



Stubble Burning and Pollution

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Why in News

According to a recent study, **Delhi's meteorology and the quantity of chaff (crop residue or stubble) burnt** in Punjab and Haryana play a **more important role in worsening air quality than the time chosen** by farmers to start **stubble burning**

Key Points

- **Crop Burning:**
 - It is a **traditional practice in Punjab and Haryana** to clean off the rice chaff to prepare the fields for winter sowing.
 - It **begins around October and peaks in November**, coinciding with the **withdrawal of southwest monsoon**.
 - The pollutants and the **particulate matter (PM)** from the chaff, along with other sources of pollution in Delhi, get stuck in the lower atmosphere worsening the winter pollution.
- **Reasons:**
 - **Subsidies and assured procurement of rice** have led to a rise in the rice acreage.
 - **Increased and modernised farm mechanisation** extract the rice grains only and leave large quantities of rice stubble behind.
 - **Punjab Preservation of Subsoil Water Act 2009**
 - This mandated farmers to delay sowing of paddy to late June to **discourage groundwater extraction**.
 - This led to a **delay of an average of 10 days** compared to 2002-2008 and now due to the delayed harvesting, rice chaff burning coincides perfectly with the withdrawal of southwest monsoon.

- **Findings of the Study:**

- Crop burning **contributed nearly 40% of the near-surface PM 2.5 in Delhi in 2016**, which saw one of Delhi's severest pollution episodes.
- The study largely relies on **mathematical modelling**.
 - **Data on the number of crop burning episodes and levels of PM** were plugged into a mathematical model.
 - In results, it emerged that crop residue contribution to PM over Delhi in 2016, **increased only marginally** (1%) when compared to a hypothetical scenario of crops being burned 10 days earlier.
- **Early burning** while reducing PM burning by 20g/m³ **did not reduce the number of days of significant PM exposure** in Delhi, which hovered around 55 days.
- However, the study showed that **delaying rice burning 10 days beyond what is currently practised could be harmful** leading to an **increase in peak PM emissions** as well as **increase the number of pollution days**.

Way Forward

- Stopping crop residue burning will aid the **National Clean Air Programme** (NCAP), which aims to reduce pollution by 20-30% in annual PM concentration by 2024.
- Further, governments can go for a combination of incentives and prosecution. Give incentives to farmers who use green methods and penalise the ones who do not.
- The role of legislation appears to be minimal yet it plays an important role in decreasing or increasing the air quality problems depending on the meteorological conditions of the time.

Source: TH