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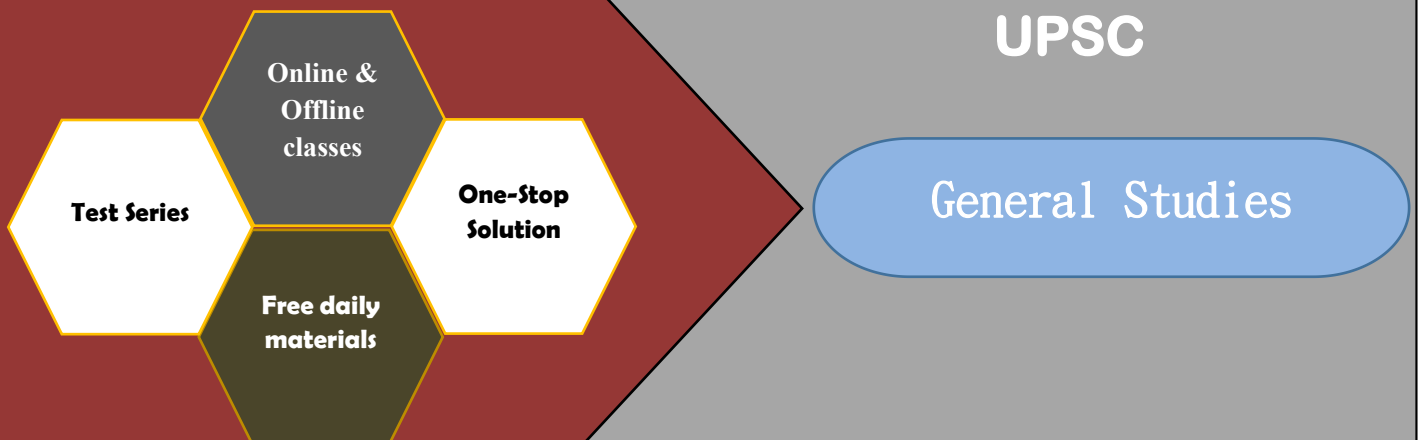
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Anti-Methanogenic Feed Supplement: Harit Dhara

Notes for civil services preparation



Anti-Methanogenic Feed Supplement: Harit Dhara

- **Indian Council of Agricultural Research (ICAR)** has developed an **anti methanogenic feed** supplement ‘**Harit Dhara**’ (HD), which can cut down cattle methane emissions by 17-20% and can also result in higher milk production.

Key Points

About:

- HD **decreases the population of protozoa microbes in the rumen**, responsible for hydrogen production and making it available to the archaea (structure similar to bacteria) for reduction of CO₂ to methane.
- It has been **made from tannin-rich plant-based sources**. Tropical plants containing **tannins, bitter and astringent chemical compounds**, are known to suppress or remove protozoa from the rumen.
- Fermentation after using HD will help produce **more propionic acid**, which provides more energy for **lactose (milk sugar) production** and **body weight gain**.
- This leads to **economic benefits for farmers**.

Methane Production in Cattle:

- **Rumen, the first of the four stomachs** where they eat plant material, cellulose, fibre, starch and sugars. These get fermented or broken down by microorganisms prior to further digestion and nutrient absorption.
- Carbohydrate fermentation leads to production of CO₂ and hydrogen.
- These are used by microbes (Archaea) present in the rumen to produce methane.

Methane Emissions from Cattle:

- Belching cattle, buffaloes, sheep and goats in India **emit an estimated 9.25 million tonnes (mt) to 14.2 mt of methane annually**, out of a global total of 90 mt-plus from livestock.
- The **2019 Livestock Census** showed India’s cattle population at 193.46million, along with 109.85 million buffaloes, 148.88 million goats and 74.26 million sheep.
- Being **largely fed on agricultural residues** – wheat/paddy straw and maize, sorghum or bajra stover – **ruminants in India tend to produce 50-100% higher methane than their industrialised country counterparts** that are given more easily fermentable/digestible concentrates, silages and green fodder.
- **Methane’s global warming potential** – 25 times of carbon dioxide (CO₂) over 100 years, makes it a more potent greenhouse gas.

Government Initiatives related to Livestock:

- **Animal Husbandry Infrastructure Development Fund (AHIDF):** It was set up to support private investment in Dairy Processing, value addition and cattle feed infrastructure.
- **Rashtriya Gokul Mission:** It is aimed at developing and conserving in degenous breeds of bovine population, also to enhance milk production and to make it more remunerative to the farmers.
- **National Livestock Mission:** It was launched in the year 2014-15 to ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders.
- **National Artificial Insemination Programme:** It was started to prevent the spread of certain diseases which are genital in nature, thereby enhancing the efficiency of the breed.



