

What's the buzz with ethanol?

Here's the full picture.



What is Ethanol?

India imports **85% of its crude oil**, costing billions in foreign exchange. Ethanol offers a **cleaner, renewable alternative**, made from organic biomass like sugarcane, molasses, grains, and other farm waste.

It's largely home-grown, **supporting agriculture and strengthening the rural economy.**

In July 2025, India hit its target of **20% ethanol blending** in petrol five years ahead of schedule.

The aim? **Lower emissions, reduce crude dependency**, and build a strong biofuel ecosystem.

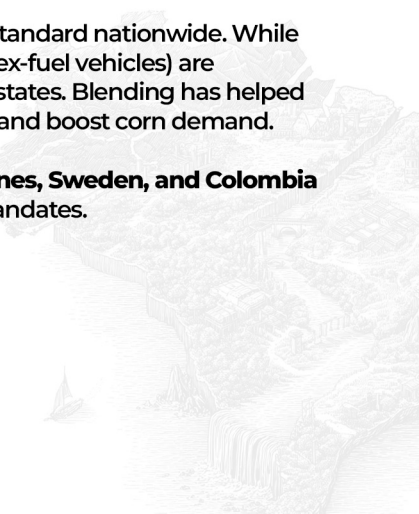
Is this new globally? Not at all.

Brazil has been a pioneer in ethanol adoption, using **E20 to E27 blends since the 1990s**.

Today, **E27 is the standard** and is widely used.

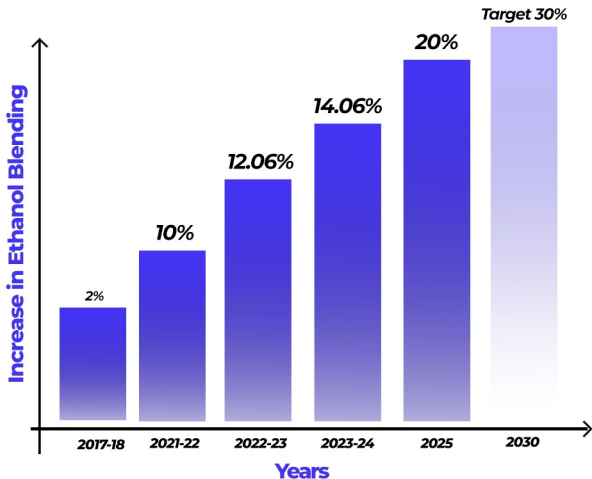
In the **USA E10** is standard nationwide. While **E15 and E85** (for flex-fuel vehicles) are available in many states. Blending has helped reduce emissions and boost corn demand.

Thailand, Philippines, Sweden, and Colombia all have biofuel mandates.



India's journey for ethanol blending

India began its ethanol blending journey in **2003** however, real progress picked up only in the last **4-5 years** with strong targets, policies, and infrastructure push



What does research say about performance, mileage and engine impact?

Fuel Efficiency:

Ethanol has **~33%** less energy than petrol.

E20 leads to a **3–6%** drop in mileage, depending on the car model.

This can be offset with engine tuning and optimized fuel mapping.

Engine Wear & Compatibility:

Ethanol is **hygroscopic** (absorbs moisture) and can be mildly corrosive.

Older vehicles may face:
Seal wear (rubber components)

Fuel line corrosion

Hard cold start issues

Modern post-2023 vehicles are **E20**-ready with ethanol-resistant components.

Emissions:

E20 reduces:

Carbon monoxide (CO)
by **~50%**

Hydrocarbons by **~20%**

NOx emissions may slightly rise, but are manageable with modern catalytic converters.

Performance:

Minor drop in power or throttle response in older engines.

No noticeable impact in newer, calibrated engines many OEMs (**Tata, Maruti, Mahindra, Hyundai**) have rolled out **E20** optimized model

What does the Indian government say?

In response to recent backlash:

“E20 is tested & safe for vehicles designed for it. BSVI Phase 2 vehicles from April 2023 are E20 compliant. Fuel stations will clearly mark E20 dispensing pumps.”

So, should car owners worry?

If you own a **BSVI Phase 2** vehicle **(2023 or newer)**, your car is **E20-compatible** and safe to use with ethanol-blended fuel.

For older vehicles, it's advisable to stick to **E10** unless your manufacturer explicitly approves **E20** usage.

A **slight drop in mileage** is expected, but it's **minimal compared to the benefits** in terms of fuel cost savings and reduced emissions

Avoid storing E20 fuel for extended periods, as ethanol is prone to absorbing moisture, which can affect engine performance.

What can we learn from Brazil's ethanol model ?

Flex-Fuel Vehicles at Scale:

Brazil's flex-fuel cars run smoothly on any blend from E20 to E100, offering flexibility.

Robust Ethanol Infrastructure

A nationwide network of E100 and blended pumps ensures ethanol is easily available across Brazil.

Dynamic Pricing Model

Fuel stations display real-time ethanol and petrol prices, helping consumers make informed, competitive choices.

Consumer Awareness & Acceptance

Campaigns educated consumers on ethanol benefits, overcoming early doubts about mileage and engine durability.

Diversified Feedstock

Brazil uses sugarcane and invests in second-gen ethanol, reducing dependence on food crops and imports.

Stable Policy Environment

Clear, long-term government policies encouraged investment from automakers and fuel producers in ethanol technologies.

The road ahead for ethanol in India:

	Challenges	Solution
Infrastructure Gaps	Limited E20 fuel pumps and inconsistent ethanol availability across states.	Expand fuel pump networks, set up more distilleries in low-supply regions and develop a unified fuel quality standard.
Vehicle Readiness	Older vehicles may not be E20-compatible.	Fast-track transition to E20-ready and flex-fuel compliant vehicles with clear labelling and retrofit support; incentivize automakers.
Consumer Awareness	Low public understanding of ethanol benefits, performance and costs.	Nationwide campaigns to educate consumers on mileage, maintenance and emissions improvements through ethanol-blended fuel adoption.
Food vs Fuel Debate	Diverting sugarcane or grains can raise food prices and inflation risks.	Prioritize second-generation ethanol production from agri-waste materials like rice straw and bagasse that are non-food, low-impact and sustainable.

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	Challenges	Solution
Price Disconnect	Ethanol is cheaper to produce, but fuel prices haven't dropped due to taxes and blending costs.	Rationalise tax structures and create a transparent pricing framework showing ethanol cost vs petrol.
Supply Chain Inefficiencies	Blending facilities and logistics are uneven across regions.	Invest in a pan-India ethanol logistics ecosystem, including pipelines, storage and blending units.
Long-Term Vision	Need to sustain progress beyond E20.	Lay the groundwork for E30 and E100 adoption, flex-fuel tech R&D and integration with India's net-zero goals.

Let's separate **facts from fears**.
Transitioning to cleaner fuels isn't
always seamless, but it is **necessary**.

India can **learn from Brazil**, adopt
global best practices and ensure car
owners have **clarity & choice**.

As citizens & petrolheads, embracing
green shifts with open eyes is part of
our evolution.

