



Crop Diversification - GS III Mains

Q. Why is crop diversification the need of the hour for both Indian agriculture and Indian conditions at present? Examine (10 marks, 150 words)

News: *Diversified crops along borders of Bengal*

What's in the news?

- In recent years, districts bordering Bangladesh in West Bengal have undergone a notable transformation in their agricultural practices, marked by a shift towards crop diversification.

Reasons Behind the Shift from Wheat Production:

1. Wheat Blast Disease:

- The outbreak of wheat blast disease in Bangladesh in 2016 prompted a two-year ban on wheat cultivation in border areas of West Bengal, driving farmers to seek alternative crops.
- Wheat blast disease, caused by the fungus *Magnaporthe oryzae* Triticum (MoT), leads to significant yield losses.

2. Economic Viability:

- Farmers are opting for alternative crops like bananas due to their profitability during peak seasons, stagnant wheat prices, and concerns over water consumption.

3. Shift to Higher Output Crops:

- Maize cultivation has surged, with production increasing eightfold from 2011 to 2023, driven by higher per-hectare output and demand from poultry and food processing industries.
- Pulses and oilseeds production in the region has also seen a notable increase.

Crop Diversification:

- Crop diversification involves growing a variety of crops instead of focusing solely on one crop, aiming to promote sustainable agriculture.



Benefits of Crop Diversification:

1. Risk Reduction:

- Diversifying crops can mitigate risks in regions prone to drought by ensuring some level of harvest despite adverse conditions.

2. Soil Health Improvement:

- Planting leguminous crops can enhance soil fertility, benefiting subsequent crops.

3. Market Opportunities:

- Crop diversification can tap into niche markets and emerging trends, such as the rising demand for organic produce.

4. Pest and Disease Management:

- Intercropping can help manage pests and diseases, reducing the need for chemical pesticides.

5. Source of Biofuels:

- Certain crops can serve as potential sources for biofuel production, offering additional income opportunities for farmers.

Concerns in Crop Diversification:



1. Market Risks and Limited Opportunities:

- Farmers may be hesitant to switch from established crops due to fluctuating market prices and limited demand.

2. Financial Constraints:

- Adopting crop diversification may require additional investment, posing challenges for smallholder farmers.

3. Lack of Infrastructure and Storage:

- Perishable diversified crops may require specialized storage and transportation facilities.

4. Clash with Dietary Habits:

- Crop diversification may disrupt established market dynamics and consumption patterns prevalent in regions where rice and wheat are staples.

Way Forward:

1. Agri-Tourism and 'U-Pick' Farms:

- Establishing 'U-Pick' farms for experiential tourism can provide additional income for farmers and promote appreciation for diversified crops.

2. Biofortification through Gene Editing:

- Utilizing gene editing techniques like CRISPR to develop crops with enhanced nutritional value can address malnutrition concerns and create new markets.

3. Regenerative Agriculture for Sustainable Diversification:

- Integrating regenerative agriculture practices with diversified crop rotations can create a more sustainable and resilient agricultural system, benefiting both crop yields and climate change mitigation.