



Use of Antibiotics on Livestock

Why in News?

Recently, a team of Researchers in the **Indian Institute of Science (IISc)**, has found that grazing by livestock leads to **lower carbon storage in soil** compared to grazing by wild herbivores.

- Livestock are the most abundant large mammals on earth. If the carbon stored in soil under livestock can be increased by even a small amount, then it can have a big impact on climate mitigation.

What are the Highlights of the Study?

- In a previous study, it was observed that **herbivores play a key role in stabilizing the pool of soil carbon** and the recent study showcases the difference as to how they affect the soil carbon stocks between livestock such as sheep and cattle compared to their wild herbivores such as the yak and ibex.
- **Impact of Antibiotics:** The use of veterinary **antibiotics** such as tetracycline on livestock is making carbon storage lower in soil as compared to other grazing herbivores.
 - These **antibiotics**, when released into the soil through dung and urine, alter the **microbial communities** in soil in ways that are detrimental for **sequestering carbon**.
 - Antibiotics such as **tetracycline are long-lived** and can **linger in the soil for decades resulting in ecological imbalance**.
- **Difference in CUE:** Although soils from the wild and livestock areas had many similarities, they differed in one key parameter called carbon use efficiency (CUE), which determines the ability of microbes to store carbon in the soil.
 - CUE is defined as the ratio of net carbon gain to gross carbon assimilation during a period.
 - The soil in the **livestock areas had 19% lower CUE**.

What are Antibiotics?

- Antibiotics are **remarkable drugs capable of killing biological organisms** in one's body without harming the body.
- These are used for everything **from preventing infections during surgeries to protecting cancer patients** undergoing chemotherapy.
 - India is the world's largest consumer of antibiotics. India's excessive antibiotic usage is **leading to a powerful never before seen mutation** within bacteria.

[Source: TH](#)

