

Making Precision Management of Crops Practical and Profitable

Ethanol's Path to Profitable Future



Ethanol Industry Future?



- Ethanol production flat since 2017 - E10 Blend Wall.
- Growth in E15 and E85 is slow.
- Gasoline market is expected to shrink due to the adoption of Electric Vehicles (EV).
- **FUTURE OF ETHANOL INDUSTRY DEPENDS ON ETHANOL-TO-JET FUEL (SAF)!**
- 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!**

N-Sense has a New Path for Ethanol to SAF



CropScoutAI™



SoilQualityMapper™

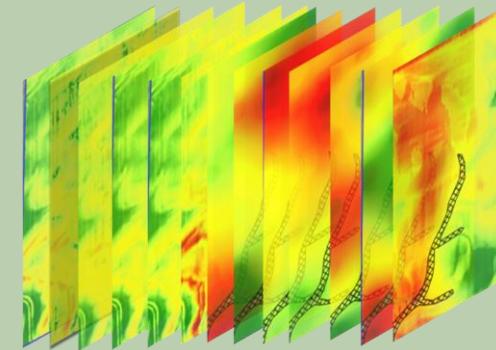


N-MapperCore™



Precision Fertilizer and Biochar management

FieldPredictAI™



Actionable Prescription



Precision N decreases CI scores



With N-Sense use 22% less N fertilizer

Farmer:

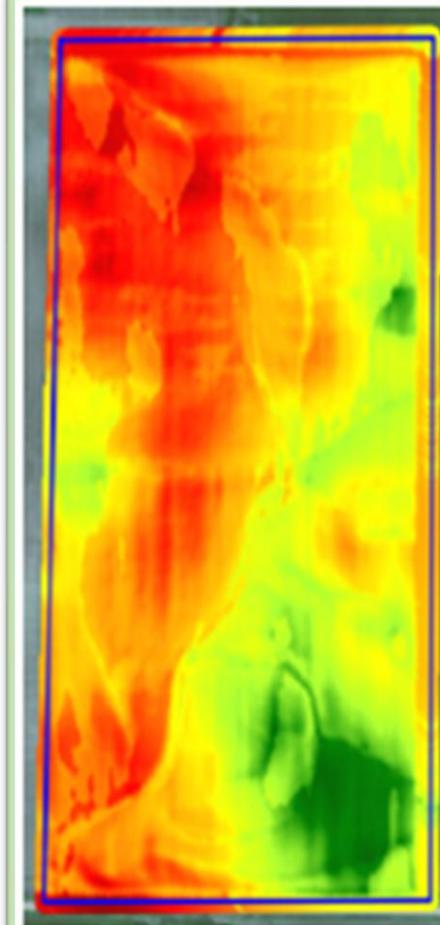
Preplant 100 lb-N/acre + Avg 100 lb-N/ acre sidedress

N-Sense:

Preplant 100 lb-N/acre + Avg 55 lb-N/ acre sidedress

Nitrate Soil Tests (ppm)				
Soil Test Nitrate Range	0-10	11-15	16-25	26+
Soil Test Category	Very Low	Low	Optimum	High
Amount of Pure Nitrogen to apply (pounds/acre)				
Recommendation	128	96	40	0

Soil Nitrate Test Map



Fertilizer Prescription Map



CI = -3 to -7

No-tillage decreases CI scores



CI = -4.7

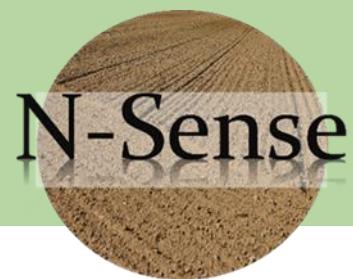
Conventional tillage



No tillage



Cover crops decrease CI scores



No tillage



CI = -14.3

Cover Crop



Continuous corn increase CI scores



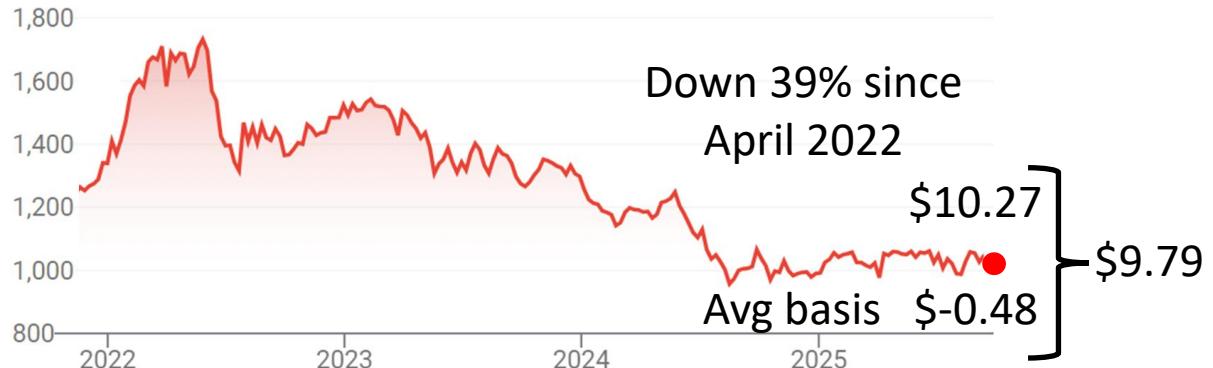
**Farmers are Losing Money
Growing Soybeans**

CI = 3.9

CC yield = 241 bu/ac vs. CS yield = 263 bu/ac

Cost of production = \$10.98
\$10.98 - \$9.79 = **-1.19 \$/bu**

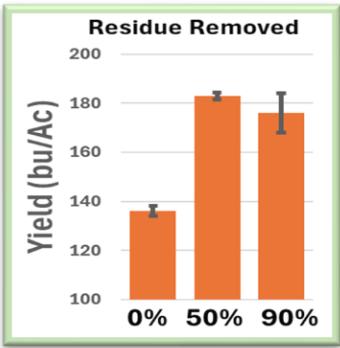
Soybeans CBOT prices



Residue removal decreases CI scores



0% residue removal

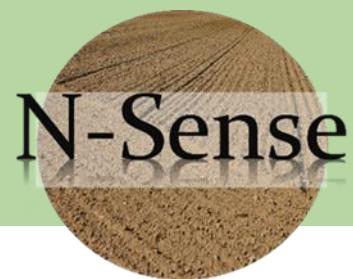


CI = -3.3

90% residue removal



Gasifier decreases CI scores



Feedstock: Corn stover



CI = -7.8
Process Heat



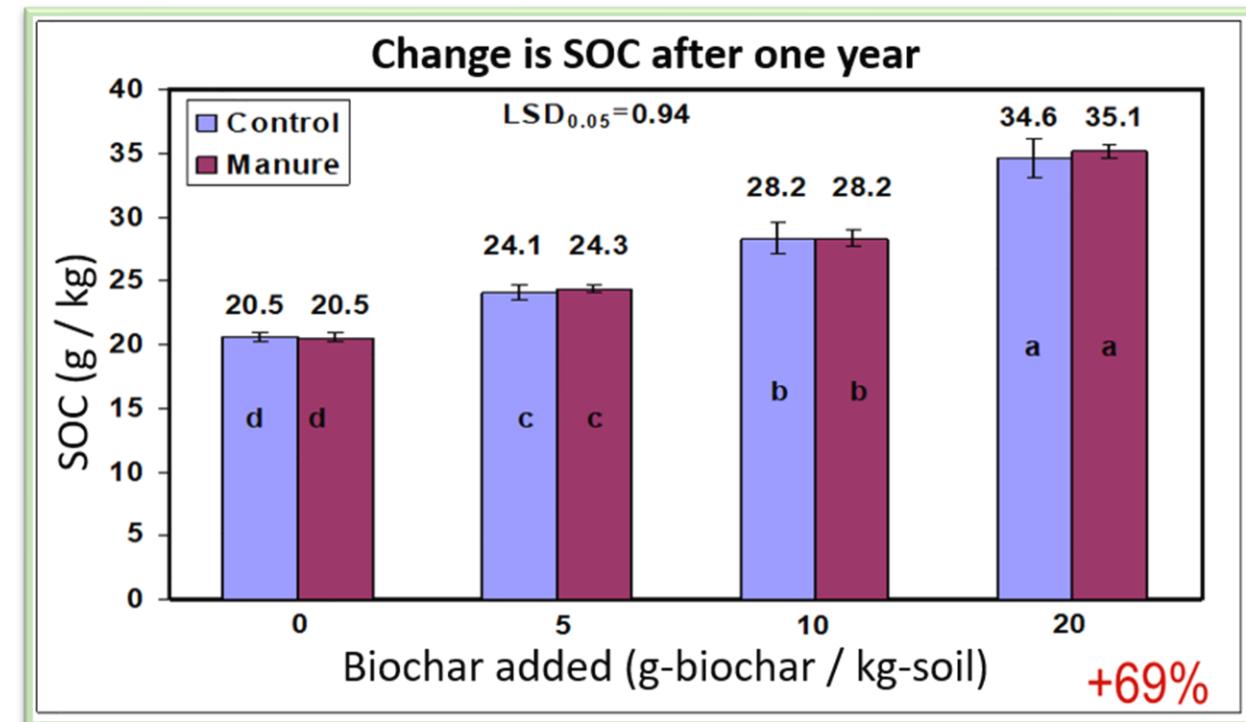
Biochar Carbon Removal Credits



Soil Biochar applications

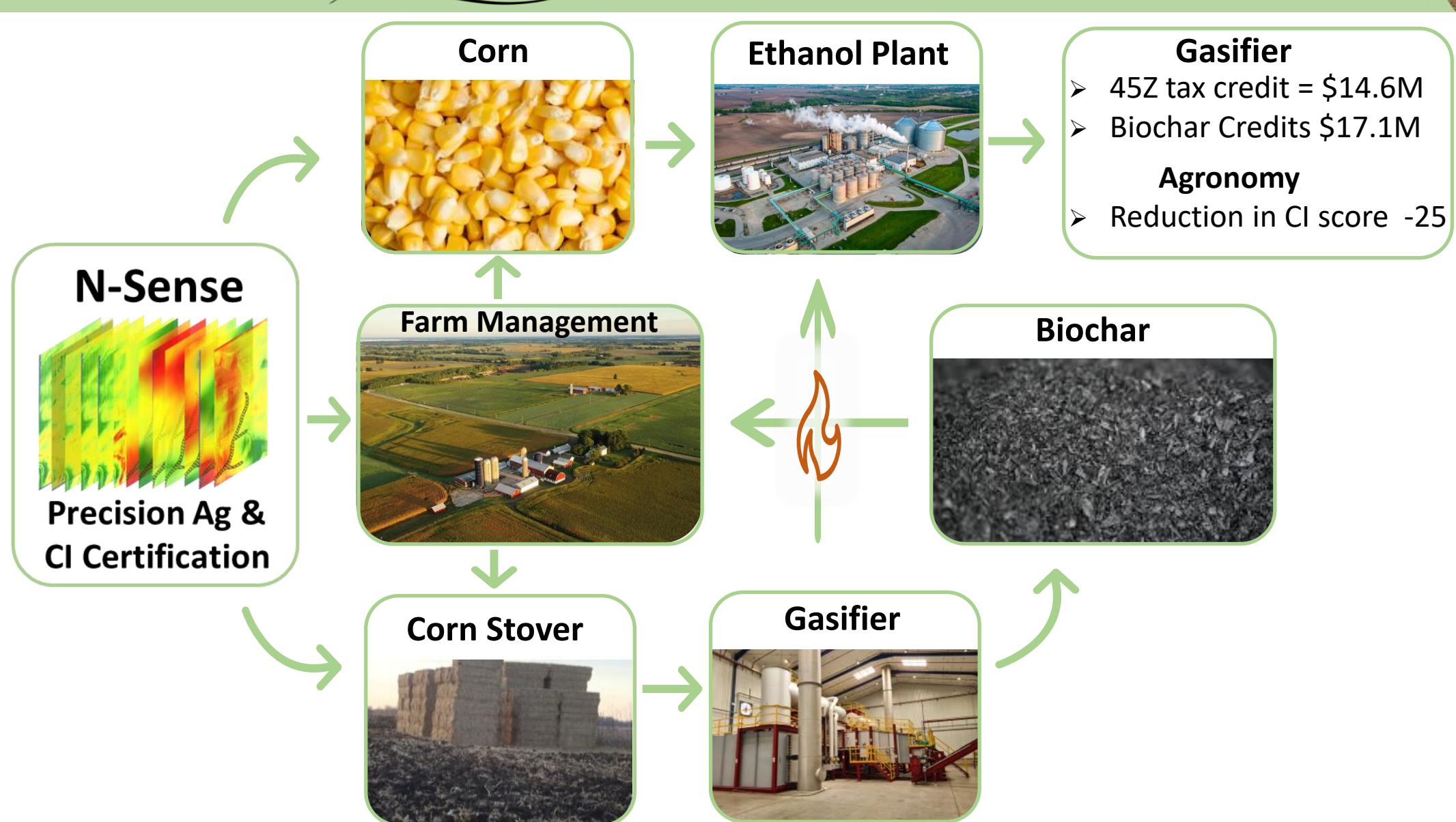


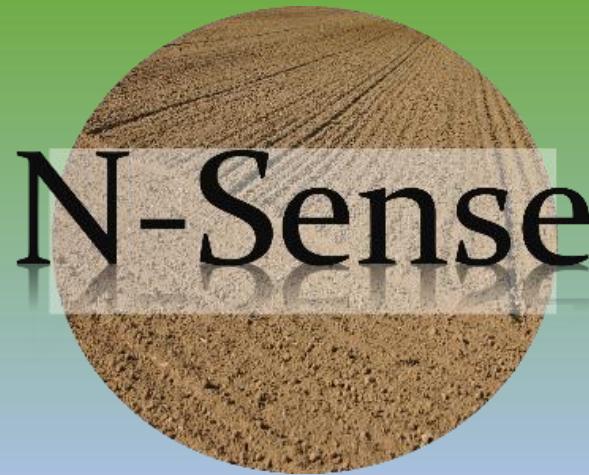
**Carbon credits = 114,278 tons CO₂e
@\$150/ton carbon credits = \$17.1M**



Biochar is not currently recognized for 45Z tax credits but biochar carbon removal credits are selling for >\$150/ton on the voluntary market.

N-Sense Enabled Ethanol-to-Jet Fuels





The Future of Precision Management

Precise • Practical • Profitable

<https://n-sense.us>

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Thank You!

