Indian Economy · GS - III

“Agricultural research and technological innovation are essential for improving the productivity and sustainability of India's plantation sector.” Discuss.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 18/10/2026	GS - III	Indian Economy

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Plantation agriculture, agricultural R&D, high-yielding varieties, climate-resilient crops, integrated pest management, soil health, water management, farmer income, export competitiveness, institutional support, sustainable agriculture.

Model Answer

Introduction

India's plantation sector, including tea, coffee, rubber and spices, supports rural employment, exports and agro-based industries. However, climate change, pests, diseases and fluctuating productivity pose significant challenges.

Main Body

Role of Research and Technological Innovation

1. Higher productivity: Improved varieties and scientific cultivation practices can increase yields and crop quality.
2. Pest management: Integrated Pest Management reduces crop losses and excessive dependence on chemical pesticides.
3. Climate resilience: Research on drought-tolerant and disease-resistant varieties helps farmers adapt to changing climatic conditions.

4. Resource efficiency: Better soil management, irrigation and nutrient application can reduce production costs.
5. Market competitiveness: Improved quality and processing technologies strengthen India's position in domestic and international markets.

Research stations, agricultural universities and extension services can help transfer scientific knowledge to farmers.

Challenges

Limited access to technology, high input costs, fragmented holdings and inadequate extension services can restrict the adoption of innovations.

Conclusion

Strengthening agricultural research, farmer training and climate-smart practices is essential to improve plantation productivity, raise farmers' incomes and ensure long-term sustainability.

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