Environment & Ecology · GS - III

How can agricultural waste valorisation promote a circular economy, sustainable entrepreneurship and farmers' incomes in India? Discuss the challenges and suggest measures to scale up such innovations.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 01/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Agricultural waste; circular economy; value addition; green entrepreneurship; farmers' income; sustainable materials; technology and market access

Model Answer

Introduction:

Agricultural waste valorisation involves converting rejected produce and crop residues into commercially useful products. Innovations such as plant-based alternative materials can reduce waste while creating new economic opportunities.

Potential benefits

- **Waste reduction:** Processing rejected tomatoes and other agricultural produce can reduce avoidable waste and associated disposal problems.
- **Value addition:** Low-value agricultural material can become a higher-value industrial input, improving resource efficiency.
- **Farmers' income:** Structured procurement of rejected produce can provide farmers with an additional revenue stream.

- **Green entrepreneurship:** Such innovations can create businesses, employment and opportunities for research and development.
- **Environmental benefits:** Suitable bio-based materials may reduce dependence on some conventional resource-intensive products, depending on their life-cycle impacts.

Challenges

Production costs, inconsistent raw-material supply, durability, product quality, consumer acceptance and competition with established materials can limit commercial expansion. Some products marketed as vegan may still contain synthetic plastics.

Way Forward

India should support research, pilot projects, quality standards and access to finance. Farmer-producer organisations, startups and processing industries can develop reliable supply chains. Life-cycle assessments should verify environmental claims, while public procurement and consumer awareness can help expand viable products.

Conclusion

Agricultural waste valorisation can connect sustainable farming with industrial innovation. Its long-term success depends on economic viability, verified environmental benefits and fair value distribution across the supply chain.

BECOME IAS
AI POWERED UPSC PREP