

SEPTEMBER 2026 · CARBON INTENSITY BRIEFING

N-Sense

PRECISION SOIL INTELLIGENCE

Ethanol's path to a profitable future.

N-Sense Inc. · Ames, Iowa · n-sense.us

DEMAND • WHERE ETHANOL SELLS TODAY

Ethanol's home market stopped growing in 2017.

- Production has been flat since 2017 — the E10 blend wall is a hard ceiling.
- E15 and E85 are growing, but far too slowly to absorb new volume.
- The gasoline pool itself is shrinking as electric vehicles take share.
- The airline industry consumes 18 billion gallons of jet fuel per year.
- \$1.25 per gallon tax credit for SAF fuels that meet a 50% GHG reduction.
- **REDUCING CI SCORES OF ETHANOL IS KEY!**



SUSTAINABLE AVIATION FUEL

Three numbers that decide the next decade.

18B

gallons of jet fuel burned by the airline industry every year

\$1.25

per-gallon tax credit for qualifying SAF production

50%

GHG reduction a fuel must clear to earn that credit

Ethanol-to-jet is the growth market — and the entry ticket is a low CI score.

N-SENSE PRODUCT ECOSYSTEM

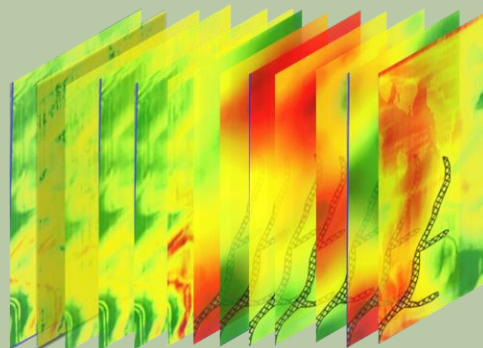
CropScoutAI™



N-MapperCore™



FieldPredictAI™



Actionable Prescriptions



PRECISION NITROGEN

Less nitrogen, same yield, lower CI.

CI CHANGE

-3 to -7

Zone-level soil nitrate testing cuts applied nitrogen by 22% with no yield give-up — and nitrogen is the largest field-side CI term.

FARMER STANDARD

100 lb-N preplant + 100 lb-N sidedress

200

lb-N / acre

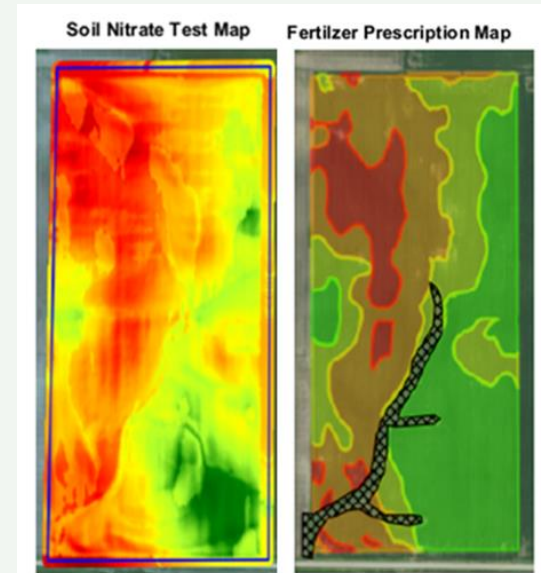
WITH N-SENSE

100 lb-N preplant + 55 lb-N average sidedress

155

lb-N / acre

A 22% cut in applied nitrogen, zone by zone.



Soil nitrate test map → fertilizer prescription map

NO-TILLAGE

Leave the soil alone and CI falls.

CI CHANGE

-4.7

Eliminating tillage passes cuts fuel use and stops the soil carbon losses that a mouldboard plough guarantees.



Conventional tillage



No tillage

COVER CROPS

The biggest lever in the field.

CI CHANGE

-14.3

Living roots between cash crops hold nitrogen through the winter and build soil carbon.



Cereal rye cover established after corn harvest



No cover — bare soil overwinter

CONTINUOUS CORN

The one lever that costs CI.

CI CHANGE

+3.9

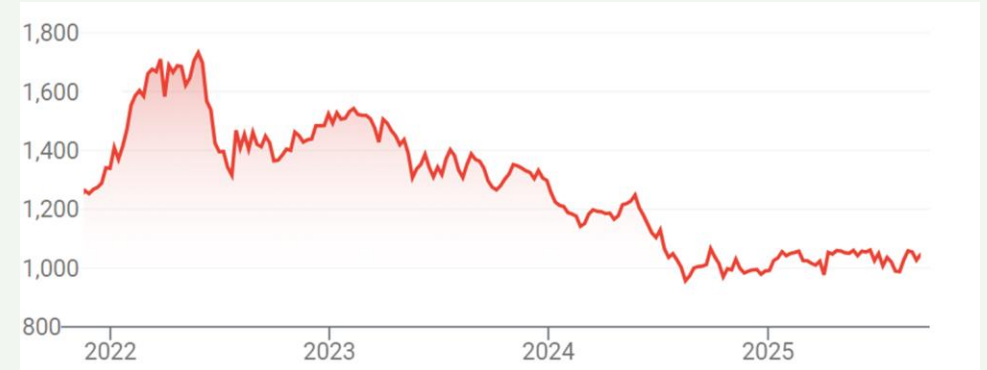
Corn-on-corn raises carbon intensity — but soybean economics are pushing growers there regardless, so the ledger has to carry it.

Soybean margin, per bushel

CBOT price	\$10.27
Average basis	-\$0.48
Net price received	\$9.79
Cost of production	\$10.98

Margin **-\$1.19 / bu**

Continuous corn 241 bu/ac vs. corn-soy 263 bu/ac



Soybean CBOT price (¢/bu), 2022–2026

Down 39% since April 2022

STOVER HARVEST

Removing stover pays twice.

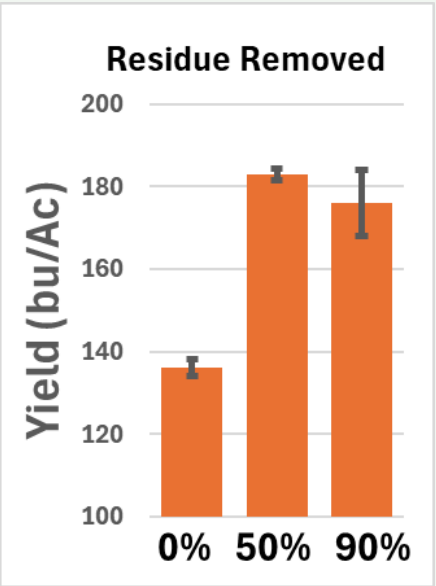
CI CHANGE
-3.3



0% residue removal



90% residue removal



Yield by removal rate

STOVER GASIFICATION

Burn the stover, not the gas.

CI CHANGE

-7.8

Corn stover gasified on site replaces purchased natural gas for process heat — and leaves biochar behind as a by-product.

FEEDSTOCK IN

Corn stover

PROCESS HEAT OUT

Purchased natural gas, displaced

On-site gasification carries the plant's thermal load.



BIOCHAR APPLICATION

Carbon that goes back and stays.

CI CHANGE

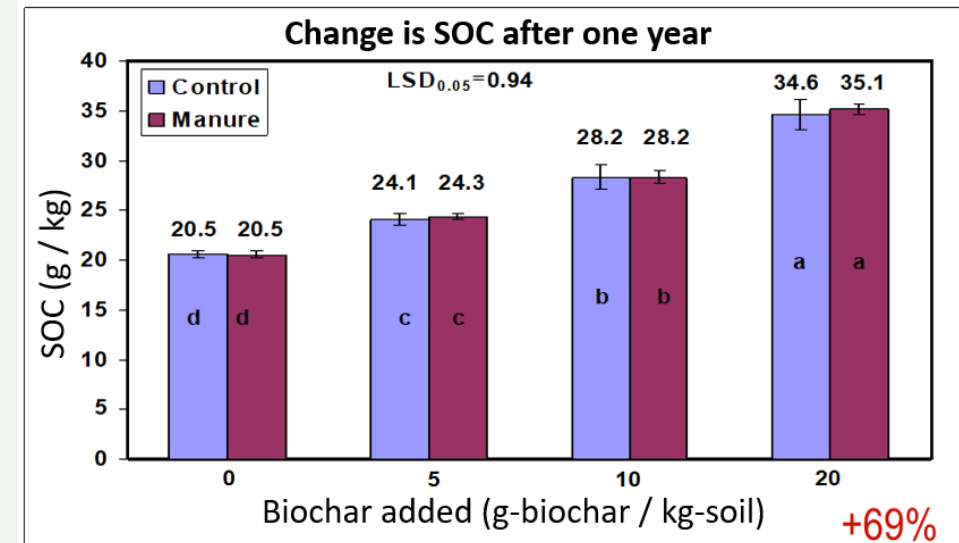
-12.9

Gasifier biochar returns to the soil as durable carbon — a CI reduction and a saleable credit in the same pass.



114,278

tons CO₂e in carbon credits



Change in soil organic carbon after one year

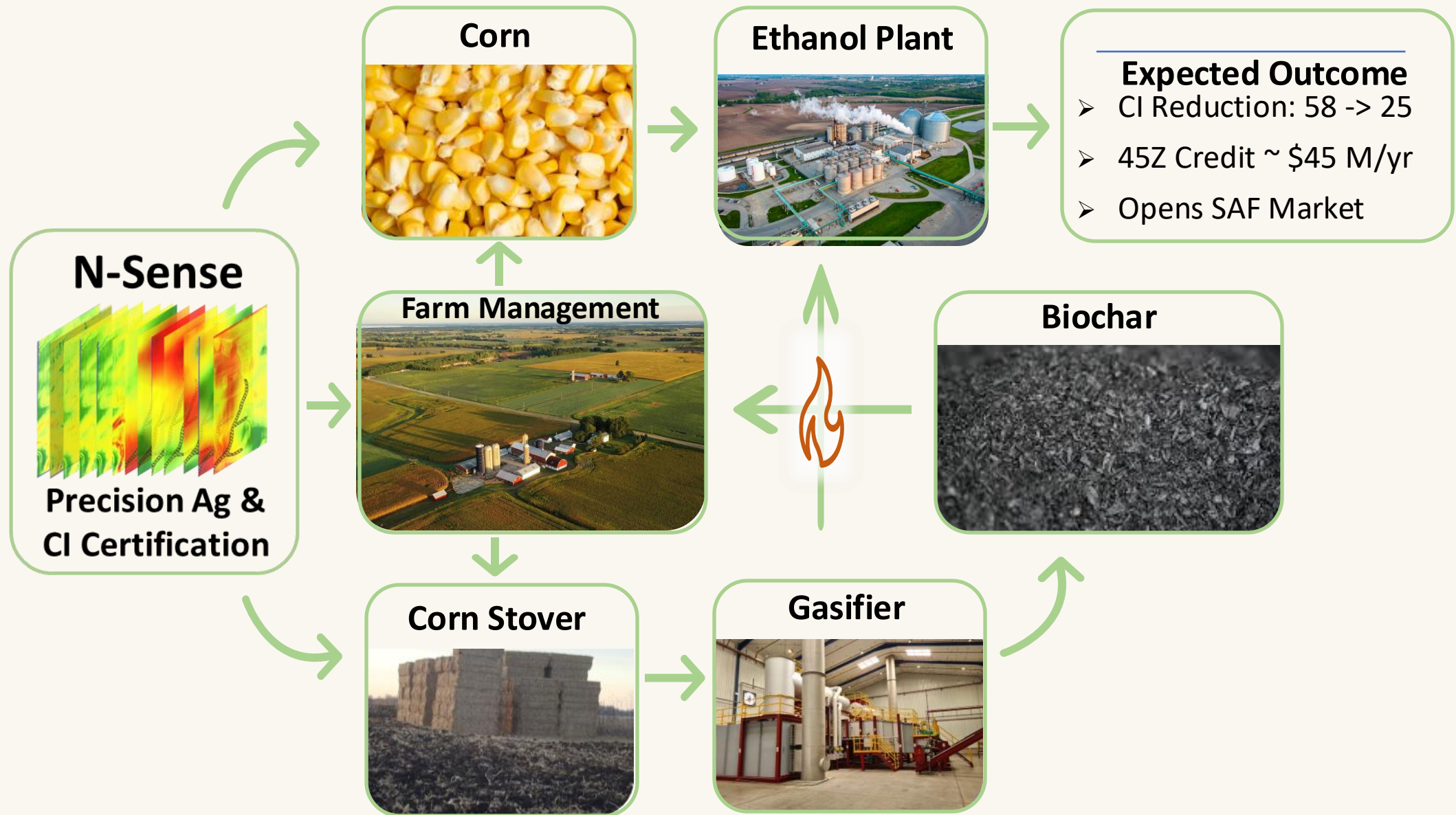
STACKED IMPACT

Seven levers, one number.

Each practice is independently measurable. Stacked, they move the plant's carbon intensity by 46 points.

	CI LEVER	WHAT CHANGES	CI Δ
01	Precision nitrogen	22% less applied N per acre	-3 to -7
02	No-tillage	Soil left undisturbed	-4.7
03	Cover crops	Living roots between cash crops	-14.3
04	Continuous corn	Rotation dropped for economics	+3.9
05	Residue removal	Up to 90% of stover harvested	-3.3
06	Stover gasifier	Replaces purchased natural gas	-7.8
07	Biochar	Durable carbon returned to soil	-12.9
	Total stacked impact	Maximum modelled reduction	-46

N-Sense enabled ethanol-to-jet fuel.



EXPECTED OUTCOME

What a 46-point reduction is worth.

58 → 25

carbon intensity score at the plant gate, gCO₂e/MJ

\$45M

estimated annual 45Z credit for a single plant

SAF

market access unlocked once the 50% threshold is cleared

Same corn. Same plant. A different product, and a different market.



Precise · Practical · Profitable

Ethanol's path to a profitable future starts in the field.

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