

Biochar - Turning Farm Smoke into Black Gold

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Why in News?

Recently, Biochar has emerged as a carbon-negative solution to India's farm residue burning crisis.

- **Biochar** - It is a ***stable, carbon-rich form of charcoal*** (highly porous, carbon-rich, and decomposes slowly in soil).
- **Process** - Heating organic biomass (like crop residues, wood chips, or manure) in a low-to-no-oxygen environment (pyrolysis).
- **Function** - Locks carbon for long periods, contributing to *carbon sequestration*.

Carbon sequestration captures and stores CO₂ to fight climate change.

In soil, decaying plants lock carbon, keeping it underground and reducing greenhouse gases in atmosphere.

Key Features

- **Soil Health** - Improves water-holding capacity (10-25%), nutrient retention, and microbial activity.
- **Crop Productivity** - Field trials show 10-30% yield gains in nutrient-poor soils.

Maize stalk biochar and Coconut leaf stalk biochar enhanced soil fertility in Maharashtra and Kerala.

- **Climate Resilience** - Helps crops withstand droughts, heat waves, and erratic rainfall.
- **Circular Economy** - Converts farm residues and urban organic waste into a useful product, reducing methane emissions from landfills.

Carbon Credits Potential

- Biochar qualifies as a *persistent carbon dioxide removal technology*.
- **Carbon Credit Protocols** - VM0042 measures avoided emissions and long-term sequestration from biochar, with each certified tonne generating 2-2.8 t CO₂ equivalent credits for carbon markets.

Quick Facts

- **VM0042** - It is an internationally accepted *carbon accounting methodology* under the *Verified Carbon Standard (VCS)*.
- It measures - *Emissions avoided and long-term carbon sequestration*.
- Together, it shows the *climate benefit in carbon credits farmers can sell*.

Reference

[The Hindu | Biochar](#)

