Impact of Warming of Yield of Staple Crops

Prelims: Environment and ecology| Current events of national and international importance

Why in news?

Recent research paper in Nature journal shows how warming will cut yield of staple crops even post-adaptation like using heat-resistant seeds, changing sowing dates, or altering irrigation.

Major findings of the report

For every 1°C rise in global temperature, per person calorie availability may fall by 4% by 2100.

- **Staple crops** — Rice, wheat, maize, sorghum, and soybean — will face **declining yields** by 2050 and 2100.
- **Specific crop impacts** – Wheat will face severe losses projected for Northern India, some of the worst globally.
- **Rice –** Sub-Saharan Africa, Europe, Central Asia faces up to 50% yield losses.
- **Maize, Soybean, Sorghum -** Similar declining trends globally, though exact figures vary.
- **Adaptation can help, but not fully** – Optimal global adaptation could alleviate 23% of losses by 2050 and 34% by 2100.
- But significant residual losses will persist, especially in wheat-growing regions.

Broader Implications

- **Global food security threatened –** It will lead to food security issues in developing and under developed countries.
- Innovation, cropland expansion, and further adaptation are crucial.
- **Modern breadbaskets at risk –** Losses may dominate in regions traditionally seen as food-secure (US, Europe, China).
- **Vulnerable populations still at risk –** Though the largest absolute losses occur in high-producing regions, the impact on low-income regions remains "substantial."

Reference

The Hindu| Warming will cut yield of staple crops even post-adaptation

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