



KAMARAJ IAS ACADEMY
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How Climate Change is affecting India's Wheat production cycle

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Context

India recorded its warmest February in 124 years this year.

The India Meteorological Department has already raised an alarm for March, saying that the month will experience above normal temperatures and more than the usual number of days with heat waves.

The period coincides with the **beginning of India's wheat harvest season, and extreme heat poses a grave threat for the country's second-most consumed crop, after rice.**

In India, wheat is primarily grown in the **northwestern parts of the Indo-Gangetic plains**. Primary producers include the states of **Uttar Pradesh, Punjab, Haryana, and Madhya Pradesh.**

Wheat needs a cooler season to grow, and the crop is usually **sown between October and December**. It is **harvested between February and April in the rabi crop season.**

A 2022 study in the International Journal of Molecular Sciences noted that increasing global warming is causing heat stress that "triggers significant changes in the biological and developmental process of wheat, leading to a reduction in grain production and grain quality."

A **warming Indian Ocean** will in turn alter India's monsoon, on which most of the country's agriculture depends. For example, the **kharif crop** season is **starting and ending late**, which inevitably **delays the beginning of the rabi season.**

Wheat is a rabi crop. If its sowing starts late, the **later stages of plant growth will coincide with early heat waves in India.**

February 2025 was warmer than usual, and similar trends have been predicted for March. This is also the peak season for wheat harvest, and **the ideal temperature in the later stages of the plant's growth should not cross 30° C**