



India Becomes Net Importer of Maize

For Prelims: [Ethanol Production](#), [Minimum Support Price](#), [White Revolution](#), [Ethanol Blended Petrol](#), [Sugar for Ethanol Production](#)

For Mains: Impact of Ethanol Blending on Agricultural Commodities, Food Security, Agricultural Resources

[Source: TH](#)

Why in News?

Recently, India's push towards increasing [ethanol production](#), particularly [Corn \(Maize\)](#) -based ethanol, has transformed the country from Asia's top maize exporter to a net importer.

- This significant shift is impacting local industries and altering global maize supply chains.

What are the Key Facts About Maize?

- **About:** Maize (*Zea mays L.*) is a highly versatile crop known as the "queen of cereals" due to its high genetic yield potential.
 - Globally, maize contributes significantly to grain production, with the **USA being the largest producer** and having the highest productivity.
 - In India, maize is the **third most important food crop**, contributing around 9% to the national food basket and adding more than Rs. 100 billion to the agricultural GDP.
 - The crop is used in various sectors including **food, animal feed, and industrial products.**
- **Growing Conditions:** Maize thrives in a range of soils from **loamy sand to clay loam**, with optimal conditions being **well-drained soils with high organic matter and neutral pH.**
 - Avoiding fields with **poor drainage and high salinity** is crucial for maintaining productivity.
 - **Rainfall:** 50-100 cm.
- **Seasonal Cultivation:** In India, Maize can be grown in Kharif, Rabi, and Spring seasons.
 - Kharif maize has lower productivity **due to rainfed conditions and biotic/abiotic stresses**, compared to rabi maize.
- **Global Ranking:** India is the 5th Largest producer (as of December 2023) and 14th Largest exporter of Maize in the world (2022).
 - India's strategic advantages for maize supply include year-round production, a robust seed network, and accessible seaports. However, high domestic demand limits its current export significance.
- **Major Producing States:** Karnataka, Madhya Pradesh, Bihar, Tamil Nadu, Telangana, Maharashtra, Andhra Pradesh.
- **Initiatives:**
 - [National Food Security Mission \(NFSM\)](#)
 - [Waxy Maize Hybrid](#)
 - **All India Coordinated Maize Improvement Project (AICMIP)**

Why has India Become a Net Maize Importer?

- **Ethanol Blending Goals:** India's push to increase the ethanol content in gasoline **20% by 2025-26** has driven up the demand for maize-based ethanol.
 - **National Policy on Biofuels (NPB) 2018** permits blending of maize and grain-based ethanol, boosting ethanol production capacities to meet the rising demand.
- **Shift from Sugarcane to Maize:** Due to a drought, the government **curbed the use of sugarcane for fuel**, prompting **ethanol distilleries to turn to maize** as an alternative.
 - **India produced 34.6 million tonnes (mt) of maize in 2023-24**, with plans to double production to bridge the supply-demand gap.
- **Impact on Domestic Supply:** The shift to using maize for ethanol has caused a shortfall in the poultry and starch industries, leading to the **country's first maize imports in decades**.

How is Excess Import of Maize Impacting Local Industries?

- **Competition for Maize:** Traditionally, **India's poultry and starch industries have been the primary consumers** of the country's maize production. However, with ethanol distilleries entering the market, these industries now face stiff competition for supplies.
- **Soaring Maize Prices:** The increased demand for maize has **pushed local prices far above global benchmarks**, squeezing poultry producers who are heavily dependent on maize for feed.
- **Poultry Industry at Risk:** Rising feed costs, which account for **three-fourths of production expenses**, have driven poultry growers into financial distress.
 - The **All India Poultry Breeders Association** has called for the **removal of import duties** and the approval of **Genetically Modified (GM) maize for feed**.
 - With production costs outpacing the selling price of poultry, the industry is at risk of unsustainable losses. Small-scale Poultry farmers are resorting to alternative feed sources, such as **broken rice and wheat stalk waste, to cut costs**.
- **Incentives for Corn Cultivation:** High maize prices are **encouraging farmers to increase their maize acreage**, with the area under summer-sown maize rising by 7% from 2023.
 - Farmers are benefitting from the current high prices, **but small poultry farmers are forced to scale back production** until prices stabilise with the new season's supply.

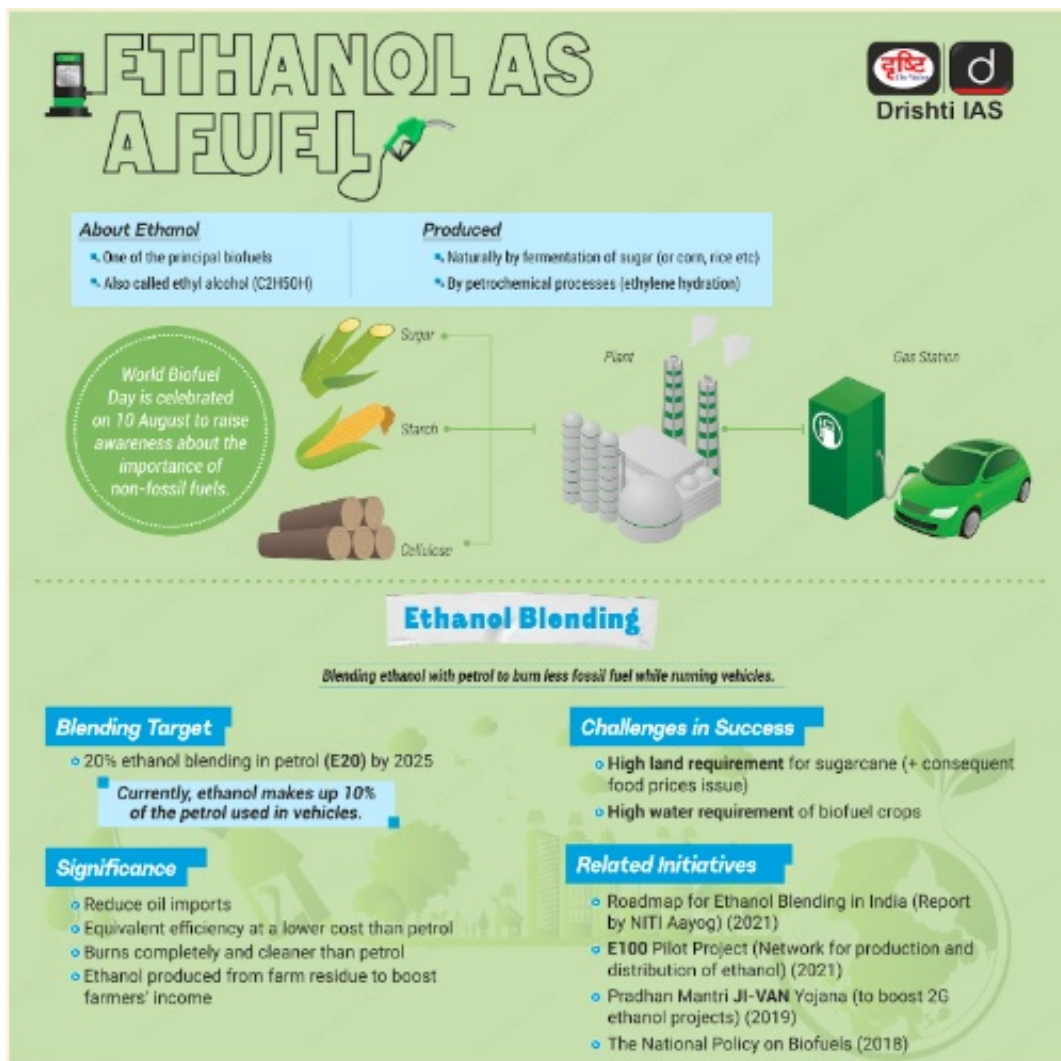
What are the Global Implications due to India's Excess Import of Maize?

- **Shift in Trade Dynamics:** India, once Asia's top maize exporter, is now importing maize, primarily from **Myanmar and Ukraine**. This has had a significant impact on global maize prices, which were previously trading at near four-year lows.
- **Increased Prices in Exporting Countries:** The surge in Indian demand has lifted maize prices in Myanmar from USD 220 to around USD 270 per metric ton, encouraging farmers there to plant more corn.
 - However, the rising costs are challenging domestic industries that have traditionally relied on affordable maize supplies.
- **Supply Chain Adjustments:** Traditional buyers of Indian maize, such as Vietnam, Bangladesh, Nepal, and Malaysia, are now turning to **South America and the United States** for their supplies, as Indian maize has become too expensive.
- **Permanent Importer Status:** **NITI Aayog** projects that India's ethanol production capacity needs to expand to meet the expected demand of **1,016 crore litres for Ethanol Blended Petrol (EBP) by 2024-25**.
 - This will require significant contributions from corn-based ethanol, positioning maize as a critical resource for India's biofuel industry. Experts predict that **India will continue to import corn annually** due to the rapid rise in demand that outpaces domestic production capabilities.

What Steps are Needed to Enhance Maize Production in India?

- **Technological Adoption:** India's diverse agro-ecological conditions require tailored technological solutions to increase maize productivity across different regions and seasons.
 - By adopting **biotech traits**, particularly those resistant to pests like **fall armyworm (FAW)**, and increasing the area under **high-yielding single-cross hybrids**, India can potentially double its maize productivity.
 - The US has achieved record maize yields with **100% coverage of biotech traits**, harvesting over **11 tonnes per hectare**, while **India** despite having 110 lakh hectares under maize cultivation, India's average yield is only 3.3-3.8 tonnes per hectare, nearly half the global average.
- **Diversification and Intensification:** Maize offers a future-focused solution as **continuous cultivation of rice cultivation depletes water tables** in the Indo-Gangetic plain.
 - Switching to maize in **irrigated areas like Punjab, Haryana, and Western UP** can conserve resources and increase the production, as **maize needs up to 90% less power and 70% less water than rice**.
 - Maize cultivation with long duration single cross **hybrid in less than 1,200 mm rainfall areas** with existing irrigation systems can offer high returns and save government subsidies on power and water.
- **Government Support:** The E20 blending target demands a significant amount of maize 165 lakh tonnes, almost half of India's current production.
 - To meet this demand without diverting existing maize supplies, India needs to increase production **from 346 lakh tonnes to 420-430 lakh tonnes by 2024-25 and further to 640-650 lakh tonnes by 2029-30**.
 - Offering a reasonable **Minimum Support Price (MSP)**, procurement assurances, and transportation concessions can incentivize farmers to boost maize cultivation.
 - Engaging **mega cooperatives in the maize value** chain with assured procurement could spark a **cooperative revolution** similar to that in the **milk (White Revolution)** sector.
- **Poultry and Animal Feed:** Maize can help achieve targets by being used more as a multigrain cereal, supporting the **growing demand for poultry and animal feed**.
 - By producing high-protein **distiller's dried grains with soluble (DDGS)** from ethanol, maize can also meet the **E20 ethanol requirement**, contributing to sustainable food, feed, and fuel security.
 - **DDGS is the major byproduct of ethanol production**, and is a good protein and energy feed for cattle.

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Drishhti Mains Question:

Q. Evaluate the impact of India's ethanol blending targets on its maize production and import dynamics.

UPSC Civil Services Examination, Previous Year Questions (PYQ)

Prelims

Q. Given below are the names of four energy crops. Which one of them can be cultivated for ethanol? (2010)

- (a) Jatropha
- (b) Maize
- (c) Pongamia
- (d) Sunflower

Ans: (b)

Q. According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (2020)

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds

4. Horse gram
5. Rotten potatoes
6. Sugar beet

Select the correct answer using the code given below:

- (a) 1, 2, 5 and 6 only
(b) 1, 3, 4 and 6 only
(c) 2, 3, 4 and 5 only
(d) 1, 2, 3, 4, 5 and 6

Ans: (a)

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