



Maharashtra Re-emerges as Top Sugar Producer

For Prelims: Sugarcane crop, Red rot fungal disease, South-West Monsoon, Ethanol Blending

For Mains: Environmental and Meteorological factors affecting agricultural productivity, Ethanol blending as challenges for food security

Why in News?

Maharashtra has once again the top sugar producer state in India after five years. It has overtaken Uttar Pradesh in sugar production.

- The overall production of sugar by Maharashtra accounts for **138 lakh tonnes** for the year **2021-22**.
- The total sugar produced by the **Uttar Pradesh** in the year **2021-22** accounts for **105 lakh tonnes**.

What are the Reasons for the Huge Production of Sugar in Maharashtra?

- **Abundant Supply of Water:**
 - **Sugarcane** is a **water intensive crop** which needs a huge water supply which farmers from Maharashtra were getting properly through **rainfall, water reservoirs, network of canals** and from **groundwater**.
 - Maharashtra has been receiving more than sufficient **rainwater** since **2019** during the **south-west monsoon season**.
 - **Groundwater aquifers** and other reservoirs were filled by water due to sufficient rainfall. These sources of water play a key role in **agricultural production**.
- **Underreporting of Cane Production:**
 - Data regarding actual production of the sugarcane in the state of Maharashtra was not quite accurate.
 - Keeping this in mind the concerned administration tried to make corrections in the recorded data of the sugarcane production.
 - This ultimately resulted in increased acreage under the sugarcane production from **11.42 lakh hectare to 12.4 lakh hectares**.
 - Thus, Maharashtra harnessed the benefits from increased acreage under sugarcane in 2021-22.

Why did Sugar Production in Uttar Pradesh Decline?

- Uttar Pradesh has become the **largest ethanol producer** because a large amount of sugarcane production in **Uttar Pradesh** diverted toward the production of **ethanol**.
 - It has been estimated that **12.60 lakh tonnes equivalent of sugar** from cane have been diverted for making **ethanol** in the year **2021-22** compared to **7.19 lakh tonnes** in **2020-21** and **4.81 lakh tonnes** in **2019-20** and **0.31 lakh tonnes** in **2018-19**.
 - **Uttar Pradesh** also has achieved the **highest blending of ethanol in petrol ratio**

among all states.

- Excess rain with water logging problems are associated with the state of Uttar Pradesh which incurred **heavy loss of sugarcane crops.**
- Majority of the land in sugarcane area in Uttar Pradesh(87%) is planted under a **single variety of sugarcane (Co-0238).** This variety is not a **high yield variety** of the sugarcane.
- Adverse impact of **red rot fungal disease on sugarcane crop** is a severe cause for the decline of sugarcane production in Uttar Pradesh.
 - **Co-0238** variety of the sugarcane is highly susceptible to the **red rot fungal diseases.**
 - It should be replaced by the new varieties, such as **Co-0118** and **Co-15023** because both of them are resistant to **red rot fungal disease.**

Sugarcane

- **Temperature:** Between 21-27°C with hot and humid climate.
- **Rainfall:** Around 100-150 cm.
- **Soil Type:** Deep rich loamy soil.
- **Top Sugarcane Producing States:** Uttar Pradesh > Maharashtra > Karnataka > Tamil Nadu > Bihar.
- India is the **second largest producer of sugarcane** after **Brazil.**
- It can be grown on all varieties of soils ranging from **sandy loam** to **clay loam** given these soils should be well drained.
- It needs manual labour from sowing to harvesting.
- It is the main source of **sugar, gur (jaggery), khandsari** and **molasses.**
- **Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU)** and **National Policy on Biofuels** are two of the government initiatives to support sugarcane production and sugar industry.

Ethanol Blending:

- **Ethanol:** It is one of the principal biofuels, which is naturally produced by the fermentation of sugars by yeasts or via petrochemical processes such as ethylene hydration.
- **Ethanol Blending Programme (EBP):** It is aimed at reducing the country's dependence on crude oil imports, cutting carbon emissions and boosting farmers' incomes.
- **Blending Target:** The Government of India has advanced the target for 20% ethanol blending in petrol (also called E20) to 2025 from 2030.

UPSC Civil Services Examination, Previous Year Question

Q. With reference to the current trends in the cultivation of sugarcane in India, consider the following statements: (2020)

1. A substantial saving in seed material is made when 'bud chip settlings' are raised in a nurse, and transplanted in the main field.
2. When direct planting of setts is done, the germination percentage is better with singlebudded setts as compared to setts with many buds.
3. If bad weather conditions prevail when setts are directly planted, single-budded setts have better survival as compared to large setts.
4. Sugarcane can be cultivated using settlings prepared from tissue culture.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 4 only
- (d) 2, 3 and 4 only

Ans: (c)

Exp:

▪ **Tissue Culture Technology**

- Tissue culture is a technique in which fragments of plants are cultured and grown in a laboratory.
- It provides a new way to rapidly produce and supply disease-free seed cane of existing commercial varieties.
- It uses meristem to clone the mother plant.
- It also preserves genetic identity.
- The tissue culture technique, owing to its cumbersome outfit and physical limitation, is turning out to be uneconomical.

▪ **Bud Chip Technology**

- As a viable alternative of tissue culture, it reduces the mass and enables quick multiplication of seeds.
- This method has proved to be more economical and convenient than the traditional method of planting two to three bud setts.
- The returns are relatively better, with substantial savings on the seed material used for planting. **Hence, statement 1 is correct.**
- The researchers have found that the setts having two buds are giving germination about 65 to 70% with better yield. Hence, statement 2 is not correct.
- Large setts have better survival under bad weather but single budded setts also give 70% germination if protected with chemical treatment. **Hence, statement 3 is not correct.**
- Tissue culture can be used to germinate and grow sugarcane settlings which can be transplanted later in the field. **Hence, statement 4 is correct. Therefore, option (c) is the correct answer**

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