The good and problematic elements of the 'Green Revolution' — and prospects for genetics-driven version 2.0

What were the Impacts of the Green Revolution?

Increased Food Production: The Green Revolution led to a significant increase in agricultural productivity. New high-yielding crop varieties, such as dwarf wheat and rice, produced higher yields per hectare of land, helping to meet the growing global demand for food. For example, in 1978–1979, a tremendous increase in crop production led to a grain output of 131 million tones, making India one of the largest agricultural producers in the world.

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What are the Challenges brought by the Green Revolution?

- It caused environmental degradation due to the use of synthetic fertilizers and pesticides, and soil erosion and water pollution. For example, the reliance on modern agricultural technologies has made some countries and communities dependent on external inputs, which can be expensive and subject to market fluctuations.

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Is Green Revolution 2.0 a Solution to the Green Revolution?

- Green Revolution 2.0 is seen as a way to make agriculture more adaptive and resilient to the changing climate and socio-economic conditions, and to ensure food and nutrition security for the present and future generations.
- Some of the features of Green Revolution 2.0 are:
    - Biotechnology and Genetic Engineering: Green Revolution 2.0 places a strong emphasis on biotechnology and genetic engineering to develop crops that are more resilient to climate change, pests, and diseases. Genetically modified (GM) crops, if adopted responsibly, can contribute to increased productivity and reduced environmental impact.
    - Precision Agriculture: This approach involves the use of advanced technologies like GPS-guided tractors and drones to optimize the use of resources such as water, fertilizers, and pesticides. Precision agriculture can increase efficiency and reduce the environmental footprint of farming.

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