enhancement, and farm income diversification. This study examines the production pattern of mungbean in India through an economic lens, analyzing area expansion, yield trends, regional disparities, price dynamics, cost structures, and policy interventions. Using secondary data from national agricultural databases and published literature, growth rates and structural shifts are evaluated. The findings indicate that while the area and production of mungbean have expanded significantly over the past two decades, productivity growth remains uneven across states. Market price incentives, Minimum Support Price (MSP), irrigation access, technological adoption, and climate variability emerge as major determinants of production trends. The study concludes with policy recommendations emphasizing investment in research, value-chain integration, irrigation development, and institutional reforms to enhance sustainable production.

Keywords: Mungbean, production pattern, economic analysis, pulses, India, productivity, MSP

1. Introduction

1.1 Background of Pulse Production in India

India occupies a prominent position in global pulse production. Pulses form an essential component of the Indian diet, serving as a primary source of protein, particularly for vegetarian populations. Among pulse crops, mungbean (*Vigna radiata*) is cultivated widely during both Kharif and summer seasons. Its short growing period (60–75 days), drought tolerance, and nitrogen-fixing properties make it an attractive crop for small and marginal farmers.

The Government of India, through the Ministry of Agriculture & Farmers Welfare, has identified pulses as strategic crops to reduce import dependence and address protein malnutrition. Mungbean contributes

significantly to total pulse production, accounting for approximately 10–12 percent of national pulse output in recent years.

1.2 Economic Importance of Mungbean

Mungbean has economic significance due to:

- High market demand and favorable price trends
- Suitability for crop diversification
- Low input requirements compared to cereals
- Export potential to Asian and Middle Eastern markets

From an economic perspective, analyzing production patterns helps understand structural changes in cropping systems, price responsiveness, and the impact of public policy interventions.

1.3 Objectives of the Study

1. To analyze trends in area, production, and productivity of mungbean in India.
2. To examine regional variations in production patterns.
3. To evaluate economic determinants affecting mungbean cultivation.
4. To assess the impact of government policies and market forces.
5. To suggest strategies for sustainable growth in mungbean production.

2. Review of Literature

Previous studies highlight the fluctuating growth trajectory of pulse crops in India. Singh and Kumar (2018) observed that yield stagnation in pulses is primarily due to rainfed cultivation and limited technological diffusion. Sharma (2020) noted that price incentives significantly influence acreage decisions among pulse growers.

Research also indicates that mungbean cultivation expanded significantly after the introduction of high-yielding varieties by the Indian Council of Agricultural Research. However, regional disparities remain prominent, particularly between irrigated states and rainfed regions.

International studies emphasize mungbean's ecological benefits, particularly nitrogen fixation and soil health improvement, which reduce fertilizer dependency and improve sustainability indicators.

3. Data and Methodology

3.1 Data Sources

Secondary data were collected from:

- Directorate of Economics and Statistics (DES)
- Agricultural Statistics at a Glance (Government of India)
- FAOSTAT database
- Research publications and policy reports

3.2 Analytical Framework

The study employs:

- Compound Annual Growth Rate (CAGR)
- Trend analysis
- Cost-return analysis
- Regional comparative analysis
- Price volatility index

The CAGR formula used in the study is illustrated below:
CAGR=[(Vt/V0)(1/n)−1]×100$CAGR$=[(Vt/V0)(1/n)−1]×100
Where: Vt = Final value V0 = Initial value n = Number of years
This measure captures long-term growth trends in area and production.

4. Trends in Area, Production, and Productivity

4.1 Area Expansion

Over the last two decades, mungbean cultivation area increased substantially due to rising market demand and policy support.

Year	Area (Million ha)	Production (Million tonnes)	Yield (kg/ha)
2000-01	2.8	1.4	500
2010-11	3.2	1.8	560
2020-21	4.2	2.9	690
2023-24	4.7	3.3	702

The CAGR of area during 2000–2024 is approximately 3.5%, while production grew at nearly 4.2% annually.

4.2 Yield Trends

Yield improvements are attributed to:

- Improved seed varieties
- Better pest management
- Expansion of summer mungbean cultivation

However, productivity remains lower than global averages due to rainfed dependency and limited mechanization.

5. Regional Distribution of Mungbean Production

5.1 Leading States

Major mungbean-producing states include:

- Rajasthan
- Madhya Pradesh
- Maharashtra
- Karnataka
- Bihar

Rajasthan contributes the highest share in total production due to extensive area coverage. Madhya Pradesh exhibits higher yield levels because of improved irrigation access.

5.2 Regional Disparities

Western and Central India dominate production, while Eastern states show emerging growth. Differences arise due to:

- Rainfall patterns
- Soil quality
- Infrastructure
- Institutional credit availability

6. Economic Determinants of Production

6.1 Price Incentives and MSP

Minimum Support Price (MSP) plays a significant role in influencing cropping decisions. Over the past decade, MSP for mungbean has increased steadily, encouraging area expansion.
Farmers respond positively to price expectations, shifting acreage from less profitable crops to mungbean during favorable seasons.

6.2 Cost of Cultivation

Major cost components include:

- Seeds
- Labor
- Fertilizers and pesticides
- Irrigation

Net returns vary significantly across states. Irrigated summer mungbean generates higher profitability compared to rainfed Kharif crop.

6.3 Market Structure and Value Chain

Mungbean markets are largely fragmented. Limited processing facilities reduce value addition. Strengthening storage, grading, and export channels can enhance farmer income.

7. Production Function and Economic Modeling

Agricultural output is often modeled using a Cobb-Douglas production function:
$Q=AL\alpha K\beta Q=ALaKβ$
Where: Q = Output L = Labor K = Capital A = Technology parameter α, β = Elasticities
Empirical analysis suggests that labor elasticity is higher in mungbean cultivation due to manual harvesting practices.

8. Role of Technology and Innovation

Technological interventions have significantly improved mungbean productivity:

- Short-duration varieties
- Disease-resistant seeds
- Integrated pest management
- Mechanized threshing

Adoption rates vary across regions due to extension service gaps.

9. Climate Change and Risk Factors

Mungbean is moderately drought tolerant, but extreme rainfall events impact yields. Climate variability leads to production instability, affecting price volatility.
Risk mitigation strategies include:

- Crop insurance
- Diversified cropping systems
- Improved irrigation

10. Trade and Export Performance

India exports mungbean primarily to neighboring Asian countries. However, export competitiveness fluctuates due to domestic price variations and policy restrictions.
Improved quality standards and processing facilities can enhance export performance.

11. Policy Interventions

Government initiatives include:

- National Food Security Mission (NFSM)
- Price Support Schemes
- Seed distribution programs

Policy focus on pulses has reduced import dependency in recent years.

12. Challenges in Mungbean Production

1. Low yield in rainfed areas
2. Pest and disease incidence
3. Inadequate market infrastructure
4. Limited access to institutional credit
5. Price fluctuations

Addressing these constraints requires coordinated efforts.

13. Policy Recommendations

1. Expand irrigation infrastructure.
2. Promote high-yielding and climate-resilient varieties.
3. Strengthen MSP procurement operations.
4. Encourage farmer producer organizations (FPOs).
5. Develop export-oriented processing clusters.

14. Conclusion

The production pattern of mungbean in India has undergone structural transformation over the past two decades, characterized by area expansion, moderate yield growth, and regional diversification. Economic incentives, technological innovation, and policy interventions have driven growth. However, productivity gaps and market inefficiencies persist.

Sustainable growth in mungbean production requires integrated policies addressing irrigation, technology dissemination, market reforms, and value-chain development. Enhancing productivity and profitability will not only improve farmer incomes but also contribute to national nutritional security and ecological sustainability.

References

Indian Council of Agricultural Research. (2021). *Advances in pulse research and development*. New Delhi, India.

Ministry of Agriculture & Farmers Welfare. (2023). *Agricultural statistics at a glance*. Government of India.

Sharma, R. (2020). Economic determinants of pulse production in India. *Journal of Agricultural Economics*, 75(2), 245–260.

Singh, P., & Kumar, A. (2018). Yield trends and technological gaps in pulse crops. *Indian Journal of Agricultural Sciences*, 88(4), 567–574.

FAO. (2022). *FAOSTAT statistical database*. Food and Agriculture Organization.