



Menace of Stubble Burning

This article is based on [“Addressing north India’s burning issue sustainably”](#) which was published in The Indian Express on 22/10/2022. It talks about the issues associated with Stubble burning in India and solutions.

For Prelims: Stubble Burning, Mechanised Harvesting, Carbon Monoxide (CO), Smog, Delhi’s Air Pollution, Climate change, Kharif Crop, Rabi Crop, Pusa Microbe, Happy Seeder.

For Mains: Issues Associated with Stubble Burning in India, Recycling and Reusing Stubble.

The [Green Revolution](#) transformed the way agriculture was practised in India, **especially in Punjab and Haryana**. The economics of high-yielding varieties of paddy and wheat, supported by a guaranteed buyer (the government) and [minimum support prices](#) led to a crop duopoly, and vitalised the practice of [stubble burning](#).

According to an **official report**, more than **500 million tonnes of parali (crop residues)** is produced **annually in the country**, cereal crops (rice, wheat, maize and millets) account for 70% of the total [crop residue](#).

Stubble burning begins around **October and peaks in November**, coinciding with the withdrawal of [southwest monsoon](#).

The **prevention of stubble burning is not guaranteed by only banning and punishing the farmers**. In order to prevent this from happening in the future, **there needs to be a permanent and effective solution**.

Why is it still Being Practised?

- The Indian farmers have been practising stubble burning for decades now and multiple factors lead to it. Some of them are:
 - One factor is being a **cheaper way to get rid of crop debris**.
 - Another is the boom of [Mechanised Harvesting](#), which leaves behind **1- 2ft tall stubble which takes around 1.5 months to decompose on its own**.
 - However, **farmers do not have sufficient time as they need the soil prepared for the next crop**, so instead of waiting for the residue to decompose they burn it.

What are the Issues Associated with Stubble Burning in India?

- **Environmental Degradation:** Stubble burning **emits toxic pollutants** in the atmosphere

containing harmful gases like [Carbon Monoxide \(CO\)](#), methane (CH₄), carcinogenic polycyclic aromatic hydrocarbons, volatile organic compounds (VOC).

- These pollutants disperse in the surroundings and eventually affect air quality and people's health by forming a thick [blanket of smog](#). This is one of the primary causes of [Delhi's air pollution](#).
- **Soil at Risk:** Soil becomes less fertile, and its nutrients are destroyed when the husk is burned on the ground. It generates heat that penetrates into the soil, causing an increase in [erosion](#), loss of useful microbes and moisture.
 - Due to the loss of 'friendly' pests, the wrath of 'enemy' pests has increased and as a result, crops are more prone to disease. The solubility capacity of the upper layers of soil have also been reduced.
- **Climate Change Induced Stubble Burning:** The shortened harvesting season due to [climate change](#) has forced the farmers to rapidly clear their fields between the [kharif and rabi crops](#), and the quickest of these ways is to burn off the remaining stubble post-harvest.
- **Increased Backing, Increased Burning:** Policy moves in subsequent decades has included the introduction of subsidies for electricity and [fertilisers](#), and ease of access for credit in agriculture has significantly increased the crop yields and agricultural productivity, that has in turn cemented the issue of stubble burning.

What is Chhattisgarh Model of Stubble Utilisation?

- An innovative experiment has been undertaken by the Chhattisgarh government by setting up gauthans.
- A gauthan is a dedicated five-acre plot, held in common by each village, where all the unused stubble is collected through parali daan (people's donations) and is converted into organic fertiliser by mixing with cow dung and few natural enzymes.
 - This scheme has also generated employment among rural youth.

What should be the Way Forward?

- **Post-Harvest Regulation and Incentivisation:** There is a need to replicate the schemes like the [MGNREGA](#) for harvesting and composting of stubble burning, and regulate post-harvest management at ground level.
 - The government can also provide incentives to farmers who reuse and recycle their stubble.
- **Using Stubble as a Fodder:** Wheat stubble can be used as a [fodder for cattles](#), the Tudi, which is made from wheat stubble, is considered to be the best dry fodder for cattle because of its nutritional value.
- **Technical Intervention:**
 - **Microbe Pusa:** Several innovative measures have been developed to reduce stubble burning, The Indian Agricultural Research Institute developed a [microbe Pusa](#), that hastens decomposition and converts stubble to compost within 25 days, improving soil quality as a result.
 - **Happy Seeder:** Instead of burning the stubble, a tractor-mounted machine called the [Happy Seeder](#) can be used that "cuts and lifts rice straw, sows wheat into the bare soil, and deposits the straw over the sown area as mulch.
- **Recycling and Reusing Stubble:** Stubble can be recycled to make products including paper and cardboard. Also, it can be used as a manure.
 - For example, in Palla village outside Delhi, the Nandi Foundation purchased 800 MT of paddy residue from farmers to turn it into manure.
 - Crop residue can also be used for various purposes like [charcoal gasification](#), power generation, as industrial raw material for production of bio-ethanol.

Drishti Mains Question:

Highlight the issues associated with stubble burning in India. Also, suggest innovative measures to recycle crop

Prelims:**Q. Consider the following agricultural practices: (2012)**

1. Contour bunding
2. Relay cropping
3. Zero tillage

In the context of global climate change, which of the above helps/help in carbon sequestration/storage in the soil?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1, 2 and 3
- (d) None of them

Ans: (b)

Mains:

Q. What are the major factors responsible for making the rice-wheat system a success? In spite of this success, how has this system become bane in India? (2020)