



Mains Practice Question

Q. What do you understand by agrobiodiversity? Examine its significance in light of climate change, sustainable agriculture and poverty. (250 words)

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Approach

- Define Agrobiodiversity.
- Mention its significance for climate change, sustainable agriculture and poverty.

Introduction

Agrobiodiversity (agricultural + biological + diversity) refers to the full range of diversity of life present in agricultural settings, from mammals to microbes and everything in between.

The concept of **agrobiodiversity** has been put forth as a way **to incorporate aspects of natural settings into agriculturally productive systems.**

Body

Need for preserving agrobiodiversity

- Environmental pollution has caused **loss of diversity in natural ecosystems**
- Use of chemical fertilizers, genetically modified organisms (GMOs) has created an imbalance **in biogeochemical cycles.**
- Billions of people live in **poverty** who are relatively more dependent on natural ecosystems and agriculture.

Sustainable Agriculture

- **Crop rotation** is a relatively simpler way to maintain high levels of agrobiodiversity. **Intercropping** is another. Agrobiodiversity increases productivity, makes farming systems more stable, robust, and sustainable.
- **Reduces the pressure of agriculture on fragile areas,** forests and endangered species.
- Increases **food security,** and economic returns.
- Contributes to sound **pest and disease management.**
- Conserves soil and **increase natural soil fertility** and health.
- Reduces dependency on external inputs..
- Conserves ecosystem structure and stability of species diversity.

Combating Poverty

- Agrobiodiversity can help in **nutrition-sensitive farming** and bio-fortified foods.
- Provides sources of medicines and vitamins.
- This diversity can be leveraged to provide **nutritious, affordable, locally available food** to vulnerable and poor communities. India can achieve **SDG 2** (Zero Hunger) and the **Aichi**

Biodiversity Targets.

Climate Change

- **Use of chemicals in agriculture contributes to emission of greenhouse gases (GHGs)** during manufacturing.
- Agrobiodiversity would help in **reducing vulnerability to extreme weather conditions by enhancing adaptability, resilience through restoration of traditional systems of food production, collection and water harvesting**. It can result in the revival of traditional practices which are locally best suited. It can also result in new practices which can enhance adaptability and resilience.
 - **For Ex.** in Rajasthan, the efforts of local communities resulted in revival of traditional methods of water harvesting and Avari river.

Challenges to Agrobiodiversity

- Loss of crop genetic resources due to **adopting new crop varieties without conserving traditional varieties**.
- Similarly, **Crossbreeding** of foreign breeds with indigenous breeds leads to erosion of genetically diverse pool.
- About 7,000 plant species have historically been used in human diets. But, today only 30 crops form the basis of the world's agriculture.

Conclusion

There is a need for preserving agrobiodiversity in the backdrop of climate change, poverty and related challenges to humanity. **Ecologically sensitive farming** which can be done by conserving crop wild relatives of cereals, millets, oilseeds, fruits/vegetables, etc is the need of the hour. **Incentives should be provided to farmers** cultivating native varieties and those conserving indigenous breeds of livestock and poultry varieties. Community seed banks should be encouraged in each agro-climatic zone. India should also have a **national policy on invasive alien species** to control and eradicate invasive species.