

Onion Farming in Nashik: A Comprehensive Study

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Abstract: *This study investigates the challenges, advancements, and operational practices in onion farming in Nashik, Maharashtra. Nashik is a leading onion-producing district that supplies both domestic and export markets. Through primary surveys and secondary literature, the paper highlights climatic disruptions, storage bottlenecks, technological gaps, and offers policy recommendations. Strategic solutions like modern irrigation, infrastructure investment, and price support mechanisms are proposed..*

Keywords: Onion Farming, Nashik, Climate Change, Post-Harvest Losses, Agricultural Technology, Value Chain, MSP

I. INTRODUCTION

India ranks as the second-largest onion producer globally. Maharashtra contributes nearly one-fourth of India's output, with Nashik playing a major role due to its agroclimatic benefits. However, productivity faces multiple constraints from weather unpredictability, insufficient infrastructure, and price volatility.

II. LITERATURE REVIEW

Shah (2017) explored value chain inefficiencies and proposed Minimum Support Price (MSP) for Rabi onions. Gangurde (2022) and Lawande (2015) reported severe weather-related losses. Salunke and Pawar (2021) found low adoption of improved technologies. These studies stress modernization and systemic interventions.

III. OBJECTIVES

The research aims to:

- Identify climatic, agronomic, and marketing barriers
- Examine use of farm technologies and storage systems
- Analyze economic feasibility of onion farming
- Propose region-specific policy and tech solutions

IV. STUDY AREA

Nashik is located in northwest Maharashtra and receives 700–1200 mm of annual rainfall. Major onion-growing tehsils include Chandwad, Yeola, Kalwan, and Dindori.

V. METHODOLOGY

Data was gathered through structured interviews with 400 farmers in 10 villages. Secondary sources include government reports and academic studies. Graphs and tables are used for analysis.



VI. TECHNOLOGY ADOPTION ALGORITHM

Algorithm: Technology Recommendation for Farmers

- If water and capital available: Recommend drip/sprinkler
- If skills lacking: Provide training sessions
- If losses high: Connect to storage and cooperatives
- Else: Offer subsidies and follow-up for one crop cycle

VII. RESULTS AND DISCUSSION

Climatic Impact

Rain-induced losses are common during Kharif and Rabi. Farmers reported up to 40% Kharif damage and 25% Rabi nursery loss

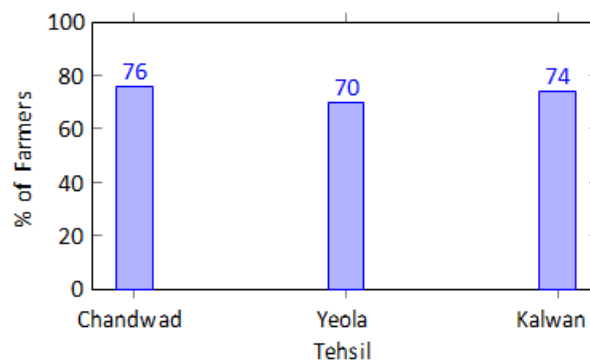


Figure 1: Crop loss due to erratic rainfall

Post-Harvest Losses

Table 1: Post-Harvest Losses

Stage	Avg. Loss (%)	Cause
Harvest	35	Disease, Rain
Nursery	25	Seedling rot
Storage	18	Infrastructure gap
Transport	10	Packaging issues

Technology Usage

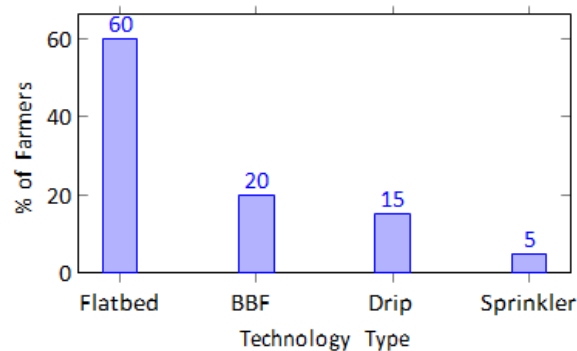


Figure 2: Adoption of farming technologies



Case Study

A Yeola farmer who lost 50% yield switched to BBF and drip irrigation and reduced losses to 10%.

VIII. MARKETING AND VALUE CHAIN

Price fluctuation and intermediaries limit farmer profits. Returns range from 30%–52% of end-consumer prices. Direct selling and FPO apps are gaining traction.

IX. ENVIRONMENTAL IMPACT

Monocropping depletes nutrients; irrigation stress reduces sustainability. Rotations and integrated nutrient practices are underused.

X. LIMITATIONS

- Results vary across seasons
- Study is focused on one district
- Income data was self-reported

XI. RECOMMENDATIONS

- Expand BBF and drip irrigation adoption
- Build cold storage and grading hubs
- Encourage mobile-based direct selling platforms
- Subsidize climate-resilient seed varieties

XII. FUTURE SCOPE

Further research can extend to high-value horticulture and include AI, IoT, and predictive analytics for smart farming.

XIII. CONCLUSION

Nashik onion farming suffers from climate, infrastructure, and market issues. Addressing these through tech and policy can uplift farmer income and reduce loss.

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