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**DAILY EDITORIAL  
ANALYSIS**

**TOPIC**

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Food vs Fuel: Ethanol Blending  
Scheme

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## FOOD VS FUEL: ETHANOL BLENDING SCHEME

### In Context

- Low stocks of sugar and uncertainties of overproduction this year have led the government to go slow on its ethanol blending programme.

### Ethanol Blending

- Ethanol can be mixed with **gasoline** to form different blends.
- This blending is done by the **oil marketing companies** in their terminals. Once blended, the ethanol **cannot be separated** from the petrol.
- As the ethanol molecule contains oxygen, it **allows the engine to more completely combust the fuel**, resulting in fewer emissions and thereby reducing the occurrence of environmental pollution.
- Since ethanol is produced from plants that harness the power of the sun, **ethanol is also considered a renewable fuel**.
  - ♦ It has a **higher octane number** than gasoline, hence improving the petrol octane number.

### Significance of Ethanol Blending for India

- **Increased energy security:** India imports more than 70 per cent of its domestic crude requirement from abroad.
  - ♦ The blending reduces its dependency on foreign crude significantly.
  - ♦ India will be more immune to geopolitics upheavals as seen recently in the Russia-Ukraine conflict or Middle-Eastern turmoil.
- **Eco-friendly:** The use of blended ethanol lowers carbon emissions, resulting in better air quality.
- **Judicious use of otherwise wasted crops:** Huge quantities of crops see wastage in India every year. With the blending, the wasted crops would be diverted for ethanol production thus reducing wastage.
- **Increased farmer income:** Farmers can realise better prices for their produce. The previous policy of attaining a 10 per cent blending level has benefited the farmers significantly. The 20 per cent level has further benefited them.
- **Increased self-reliance:** The blending has fostered the development of indigenous technologies making India self-reliant to a considerable degree
- **SDG targets:** Relatively low Emissions will help achieve SDG targets and mitigate climate change.

### Challenges

- **Reduced domestic availability:** Recently, the Ministry of Consumer Affairs, Food and Public Distribution directed all mills and distilleries not to use sugarcane juice/syrup for making any ethanol “with immediate effect”. The Centre has also **banned sugar exports**.
  - ♦ It is a step towards augmenting domestic availability – restricting **diversion of the sweetener for ethanol production**.
- **Low sugar production:** The 2022-23 sugar year ended with stocks of **just over 57 lakh tonnes (lt)**, the lowest since the 39.4 lt of 2016-17 and way below the record 143.3 lt of 2018-19.
  - ♦ There is uncertainty over production for the current 2023-24 year itself. **Maharashtra and Karnataka are expected** to record particularly sharp declines, on the back of subpar rains and low reservoir water levels in their major cane-growing areas.
- **Land diverted for non-food purposes:** A greater percentage of blending may further result in more land being diverted for crops that would be used for ethanol production threatening food security.
- **Unsustainable crop rearing:**
  - ♦ As of now, primarily water-intensive sugar cane is being used in ethanol production which is **driving down the water table swiftly**. It is also being subsidised by the government thus nudging more farmers to grow the crop.

- ◆ The target would require 6 million tonnes of sugarcane and 16.5 million tonnes of grains per annum by 2025 for non-food purposes thus impacting food security.

### Suggestions & way ahead

- **Shift Focus from 1G to next-generation Biofuels:** It will counter the most genuine fear of loss of food security. The **2018 National Policy on Biofuels** prioritised:
  - ◆ grasses and algae;
  - ◆ cellulosic material such as bagasse, farm and forestry residue; and,
  - ◆ items like straw from rice, wheat and corn for ethanol production.
- India as a global leader:
  - ◆ India has a real opportunity here to become a global leader in sustainable biofuels policy if it chooses to refocus on ethanol made from wastes.
  - ◆ This would bring both strong climate and air quality benefits, since these wastes are currently often burned, contributing to smog.

#### What is Ethanol?

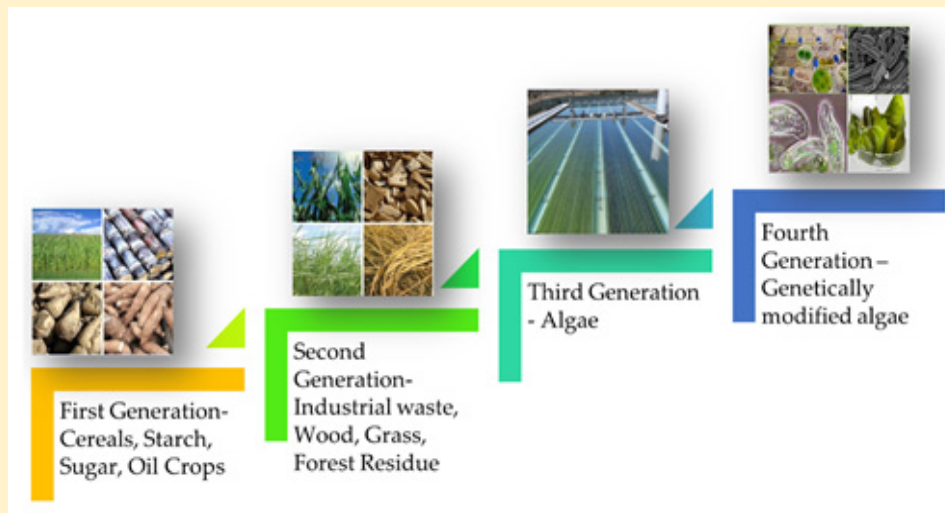
- It is a **volatile, flammable, colourless** liquid with a characteristic wine-like odour and pungent taste.
- Ethanol can be produced from **crops** that have high starch content like **sugarcane, maize, wheat**, etc.
  - ◆ **Bioethanol production** is classified into different generations (as shown in the image below).
- It is primarily produced from molasses, a derivative of sugar production.
- It is among the most important biofuels, manufactured naturally by yeast fermentation or petrochemical methods such as ethylene hydration.
- It is the organic compound Ethyl Alcohol.
- It is also an ingredient in alcoholic beverages.

#### National Biofuel Policy

- **Aim:**
  - ◆ The policy is aimed at reducing dependence on imports by encouraging fuel blending.
- **Key elements:** With **bioethanol, biodiesel** and **bio-CNG** in focus, its key parts include
  - ◆ **Ethanol Blending Programme (EBP),**
  - ◆ Production of **second-generation ethanol** (derived from forest and agricultural residues),
  - ◆ Increasing capacity for production of **fuel additives, R&D in feedstock**, which is the starting material for ethanol production.
  - ◆ **Financial incentives** for achieving these goals.
- **Ethanol Blending Petrol (EBP) programme:**
  - ◆ The Centre promotes the Ethanol Blending Petrol (EBP) programme with the aim of
    - Enhancing energy security,
    - Reducing import dependency on fuel,
    - Saving foreign exchange,
    - Addressing environmental issues and
    - Giving a boost to agriculture.

- **Accomplishments:**

- ♦ The 'National Policy on Biofuels' notified by the government in 2018 envisaged an **indicative target of 20% ethanol blending in petrol** by 2030.
  - In 2014 only 1.5 per cent ethanol was blended in petrol in India.
- ♦ Given the **encouraging performance** and **various interventions** made by the government since 2014, **the 20% target was advanced to 2025-26.**
- ♦ The ethanol-blended petrol (EBP) programme has been a **significant accomplishment** of the current government.
  - The all-India average blending of ethanol with petrol has risen from 1.6% in 2013-14 to 11.8% in 2022-23.



### DAILY MAINS QUESTION

What is the need & significance of Ethanol Blending for India? Examine the potential challenge of Food security posed by Ethanol blending in India.