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Bioplastics Have Less Positive Effect than Expected: Study

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A recent study from the **University of Bonn** suggests that shifting to bioplastics may have less positive effects than previously expected.

The study also found that it will take a lot of time to switch to bioplastics from single-use plastics.

What is Bioplastic?

- **Bioplastic refers to plastic made from plants like maize, wheat or sugarcane or other biological material instead of petroleum.** Bio-plastics are biodegradable and compostable plastic materials.
- It can be made by extracting sugar from plants like corn and sugarcane and converting it into polylactic acids (PLA). It can also be made from polyhydroxyalkanoates (PHA) from microorganisms.
- PLA plastic is commonly used in food packaging, while PHA is often used in medical devices like sutures and cardiovascular patches.

How it is better than Single-Use Plastics?

- Bioplastics, or plant-based plastics, are promoted as a **climate-friendly alternative to petroleum-based plastics.**
- Plastics are usually made from petroleum. They have impacts in terms of **fossil fuel depletion and climate change.**
- It is estimated that by 2050, plastics will be responsible for 15% of the global CO₂ emissions.
- Plants get carbon dioxide from the air through their leaves; producing bioplastics from plants, therefore, consumes carbon dioxide, which compensates for the amount that is later released when bioplastic is decomposed. Overall, the net greenhouse gas balance of bioplastic is assumed to be zero.
- The carbon embodied in petroleum-based plastic is suddenly released into the

atmosphere by degradation or burning, contributing to global warming. Bioplastics, on the other hand, are climate-neutral.

Impact of Bioplastics

- **Cropland Expansion:** Increase in use of bioplastics may trigger cropland expansion on the global scale, which will further increase greenhouse gas emissions.
- **Deforestation:** The production of bioplastics in large amounts might change land use globally. This could lead to an increase in the conversion of forest areas to arable land for agriculture. As forests absorb more carbon dioxide than maize or sugar cane field annually.
- **Food Scarcity:** Using a substance like corn for plastic instead of food may cause food constraints in an increasingly food-scarce world.
- **Industrial composting required:** Industrial composting is necessary to heat the bioplastic to a high enough temperature that allows microbes to break it down. Without that intense heat, bioplastics will not degrade on their own either in landfills or in the compost heap. If they end up in marine environments, they'll function similarly to petroleum-based plastic.

Thus, establishing large-scale plants for Industrial composting of bioplastics may not be economically and environmentally feasible.

Environment Day 2018

- The theme of United Nations Environment Day 2018 celebrated on June 5 was **Beat Plastic Pollution**.
- UN Environment Day in 2018 was hosted by India.

Greenwashing

Greenwashing is the practice of making an **unsubstantiated or misleading claim about the environmental benefits of a product**, service, technology or company practice. Greenwashing can make a company appear to be more environmentally friendly than it really is.

[More About Plastic Pollution](#)