

K-STATE RISK & PROFIT CONFERENCE | AUGUST 2026

Bioenergy Market Situation & Outlook

Setting the energy-price table: what crude, diesel and corn leave for bioenergy

Gregg Ibendahl & Daniel O'Brien · Kansas State University

David Ripplinger & Frayne Olson · North Dakota State University

1

Gregg Ibendahl

Kansas State University · Department of Agricultural Economics

The energy price environment and what room it leaves for bioenergy

The refining squeeze that is costing you at the pump is the best news the renewable diesel industry has had in years.

Petroleum diesel is unusually expensive relative to crude.

Renewable diesel is priced against petroleum diesel — not against crude.

That gap is the whole story this year.

Where we just came from

- **The connection to the fertilizer & diesel talk**
- **In the earlier session I made two arguments about input costs.**
 - **One**: crude still explains diesel, but the pass-through has doubled. A \$10 move in crude now costs 41 cents a gallon instead of 24.
 - **Two**: fertilizer is not driven by crude at all — it tracks European natural gas.
- **Both of those matter here, because bioenergy margins sit between an energy price and a feedstock price.**
 - Energy prices set the revenue ceiling. Feedstock prices set the cost floor. Everything else is policy and basis.

2

The Energy Price Table

Where crude, diesel & gasoline sit today, & what the forecast says about the next twelve months.

Where energy prices sit today

Current Week – EIA Data

\$82

WTI crude
per barrel

\$5.26

retail diesel
per gallon

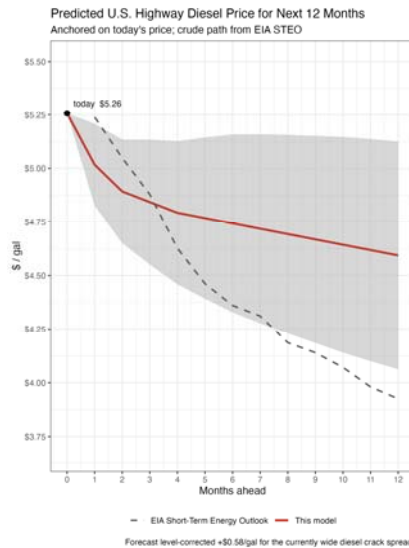
\$3.38

retail diesel
over crude, \$/gal

❑ That gap is the widest in the EIA weekly record.

It is the number that decides renewable diesel economics this year.

Crude is forecast lower



K-State model; crude path from EIA Short-Term Energy Outlook

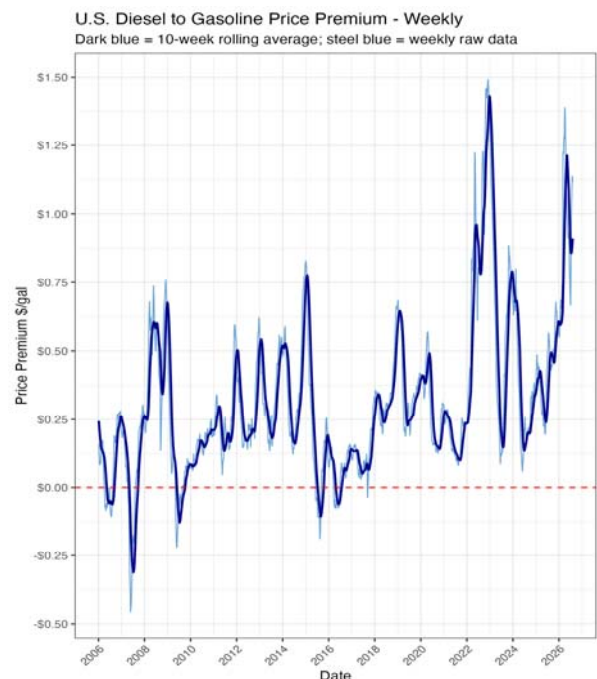
Diesel outlook, next 12 months

- EIA has WTI easing from about \$82 toward \$64 over the next year.
 - That pulls retail diesel from \$5.26 toward roughly \$4.59 on my model.
 - The dashed line is EIA's own retail diesel forecast.
- For bioenergy markets that is a headwind on the revenue side — the energy price you are priced against is drifting down.
 - But note how much of today's diesel price is refining margin rather than crude. That part may not fall with crude.

Why diesel is holding a premium

Diesel's premium over gasoline used to be seasonal noise.

However, since 2022 it is "structural".



EIA weekly retail prices. 10-week rolling average in dark blue.

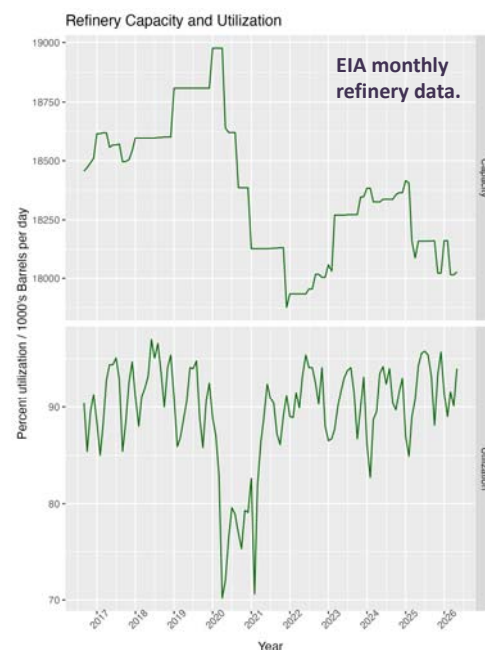
Refining capacity is the constraint

U.S. refining capacity has barely grown while utilization runs hard.

There is no slack in the distillate system.

- That is why a modest supply scare moves diesel so much more than gasoline.
- It is also the structural argument for renewable diesel: new distillate supply that does not require a new refinery.

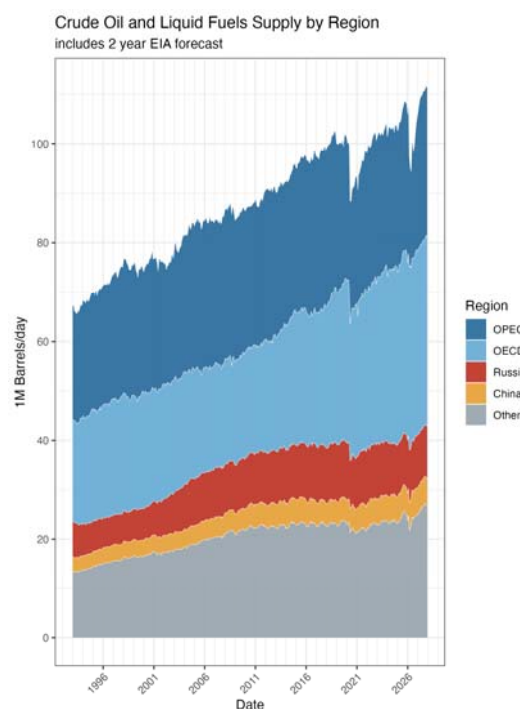
U.S. capacity & utilization



The global supply picture

EIA Short Term Energy Outlook

**World liquid fuels supply,
with two years of EIA forecast.**



3

What Room Is Left

Bioenergy margins live between an energy price & a feedstock price.

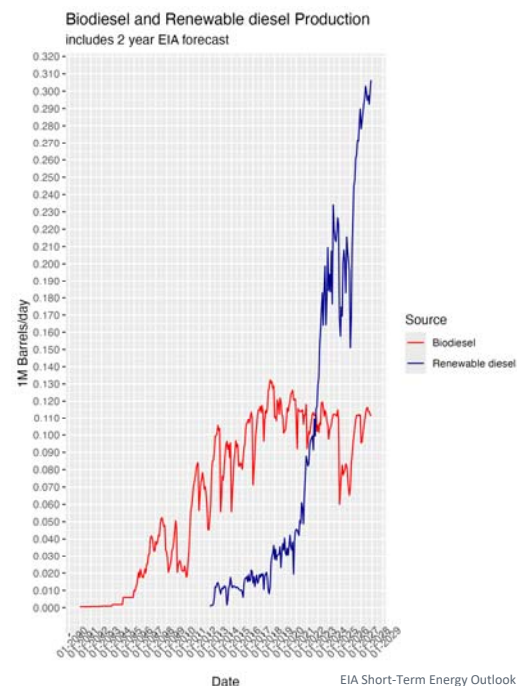
Here is what both are doing.

Biomass-based diesel keeps growing

Renewable diesel has overtaken biodiesel & is still climbing.

- Biodiesel production has been flat to declining for several years.
- Renewable diesel drops into the existing distillate pool with no blend wall — that is the structural advantage.
- Includes two years of EIA forecast.
- Daniel & the NDSU team will take the plant-level economics from here.

Production, million barrels per day



And it is taking real share

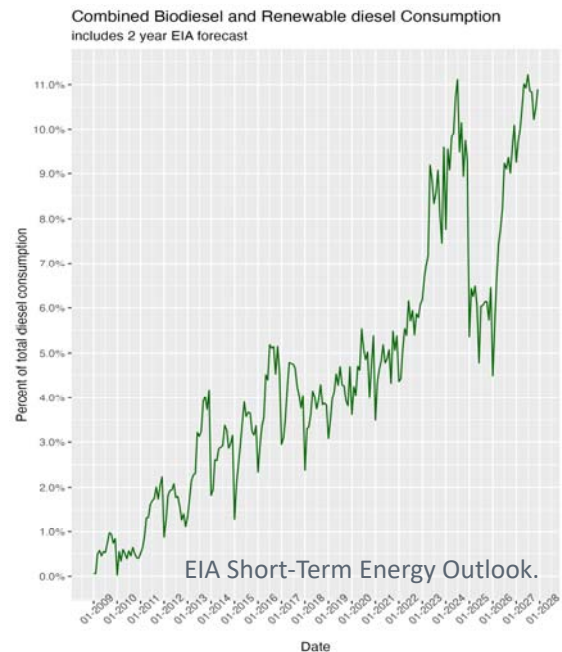
- ❑ Biomass-based diesel is now a meaningful share of total U.S. distillate.

That share has roughly tripled over the last decade.

Every point of share is distillate that does not have to come from a refinery that is already running flat out.

- ❑ This is why the tight petroleum distillate market & the renewable diesel build-out are the same story.

Share of total diesel consumption



The margin squeeze, in plain terms

Revenue side — the ceiling

Renewable diesel is priced against petroleum diesel, now \$5.26.

The wide crack spread is working in producers' favour.

But EIA has crude easing toward \$64, which pulls diesel toward \$4.59.

Policy — RIN values, LCFS, 45Z — sits on top of all of this and can swamp the commodity math.

Cost side — the floor

Ethanol's feedstock is corn, around \$4.70 and forecast to firm into 2027.

Biodiesel's feedstock is soybean oil, which has been the binding constraint on crush economics.

Fertilizer costs feed back into corn production costs — see the earlier session.

Feedstock is 70-85% of operating cost in both pathways.

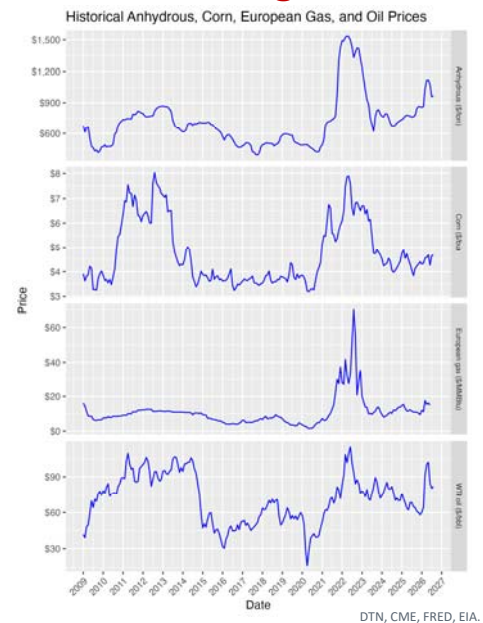
The gap between those two columns is the margin.

Right now the ceiling is high but falling, & the floor is firm.

Corn: the ethanol cost floor

- ❑ Corn is near \$4.70 and the futures curve firms toward \$5.00 into 2027.
 - o That is a firm cost floor for ethanol at a time when the energy price it is sold against is forecast lower.
 - o Note the bottom panel: European gas is what drives the fertilizer cost inside that corn price.
- ❑ So the fertilizer story from the earlier session shows up here too — as part of corn's cost of production.

Anhydrous, corn, EU gas & crude together



What I would watch

Crack

spread, not crude —
it sets RD revenue

TTF

European gas —
it sets fertilizer cost

Policy

RIN, LCFS, 45Z —
bigger than the
commodity math

Two of those three are energy prices nobody in this room quotes daily.

The third can outweigh both.

Questions?

Gregg Ibendahl · ibendahl@ksu.edu · K-State Agricultural Economics

Substack: substack.com/@agricultural · X: @ibendahl @AGfinancing

Farm Finance Show on YouTube: @little_pond_farm · AgManager.info

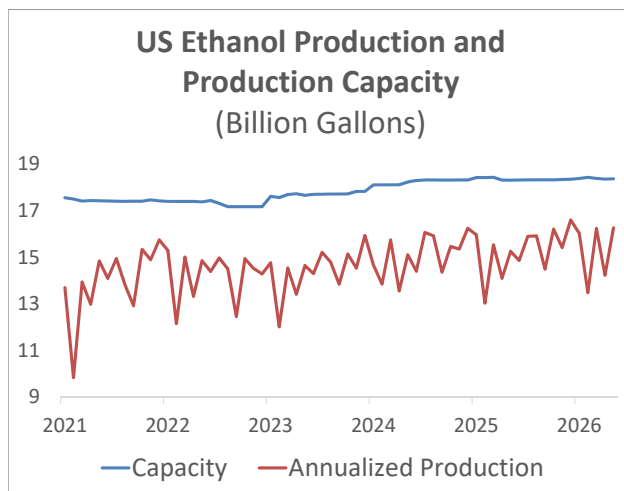
Bioenergy economics and policy situation & outlook

Kansas State University
Risk and Profit Conference
August 20-21
Manhattan, Kansas
Frayne Olson & David Ripplinger

Key Factors

- Strong policy support (RFS, 45Z, LCFS)
- Growing export demand for ethanol
- Possibility of national, year-round E15
- Slow, but steady maturation of Sustainable Aviation Fuel (SAF) industry

US Ethanol Production & Production Capacity Have Never Been Higher



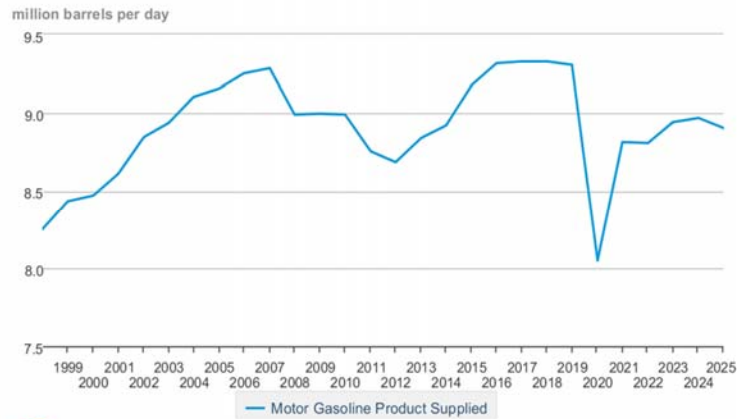
Data: Energy Information Administration

May '26 Capacity: 18.4 billion gals
+1 billion from May '21

May '26 Production: 16.2 billion gals
+1.4 billion from May '21

Domestic Use of Ethanol as a Fuel Additive has Plateaued

Motor Gasoline Product Supplied

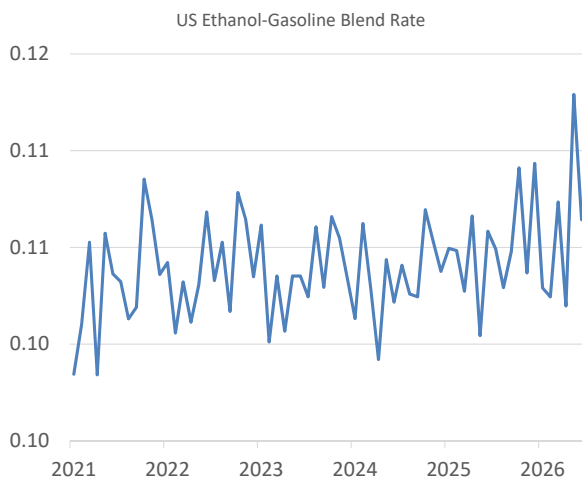


Data source: U.S. Energy Information Administration

Most ethanol in the US is used as a fuel additive, providing octane to gas blends

US gasoline use has plateaued

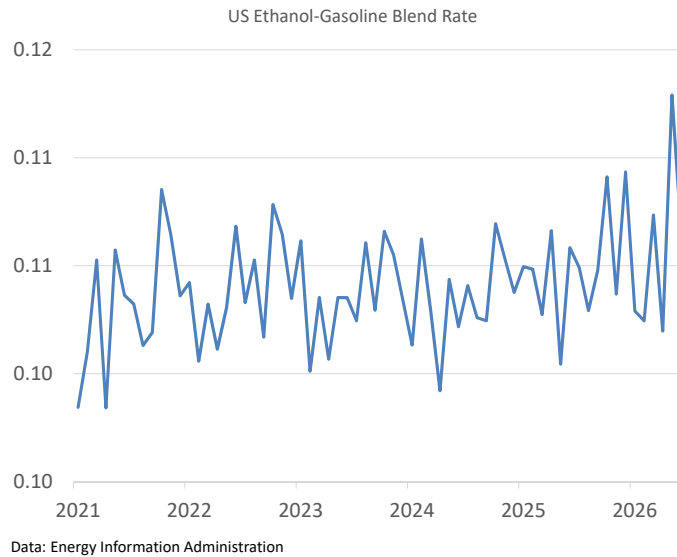
Domestic Use of Ethanol as Fuel is Growing



Data: Energy Information Administration

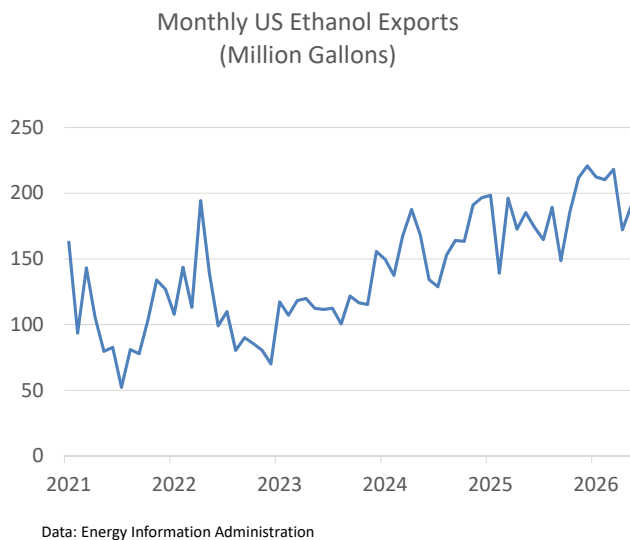
- Sales of E15 & E85 are increasing
- Year round E15 is available in 8 Midwest States
- There is currently an emergency waiver allowing nationwide E15 sales
- E15 is being discussed in Congress
- California has legalized the sale of E15, but regulatory hurdles have prevented its use

Domestic Use of Ethanol as Fuel is Growing



- Sales of E15 & E85 are increasing
- Year round E15 is available in 8 Midwest States
- There is currently an emergency waiver allowing nationwide E15 sales
- E15 is being discussed in Congress
- California has legalized the sale of E15, but regulatory hurdles have prevented its use

Ethanol Exports are at Record Highs & Rising



- Ethanol Exports were 2.18 billion gal in 2025
- They are pacing 12% in 2026

45Z is aiding ethanol refining margins

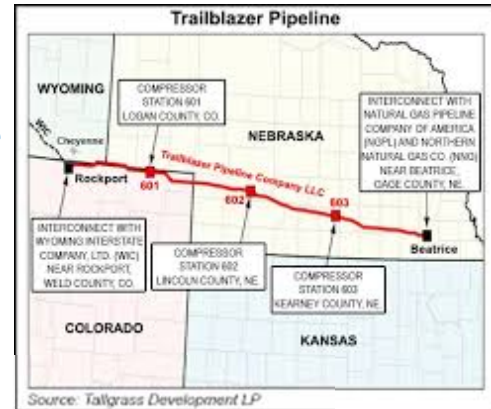
- Ethanol refinery CI score reductions create tax credits under 45Z.
- Removal of Indirect Land Use Change puts refiners in the money.
- Carbon capture and storage could generate up to \$.60/gal credit.



By **Todd Neeley**, DTN Environmental Editor

Connect with Todd:

[@DTNeeley](#)

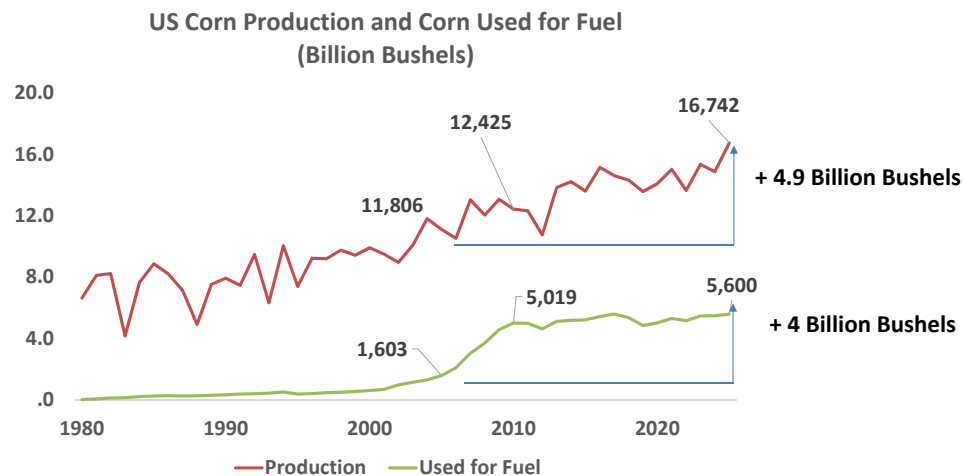


Summit Pipeline Moves Forward in Iowa

Summit Carbon Solutions Pipeline Gets New Path Forward After Iowa Permit Change

7/15/2026 | 10:47 AM CDT

Corn Production has Outgrown the RFS



Data: USDA, WASDE, Economic Research Service
Chart: North Dakota State University

Ship & Bunker

Maersk Completes First Sailing on 100% Ethanol Marine Fuel

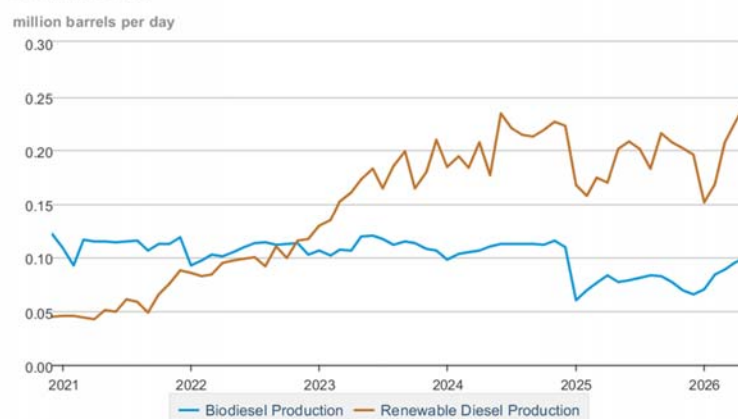
Ethanol PRODUCER MAGAZINE

Gevo Cancels Plans For South Dakota SAF Plant, Focuses On North Dakota Projects

AUGUST 10, 2026 BY ERIN KRUEGER

Renewable Diesel & Biodiesel Production have Recovered from 2025 Drop

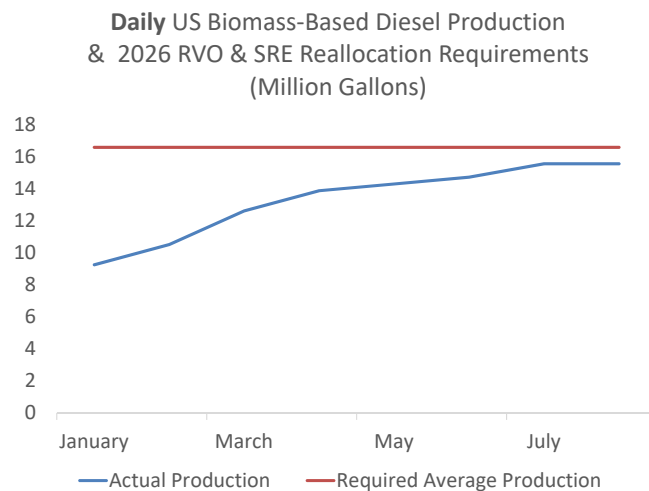
Custom Chart



Data source: U.S. Energy Information Administration

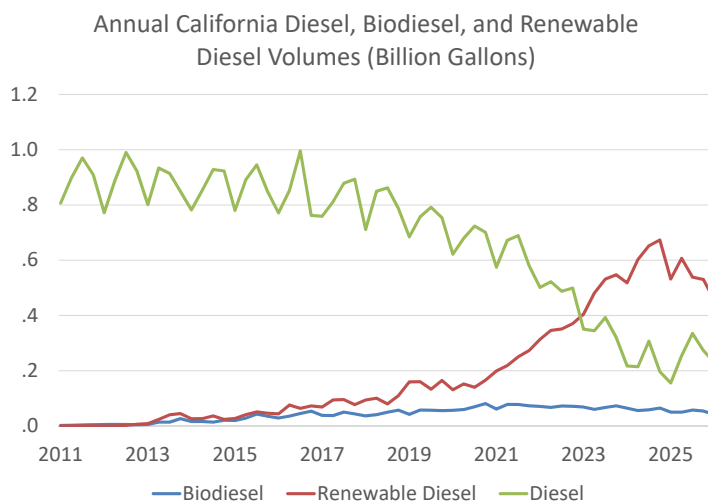
Renewable diesel & biodiesel production fell in 2025 as realized 45z credits were lower than the biodiesel production tax credit

Biomass-based Diesel Production is not Keeping up with 2026 Mandate



- Set 2 (2026 & 2027) biomass-based diesel (D4) RVOs were increased by about 50% over 2025 levels
- 70% of small refinery exemptions are reallocated
- About 16 million gallons must be produced each day
- There are banked D4 RINS from previous years, but the pace is extremely demanding & is putting increasing pressure on feedstocks

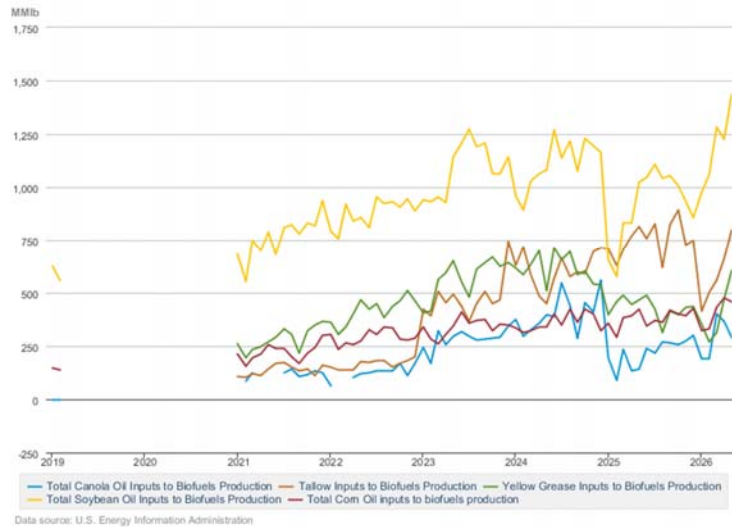
Biomass-based Diesel will almost completely replace Diesel in California by 2030



- 2028 marks the beginning of the 20% cap on the use of soybean & canola oil.
- The LCFS target for 2045 is a 90% reduction in CI relative to 2010.
- BBD makes up 1/3 of Oregon's diesel market & 1/5 of Washington's.

Feedstock Use is only Starting to Pick Up

Feedstocks Consumed for Production of Biofuels



California has some future demand, but other areas are likely to grow – supported by 45Z, the RFS, & Low Carbon Fuel policies.

SAF is coming of age



- Production growth slowed from the 6x growth experienced in 2025
- CORSIA becomes mandatory in 2027
- Remains 2 – 4 x the cost of conventional jet fuel

45Z Rules Expected in November

45Z is to account for the carbon intensity of feedstocks, but final rules have not yet been issued.



Questions remain about

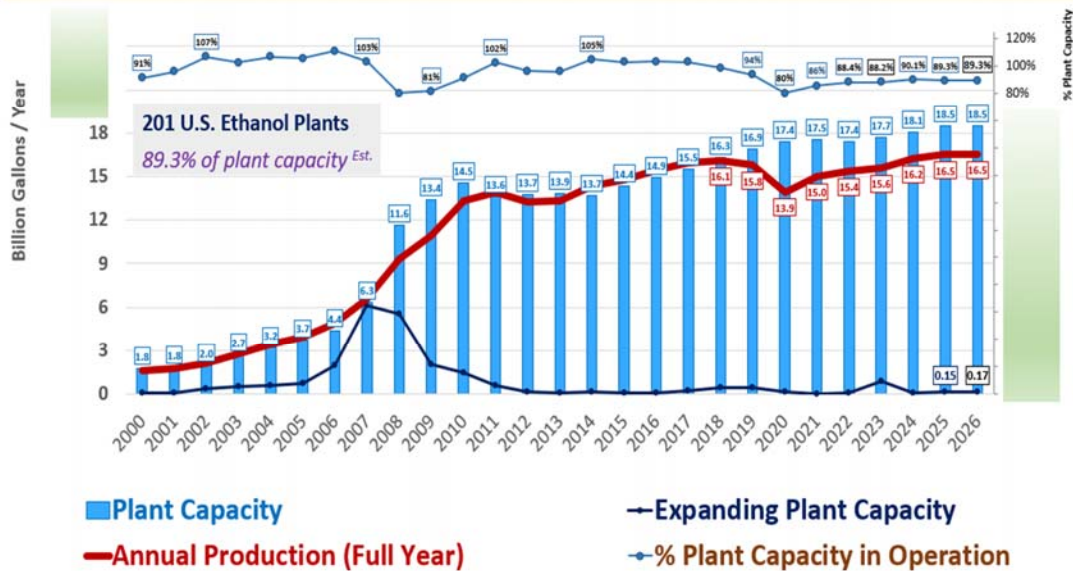
- Crops
- Practices
- Documentation
- Score calculation
- Use of mass-balance or book-and-claim.

Things to Watch

- 45Z final rule for feedstocks
- E15 discussions in Congress (Farm Bill)
- Decline in US passenger vehicles miles traveled as the economy for most Americans struggles
- Mandatory participation of global airlines in decarbonization

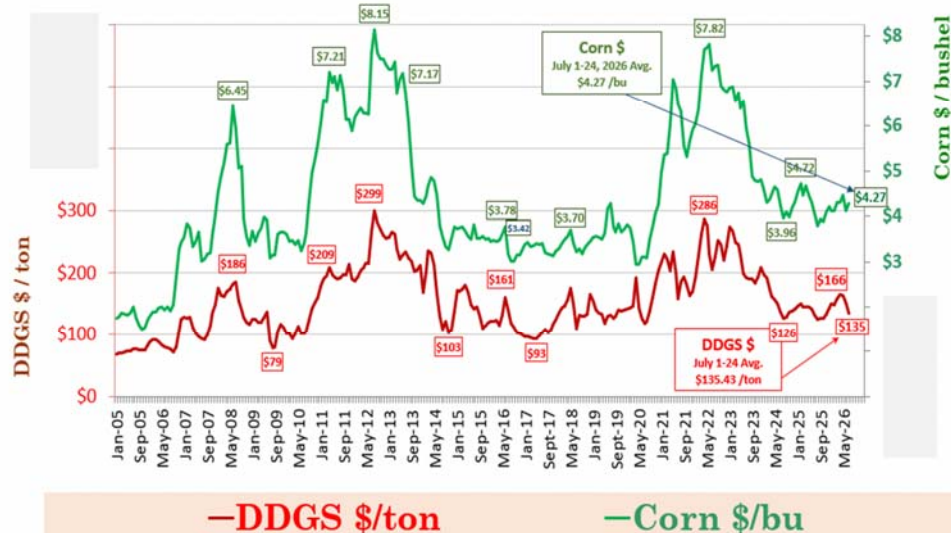
U.S. Ethanol Biorefinery Capacity & Production

USDA ERS Biofuel Statistics – As of August 4, 2026 Renewable Fuels Association



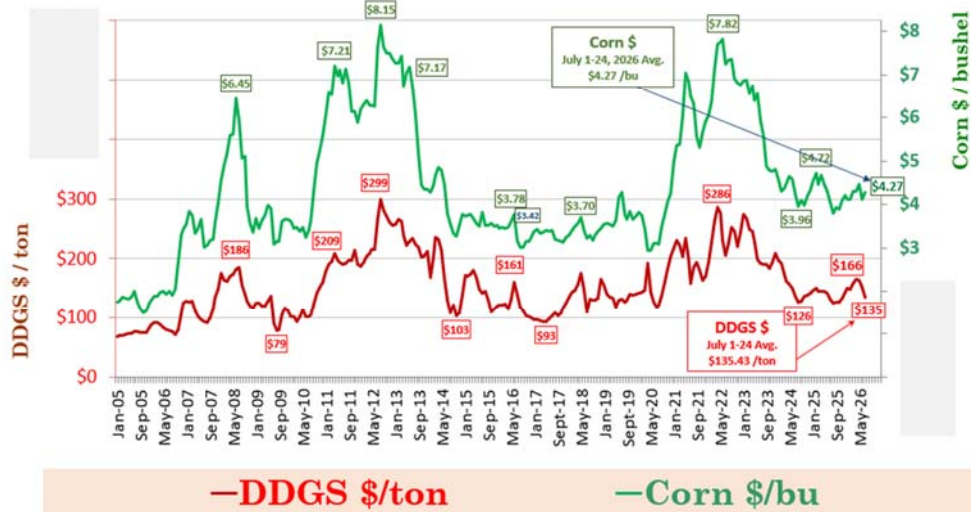
Ethanol DDGS & Corn Input Prices

ISU Ethanol Plant Model (January 2005 – August 4, 2026)



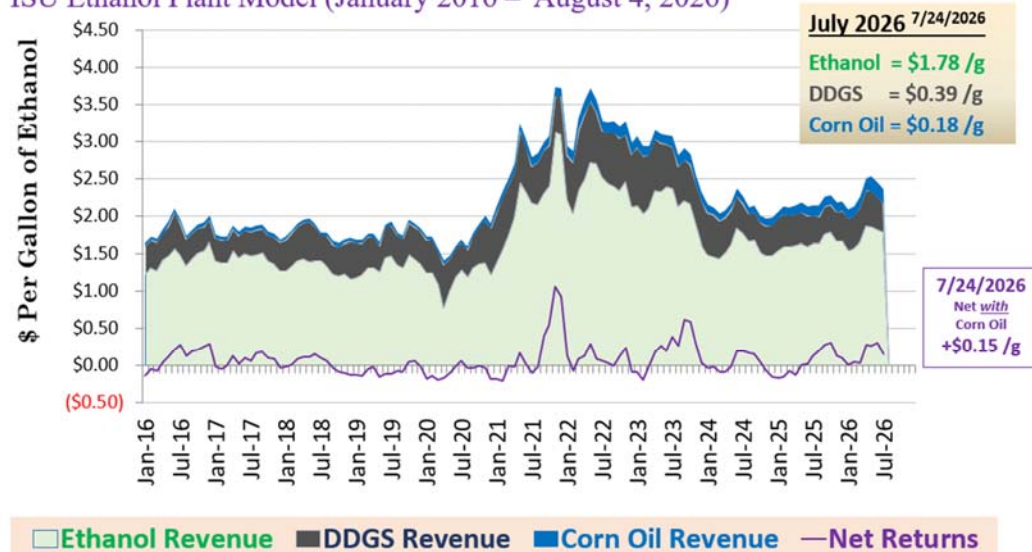
Ethanol DDGS & Corn Input Prices

ISU Ethanol Plant Model (January 2005 – August 4, 2026)



Ethanol Revenues & Net Returns

ISU Ethanol Plant Model (January 2016 – August 4, 2026)



Questions?