



AGROFORESTRY - GS III MAINS

Q. Agroforestry can enhance farmer livelihoods and the environment. Critically analyse its potential to supplement greener and more resilient future in India. (15 marks, 250 words)

News: *How can small-scale farmers benefit from trees on farms?*

What's in the news?

- Agriculture in India has historically been a diversified land-use practice, integrating crops, trees, and livestock.
- This technique, broadly called agroforestry, can enhance farmer livelihoods and the environment and is slowly gaining in popularity after decades of the modus operandus of monocropping inspired by the Green Revolution.

Key takeaways:

- The adoption of agroforestry at scale in India by smallholders is currently stymied by ecological and socio-economic factors.

Agroforestry:

- It is a land use system integrating trees, crops, and animals, plays a crucial role in enhancing productivity, profitability, diversity, and sustainability. Its substantial potential in promoting diversification and sustainable practices within plantation agriculture is evident.

Features of Agroforestry:

1. Integration of Trees and Shrubs:

- It is a comprehensive land use system that goes beyond traditional agriculture by integrating trees and shrubs into farmlands and rural landscapes.

2. Enhanced Productivity:

- It diversifies agricultural production by incorporating trees and shrubs alongside traditional crops and livestock that can lead to increased yields and overall productivity of the land.

3. Improved Profitability:

- It can provide additional source of income for farmers through products such as fruits, nuts, timber, and medicinal plants hence contribute to greater economic stability and resilience for farming communities.

4. Increased Diversity:

- It can promote biodiversity by creating habitats for various plant and animal species that not only supports ecosystem health but also provides ecological services such as pollination and pest control.



5. Sustainability:

- By mimicking natural ecosystems, agroforestry enhances the sustainability of agricultural practices.
- Trees help to conserve soil, improve water retention, and mitigate the impacts of climate change by sequestering carbon.

6. Resilience:

- Agroforestry systems are adaptable and responsive to ecological conditions, allowing farmers to adjust their practices based on factors like soil type, climate, and landscape characteristics.

7. Built Social Institutions:

- It encourages community participation and cooperation in natural resource management.
- It can foster social cohesion and empower local communities to collectively manage their landscapes for mutual benefit.

Challenges of Agroforestry:

1. Land Tenure and Ownership:

- Issues related to land tenure and ownership can hinder the adoption of agroforestry.

2. Knowledge and Training:

- Farmers may require training to implement agroforestry effectively.

3. Market Access:

- Access to markets for agroforestry products needs improvement.

4. Scaling Up:

- Expanding agroforestry practices on a larger scale is essential for broader environmental and economic impact.

5. Long Term Benefits:

- Agroforestry will start providing profits on the longer run. In short run, profits may decline due to reduction in cropping area.

6. Stringent Forest Laws:

- Indian forest laws are very stringent that prevents landowner from cutting trees grown on his/her land without multiple permissions.

7. Food security:

- Diverting agricultural land from cereal and commercial crops may create a scarcity of food and industrial raw material.



8. Lack of Dedicated Agency:

- Most of the countries, including India, do not have a dedicated agency to promote agroforestry in the country.

Government and Community Initiatives:

1. National Agroforestry Policy (NAP):

- Initiated in 2014, India's NAP aims to enhance employment, productivity, and environmental conservation through agroforestry, focusing on expanding tree cover and fostering sustainable agricultural methods.

2. Sub-Mission on Agroforestry:

- Government incentives like "Har Medh par ped" encourage farmers to adopt agroforestry practices, providing crucial support for widespread implementation.

3. Trees Outside of Forests India:

- It is a joint initiative by USAID and India's Ministry of Environment to increase tree covers in 7 states (Andhra Pradesh, Assam, Haryana, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh) to expanding the area under trees outside forests for the benefit of livelihoods and the ecosystem.

4. AICRP:

- All India Coordinated Research Project on Agroforestry (AICRP) was established to conduct systematic research on tree-crop interactions.

5. Greening and Restoration of Wasteland (GROW) with Agroforestry:

- It is a NITI Aayog initiative that focuses on using agroforestry for greening wastelands and carbon sequestration to combat climate change.

6. Indian Forest and Wood Certification Scheme:

- It was launched in 2023 by Ministry of Environment, Forest and Climate Change to promote sustainable management of forests and agroforestry

Way Forward:

1. Financial Backing and Promotion:

- The concept of agroforestry needs to be financially backed and promoted with more zeal.
- Proper training and information should be given to the farmers for them to adopt the method scientifically.

2. Capacity Building:

- Farmer collectives like cooperatives, self-help groups, Farmer Producer Organisations (FPOs) must be promoted for building capacities to foster the expansion of tree-based farming and value chain development.



3. Policy Integration:

- Policymakers should incorporate agroforestry in all policies relating to land use and natural resource management and encourage government investments infrastructure. in agroforestry-related

4. MoEFCC's Factsheet has suggested the following measures to scale up agroforestry in India such as

- Development of new agroforestry models for different agro-climatic zones.
- Ensuring the availability of certified planting material to the farmers and other users.
- Participatory research on larger agroforestry models viable across different agroecological regions.
- Developing ideotypes (specific tree varieties) suitable to various agroforestry systems.
- Development of industries and/or secondary processing units near the agro forestry zones.
- Introducing innovative technologies for an efficient and well managed agroforestry system.
- Improving market access to farmers and incentivizing value-added agroforestry.
- Research on ecological and social impacts on adoption of agroforestry.
- Decision Support Systems for the selection and management of species in agroforestry systems.
- Improve the delivery of technology know-hows to the farmers through extension programmes involving research institutions and industries.

Agroforestry's vast potential, coupled with supportive government initiatives, holds promise for fostering diversification and sustainable practices in plantation agriculture, contributing to a greener and more resilient future.