



ContinuumAg

From the Farm Up





7th generation Iowa

Farmer

- No-till since 1978 and Cover Crops since 2013

Forbes Under 30

Field Work Podcast Host

- To be a Visionary for lasting change and a Shepherd of God's creation

@Continuum_Ag





ContinuumAg

CI Scoring

From the Farm Up

- ✓ **Soil Health**
- ✓ **Carbon Intensity**
- ✓ **DATA!!!!**



Soil Health Principles

- Maximize soil armor
- Minimize chemical and mechanical disturbance
- Maintain living roots
- Foster species diversity
- Integrate livestock

- Mind your context
- Be committed

Offense not defense!!!



Maximize Soil Armor



Reduce Chemical and Physical Disturbance



Maintain Living Roots



Foster Species Diversity



Integrate Livestock



Big Picture:

The Global Finance sector needs CARBON SOLUTIONS

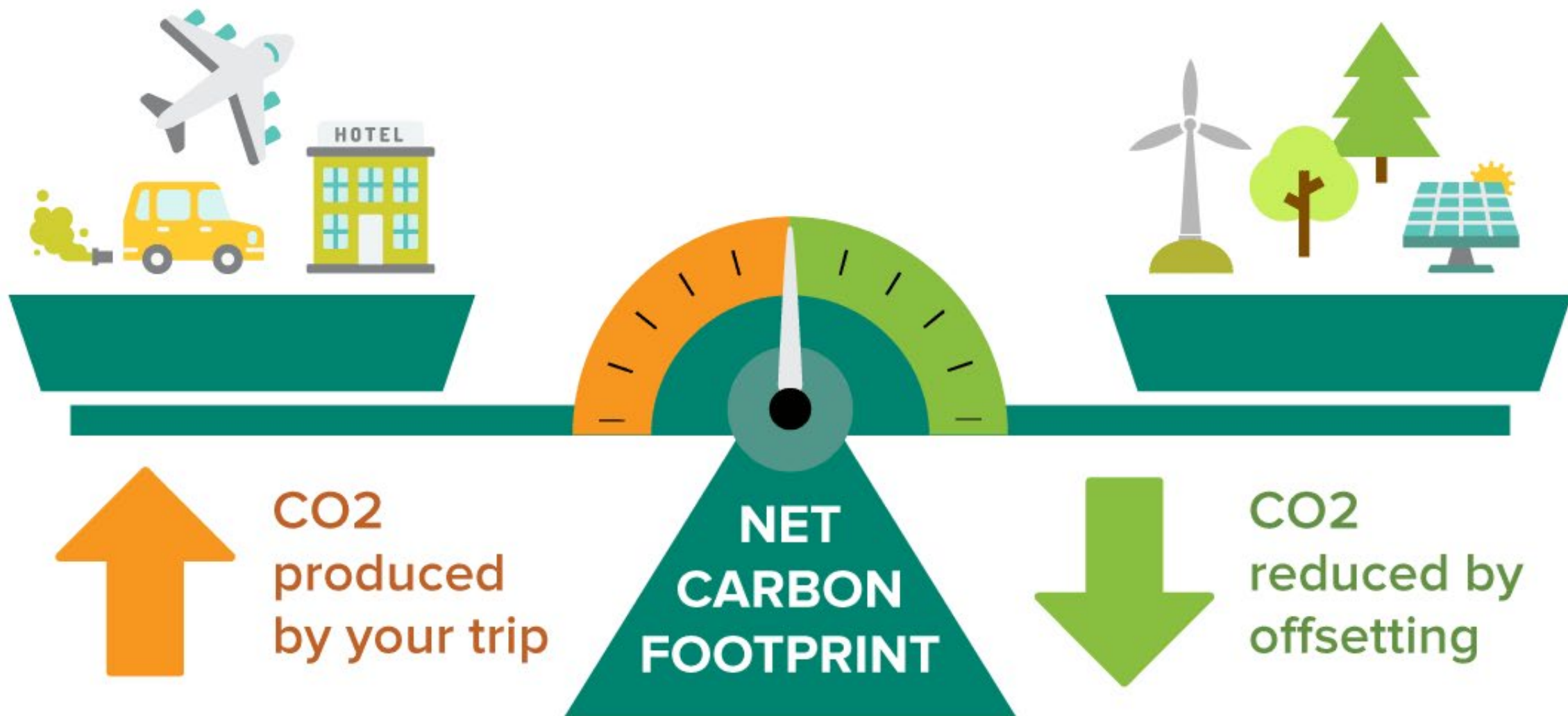
FINANCE SECTOR
\$130 trillion portfolio with
Carbon Neutral by 2050 goal

CORPORATIONS
The “Scope 3” carbon footprint
of the finance sector

FARMERS
The “Scope 3” carbon footprint
For the Corporate Supply Chain



CARBON OFFSETS ALLOW YOU TO BALANCE OUT YOUR EMISSIONS



CARBON OFFSETTING, INSETTING, vs CI

Carbon Offsetting:

- Voluntary carbon credits
- Anyone can buy
- Units: Tonnes of CO₂e
- Sold on the registry
- Additionality, permanence...
- Low prices due to competition
- 1% of global credits from ag
- Typically 10 year contracts

Carbon Insetting:

- Credits sold internal to the supply chain
- Units: Tonnes of CO₂e
- Not necessarily on registry
- Flexibility of rules and price
- Typically 1-3 year contracts

Carbon Intensity:

- CI Score sold as metric on the grain
- Units: g CO₂e/bu (or MJ)
- No registry
- DoE/IRS set the rules
- Tax credit driven financials
- No contracts



CO₂

SF₆

CH₄

N₂O

NF₃

HFCs

PFCs

INDIRECT EMISSIONS FROM PURCHASED ENERGY

PURCHASE OF ELECTRICITY, HEAT OR STEAM

DIRECT EMISSIONS

OTHER INDIRECT EMISSIONS

TREATMENT OF PURCHASED MATERIALS AND SERVICES

BUSINESS TRIPS

WASTE MANAGEMENT

RENTING OR LEASING VEHICLES

COMBUSTION OF FOSSIL FUELS

COMPANY VEHICLES

PROCESSED PRODUCTS

OUTSOURCED ACTIVITIES

Biofuel example:

Energy use

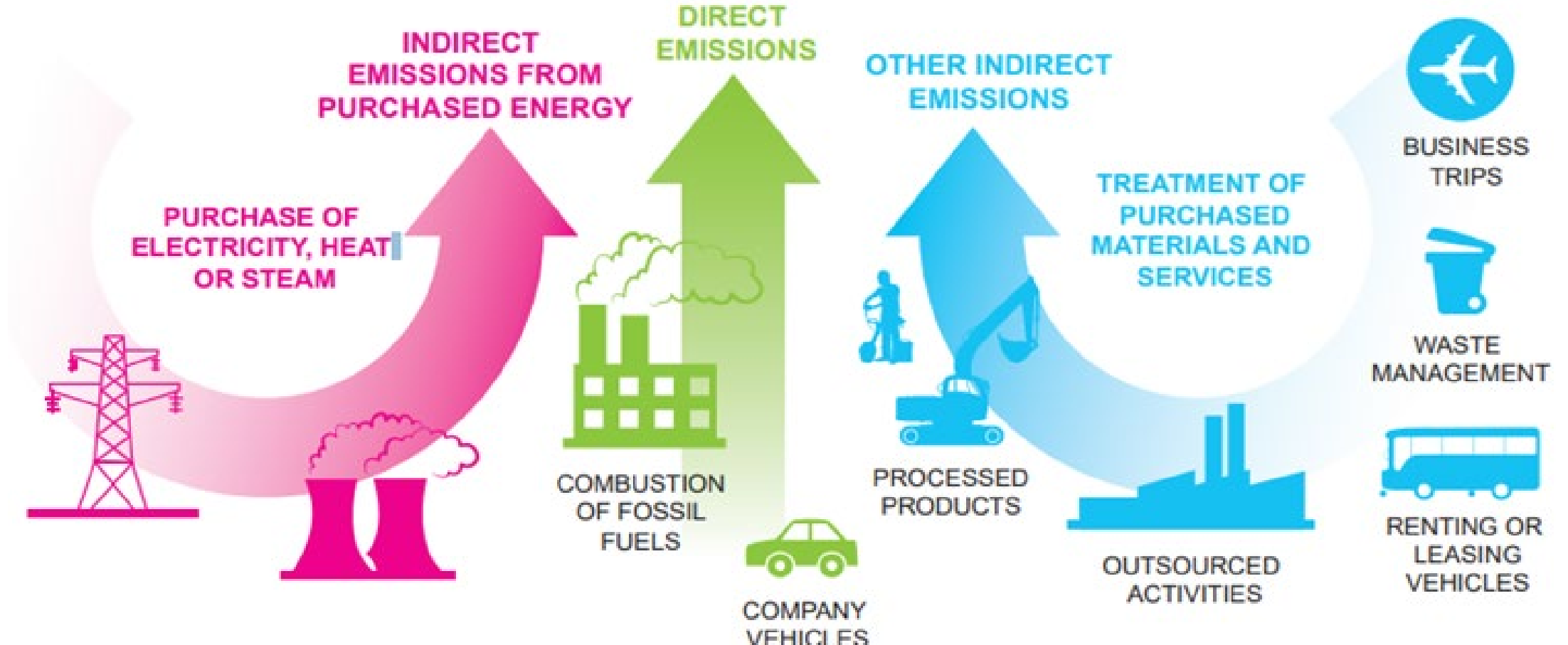
Direct emissions

Corn/soybeans

SCOPE 2

SCOPE 1

SCOPE 3





IRA Passes

Provision for Clean Fuel (45Z) tax credit and identifies GREET model as Scope 3 tool for measurement.

2022



Build Low CI Feedstock Supply

Continuum Ag connects low CI feedstock to biofuel "preferred partners."

2023-2024



Measure CI & Built Capacity

Integrated GREET into TopSoil, scored farmer network, created awareness.



Monetize Tax Credits

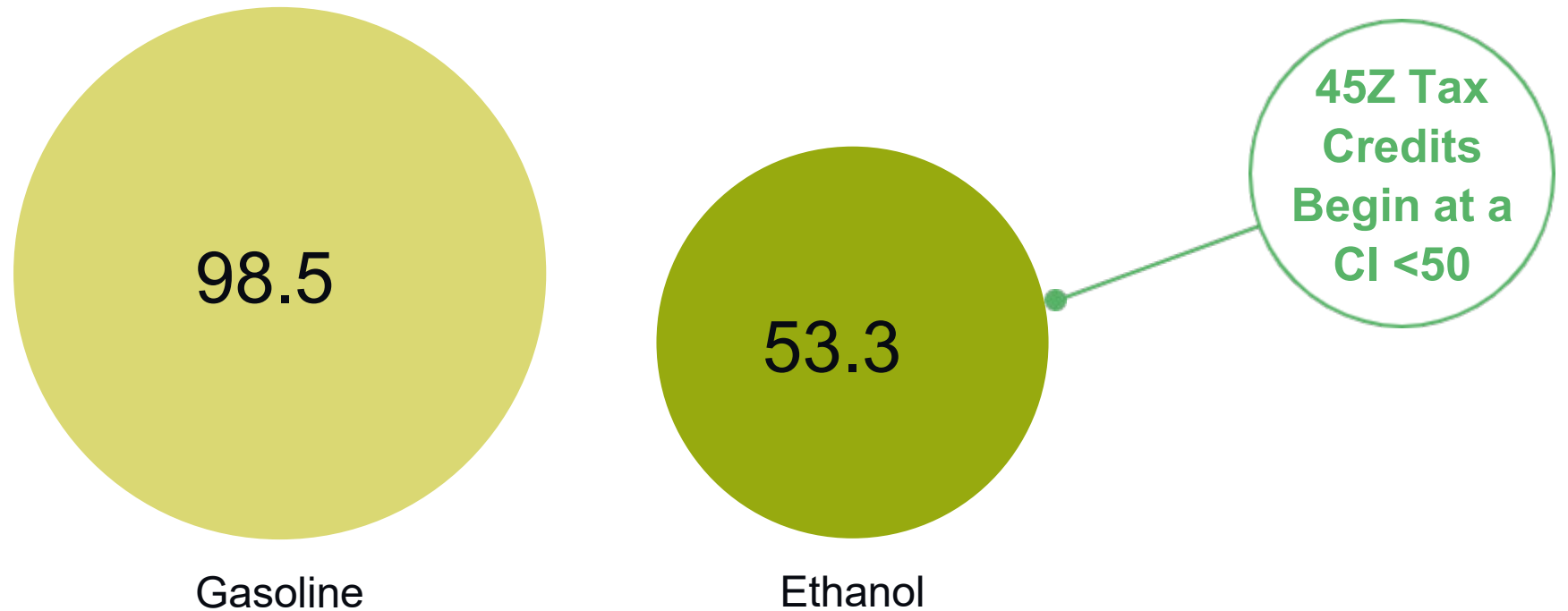
Biofuel producers monetize credits for biofuel produced on or after January 1, 2025 via direct pay, credit transfer, or carryback provision.

2025

Continuum Ag is the Biofuel Industry Partner for Verified Low CI Grain

Biofuel as a low carbon solution

Well-to-Wheels Greenhouse Gas Emissions (gCO₂e/MJ) of ethanol & gasoline



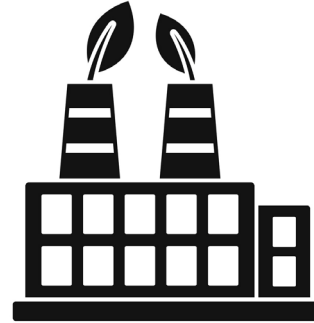
Ethanol carbon intensity is ~46% lower than gasoline carbon intensity.

45Z Money Flow



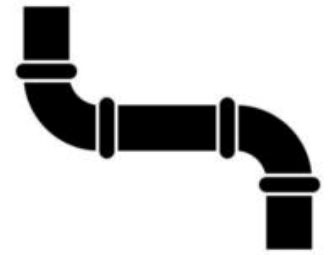
Federal Government

45Z tax credit:
\$0.02/CI/gal



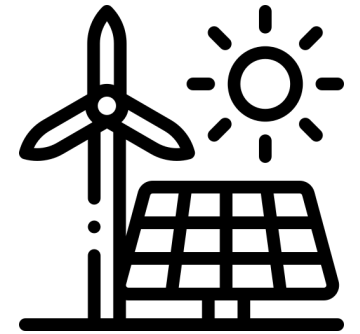
Biofuel Manufacturer

Scope 1



CO2 Pipelines (CCS)

Scope 2



Renewable energy

Scope 3



Low CI grain



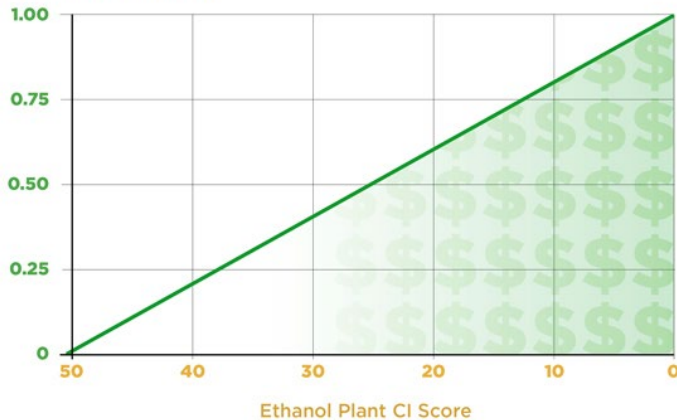
Biofuel Companies Must Reduce Feedstock CI to Capture 45Z Tax Credit Opportunity

Ethanol Plant Opportunity:

\$0.02/CI reduction/gal

ETHANOL CI CREDIT OPPORTUNITY

45Z Tax Credit (c/gal)

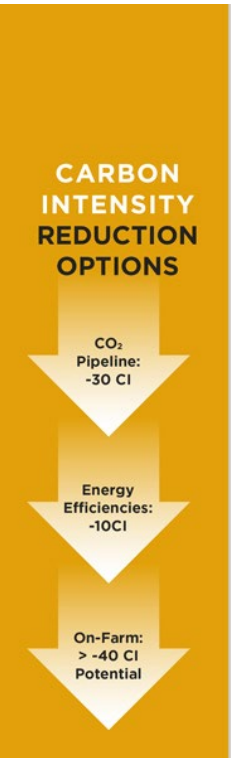
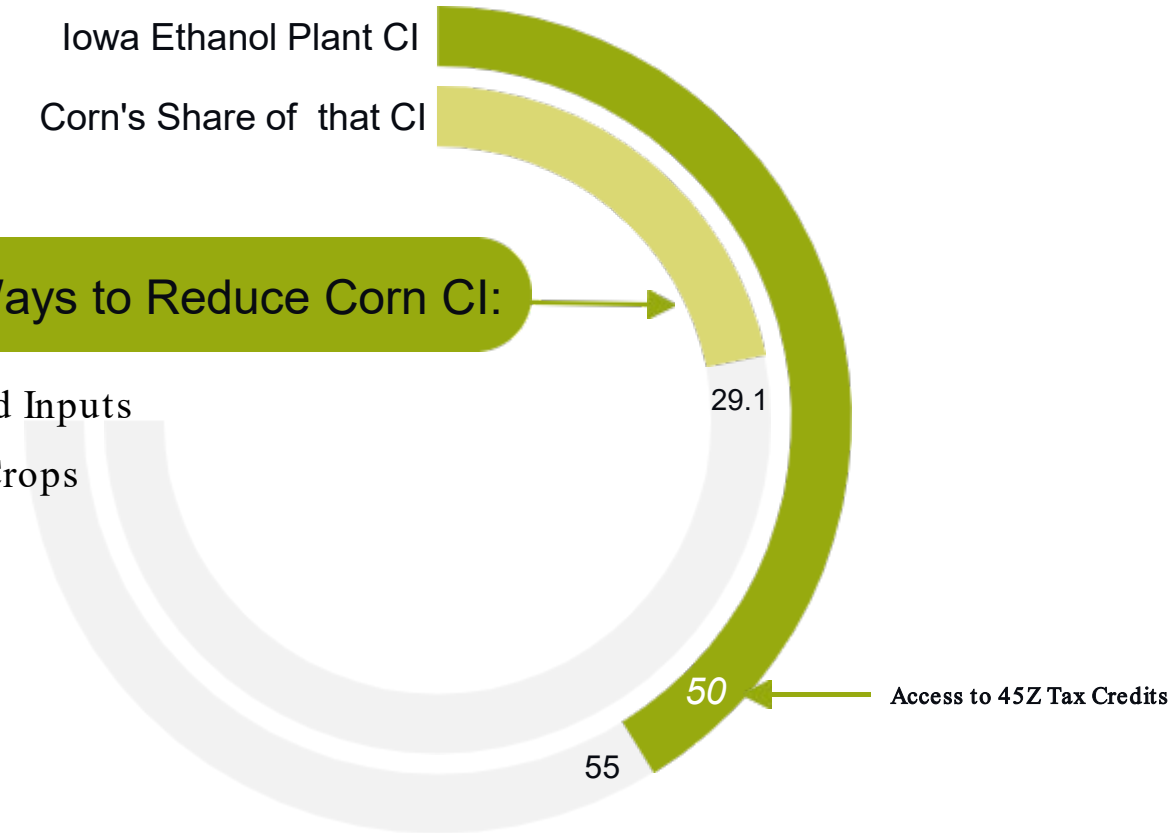


SOURCE: CONTINUUM AG; ILLUSTRATION: FARM JOURNAL

Iowa Ethanol Plant CI
Corn's Share of that CI

On-Farm Ways to Reduce Corn CI:

- Reduced Inputs
- Cover Crops
- Manure
- Tillage
- Yield

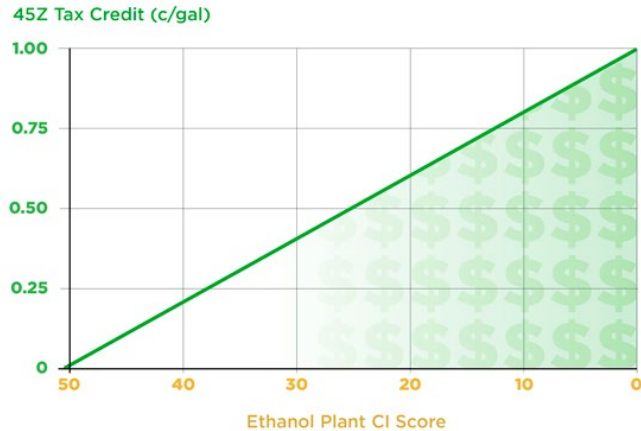


$(\$0.02/\text{CI}/\text{gal} \times 2.7\text{gal}/\text{bu} = \$0.054/\text{CI}/\text{bu})$

Topline tax credit Opportunity

45Z tax credit:
\$0.02/CI/gal

ETHANOL CI CREDIT OPPORTUNITY



SOURCE: CONTINUUM AG; ILLUSTRATION: FARM JOURNAL

TAX CREDIT DRIVEN BY CARBON INTENSITY SCORE

SOURCE: CONTINUUM AG; ILLUSTRATION: FARM JOURNAL

Crop opportunity:
\$0.054/CI/bu



Currently, the standard CI score for corn is **29.1**.

ON-FARM WAYS TO LOWER YOUR CI SCORE

- Cover Crops
- Reduced Inputs
- Tillage
- Manure
- Yield





SIGN-UP

Complete your free farm profile at TopSoil.ag



UNLOCK CI SCORE

See the value of your CI Score
See your CI Score, methods of improvement, and potential value



CI CERTIFICATION

This annual subscription is the first step to verify your acres.



ONBOARDING

Your Dealer or Regen Success Agronomist (RSA) will help you document the actuals.



DOCUMENT

Work with your Dealer or RSA to document every single pass across the field.



ATTEST BY SIGNING

Verify your information is true and give permission for your data to get validated.



YOU'RE CERTIFIED

Our Third Party Verifier provides their stamp of approval!



GET PAID

Deliver your bushels & collect premiums!

CI CERTIFICATION CUSTOMER JOURNEY

continuum.ag | 855.805.5700



ContinuumAg



99% off Discount Code: CA99

Dashboard

[Home](#)

Welcome to TopSoil! TopSoil is a trusted & secure platform built by farmers, for farmers.

The first step is to fill out your farm profile and then, visualize the value of your data!

CI CERTIFICATION



FARM
PROFILE



UNLOCK
YOUR CI



ADD FIELDS



INPUT DATA



VERIFY
DATA



SEND

[PURCHASE A SUBSCRIPTION](#)[LEARN MORE](#)

CI SCORE



FARM
PROFILE



YOUR CI

[PURCHASED](#)[LEARN MORE](#)

REGEN ADVICE



SOIL
SAMPLING



REGEN
ROADMAP

[PURCHASE A SUBSCRIPTION](#)[LEARN MORE](#)

99% off Discount Code: CA99

ADD CROP

Corn
Cover Crop Planting
Cover Crop Termination
Fertilizer
Tillage
Planting
Herbicide
Insecticide
Fungicide
Harvest
Irrigation

What crops have you planted in the past 10 years? Please include all cash crops, including double and relay crops.

- Alfalfa
- Almonds
- Barley
- Canola
- Corn - Non-GMO
- Corn - Organic
- Corn - Seed
- Corn - Silage
- Cotton
- Cucumbers
- Cucumbers - Organic
- Cotton - Organic
- Hemp
- Kernza
- Hay
- Milo
- Milo - Non-GMO
- Kidney Beans
- Oats
- Onions
- Milo - Organic
- Other
- Other Fruit
- Orchard Fruit
- Peanuts
- Peas
- Pasture
- Potatoes
- Rice
- Peas - Organic
- Soybeans - Non-GMO
- Soybeans - Organic
- Rye - Cereal
- Sunflowers
- Sunflowers - Organic
- Sugar Beets
- Tobacco
- Tomatoes
- Sweet Potatoes
- Vegetables
- Tomatoes - Organic
- White Corn
- Wheat - Organic

Next, let's plan out your crop year

NEXT

<input checked="" type="checkbox"/> I don't use +
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<input type="checkbox"/> I don't use +
<input checked="" type="checkbox"/> I don't use +

99% off Discount Code: CA99

24.8*
g GHG/MJ 
YOUR CURRENT CI SCORE

*Based on the 2022 Argonne GREET model

YOUR POTENTIAL CI SCORE

\$ 51 /ac \$ 0.23 /bu

Estimated value to biofuel company based on Standard 29.1 Score

Estimated value to biofuel company based on Standard 29.1 Score

CI Calculator

Cover Crop

Tillage

Reduced Till

4R (Right time, Right place, Right form, and Right rate)

Yield



220

Anhydrous Ammonia



165

Potash



150

32% UAN



40

Additional Fertilizers

Recalculate

Purchase CI Certification

99% off Discount Code: CA99

24.8*
g GHG/MJ 
YOUR CURRENT CI SCORE

*Based on the 2022 Argonne GREET model

9.2*
g GHG/MJ
YOUR POTENTIAL CI SCORE

*Based on the 2022 Argonne GREET model

\$ 51 /ac \$ 0.23 /bu

Estimated value to biofuel company based on Standard 29.1 Score

\$ 236 /ac \$ 1.07 /bu

Estimated value to biofuel company based on Standard 29.1 Score

CI Calculator

Cover Crop



Tillage

Reduced Till



4R (Right time, Right place, Right form, and Right rate)



Yield



220

Anhydrous Ammonia



165

Potash



150

32% UAN



40

Additional Fertilizers



Recalculate

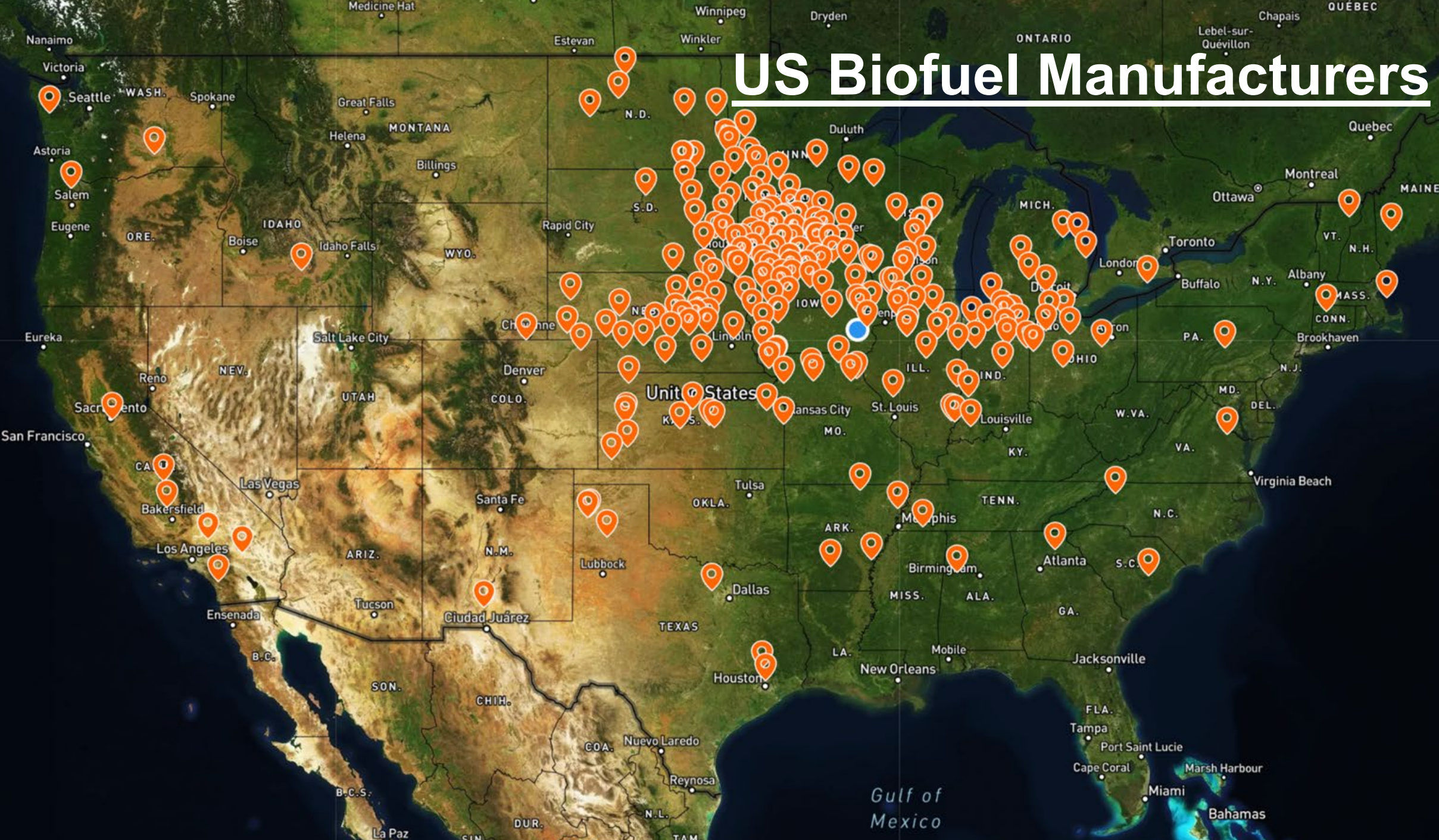
Purchase CI Certification

Why I'm so excited

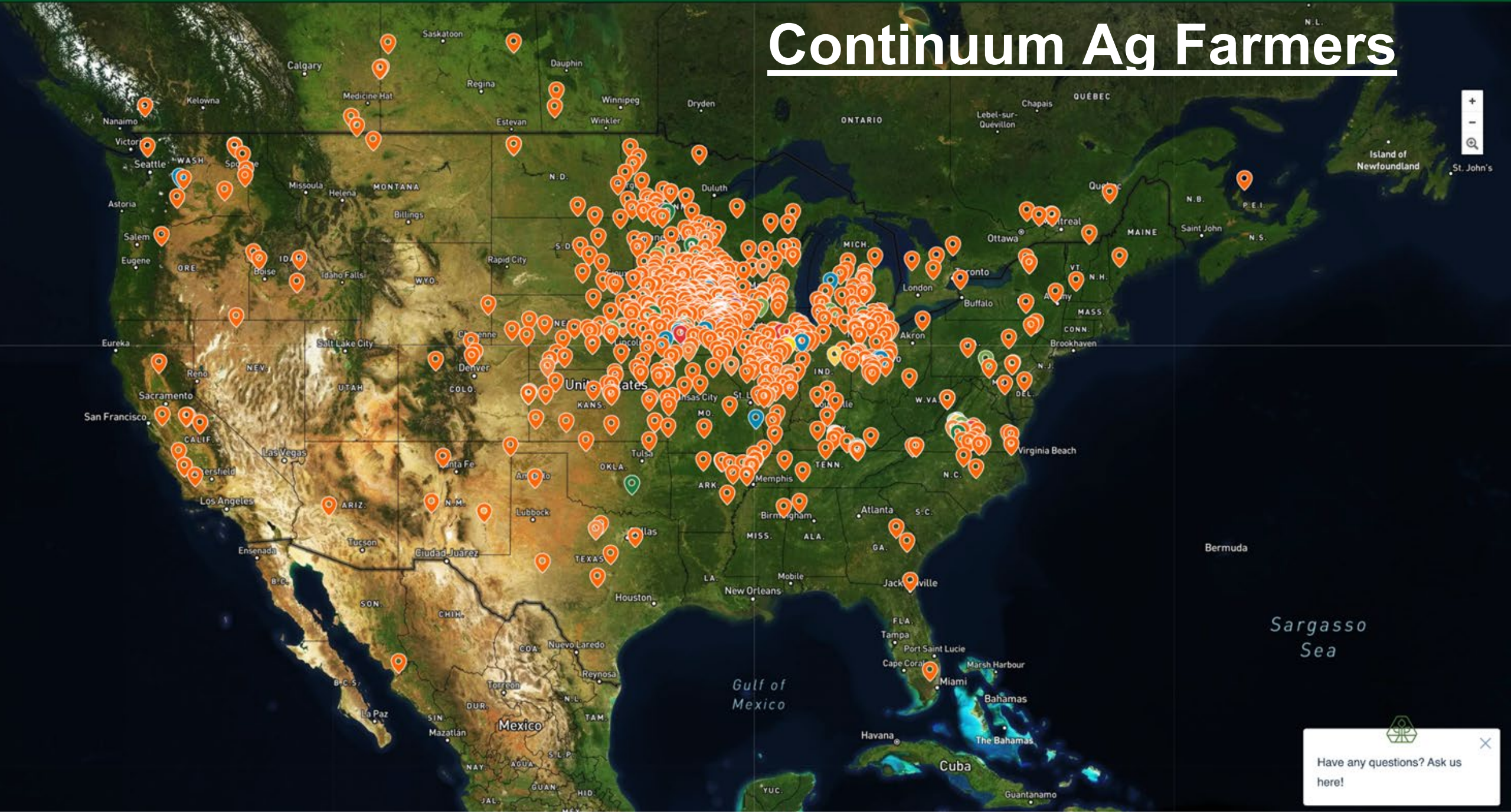
- -4.1 CI score
- 212bu/ac corn in 2023
- My local ethanol plant: 2.89gal/bu
- My local potential value: \$0.0578/CI/bu
- \$1.92/bu value to share (\$406/ac)
- Positioned to make \$0.96/bu (\$203/ac)



US Biofuel Manufacturers



Continuum Ag Farmers




 Have any questions? Ask us here!



Contact Info

108 W Main St, Washington, IA 52353

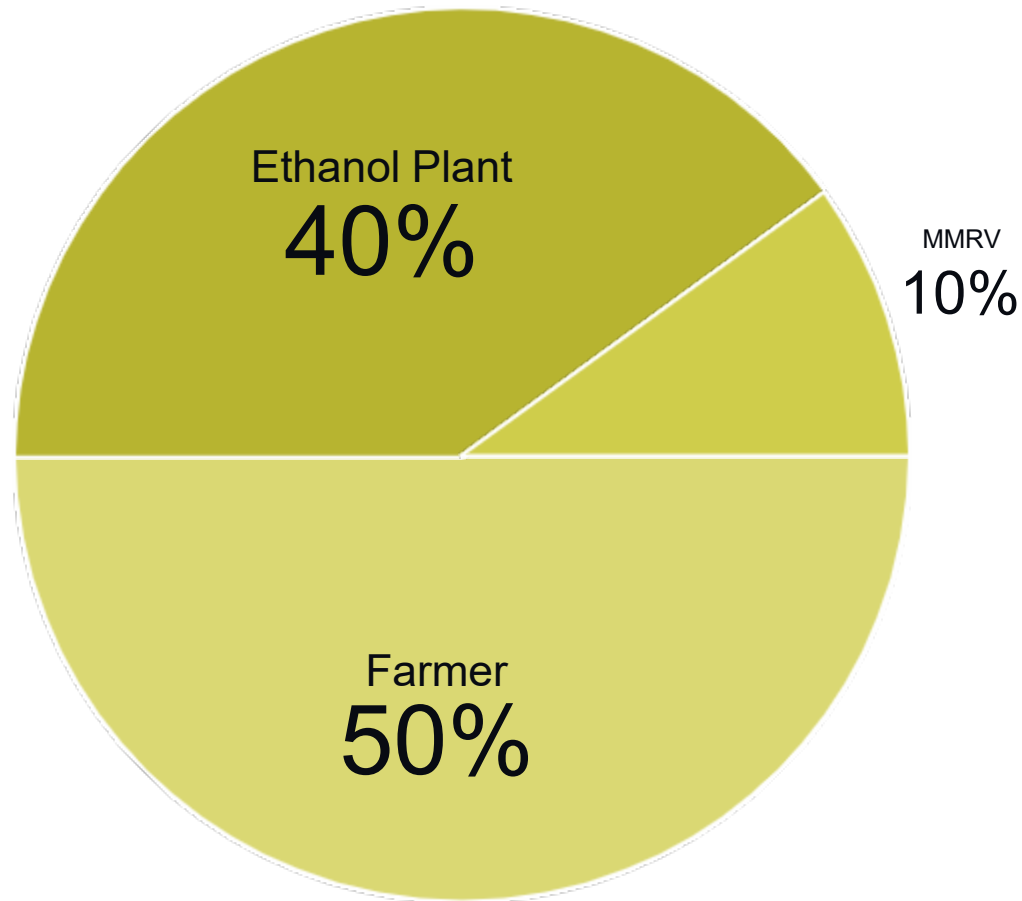
 (319) 461-9056

 mitchell@continuum.ag

 @continuum_ag



Example 45Z Tax Credit Allocation



Example Tax Credit Allocation

● Embedded Costs

- Data collection and measurement
- Third-party audit
- Tax credit creation
- Biofuel data collection
- Tax Credit resell/ financing

Data is the key

1. Visibility - Know your scores and what your data is worth
2. Control - Own your data and control your say-so
3. Rewards - Position yourself to capitalize on these opportunities



Start today! Scan and you'll get an email.

mitchell@continuum.ag

319-461-9056

@ContinuumAg



<https://bit.ly/3Go6aVu>



<https://continuum.ag>

<https://topsoil.ag>

Business Model/Next steps

1. Visit <https://topsoil.ag>
2. Complete the farm profile
3. On the dashboard subscribe to CI Certification - \$5/ac
 - Gets you verified CI Scores for every bushel
4. Unlock your CI Score if you aren't ready to Certify - \$500



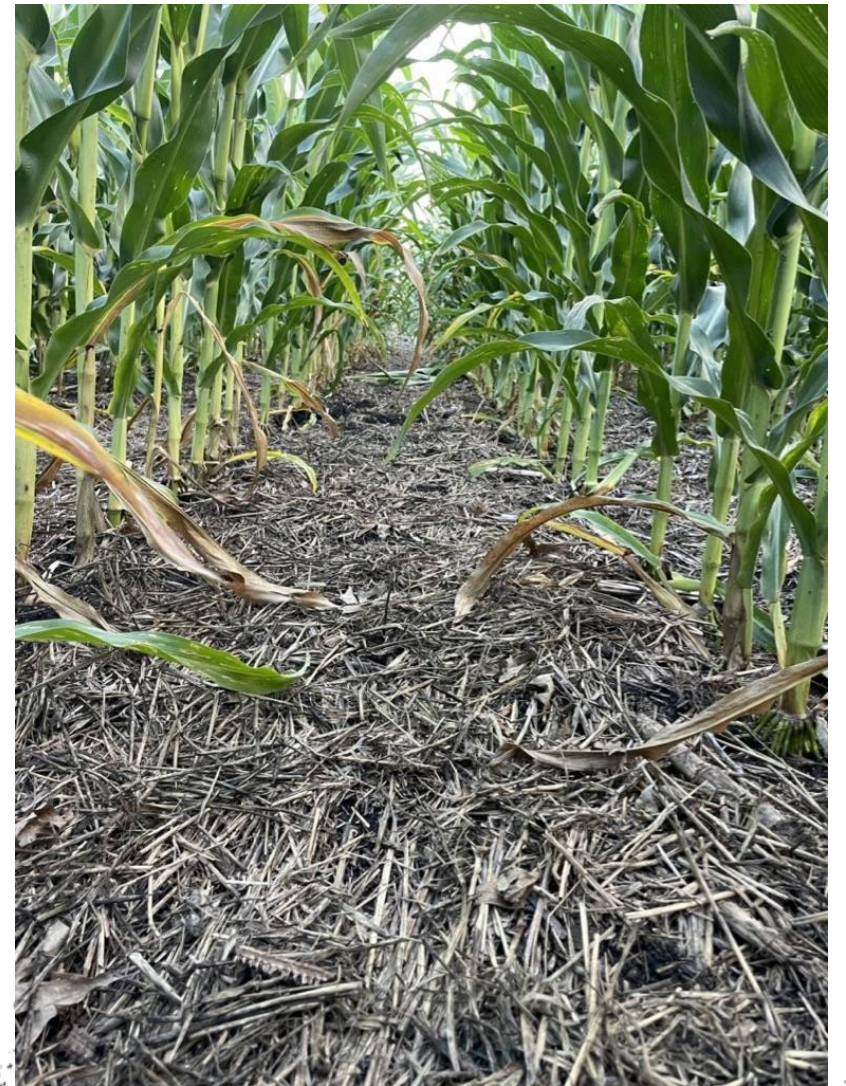
Maximize Soil Armor

- **Chemistry program: Suppress weeds**
 - Up to 75% herbicide reduction
 - Dad's 3 R's of cereal rye:
 - Rye Replaces Residuals



Maximize Soil Armor

- **Moisture management program**
 - **Reduced crop insurance costs**
 - **Trafficability**
 - **Flood mitigation**
 - **Drought mitigation**



Maximize Soil Armor

- Erosion control program
 - Improve water quality
 - Reduce gullies
 - Control water
 - Keep your nutrients in the field



Account No.: 300
 Invoice No.:
 Date Recd: 4/24/2023
 Date Repd: 4/26/2023

Name:
 Company: CONTINUUM AG
 Address: 108 W MAIN ST
 City, State, ZIP: WASHINGTON, IA 52353

Grower: HORA
 Field ID: HORA HOME W
 Sample ID 1: 8
 Sample ID 2: C6N1NI
 Sample Depth: 0-6

TOTAL NUTRIENT DIGESTION ANALYSIS REPORT

Lab # 9824

Nutrient	Nutrient Results		Nutrients, Lbs/A		Fertilizer Equivalent, lbs of Fert*	
	Value	Units	Value	Value	Value	Reference Fertilizer
Carbon	2.79	% C	50220	83700	60% C	
Nitrogen	0.233	% N	4194	9117	46-0-0	
Phosphorus	0.026	% P	463	2041	11-52-0 at 22.7% P	
Potassium	0.095	% K	1710	3314	0-0-60 at 51.6% K	
Calcium	0.349	% Ca	6279	28542	Gypsum-22% Ca	
Magnesium	0.188	% Mg	3388	32265	K-Mag-10.5% Mg	
Sulfur	0.012	% S	223	927	AMS-24% S	
Zinc	37.01	ppm Zn	66.6	190	ZnSO4-35% Zn	
Iron	9726.96	ppm Fe	17509	87543	FeSO4-20% Fe	
Manganese	218.81	ppm Mn	394	1271	MnSO4-31% Mn	
Copper	11.44	ppm Cu	20.6	82	CuSO4-25% Cu	
Boron	6.32	ppm B	11.4	103	Borax-11% B	
Sodium	0.008	% Na	144			
Molybdenum	0.03	ppm Mo	0.1	0.2	NaMoO4-39% Mo	
Aluminum	9287.14	ppm Al	16717			
C:N Ratio	12.0					

Reviewer Comments

*Lbs of fertilizer needed to be equal to Lbs of soil nutrient/A



Maximize Soil Armor

- **Temperature management program**
 - **Microbes like sunny and 75**
 - **Example**
 - **91 degree day**
 - **100 at top of cover crop canopy**
 - **76 at soil surface**
 - **126 on bare ground**



Maximize Soil Armor

- **Soil microbiome protection program**
 - **Don't disturb the microbial house**
 - **Provide food**
 - **Diverse food that breaks down at different rates**
 - **Longer term nutrient cycling**



Reduce Chemical and Physical Disturbance

- Mother nature wants balance and stability
- Reducing tillage enables structure to build
- Improve infiltration and drainage
 - National average = 0.5in per hour
 - Hora farm = 4in in under 5 minutes
 - 1" 0:06
 - 2" 0:26
 - 3" 1:13
 - 4" 2:26



Reduce Chemical and Physical Disturbance

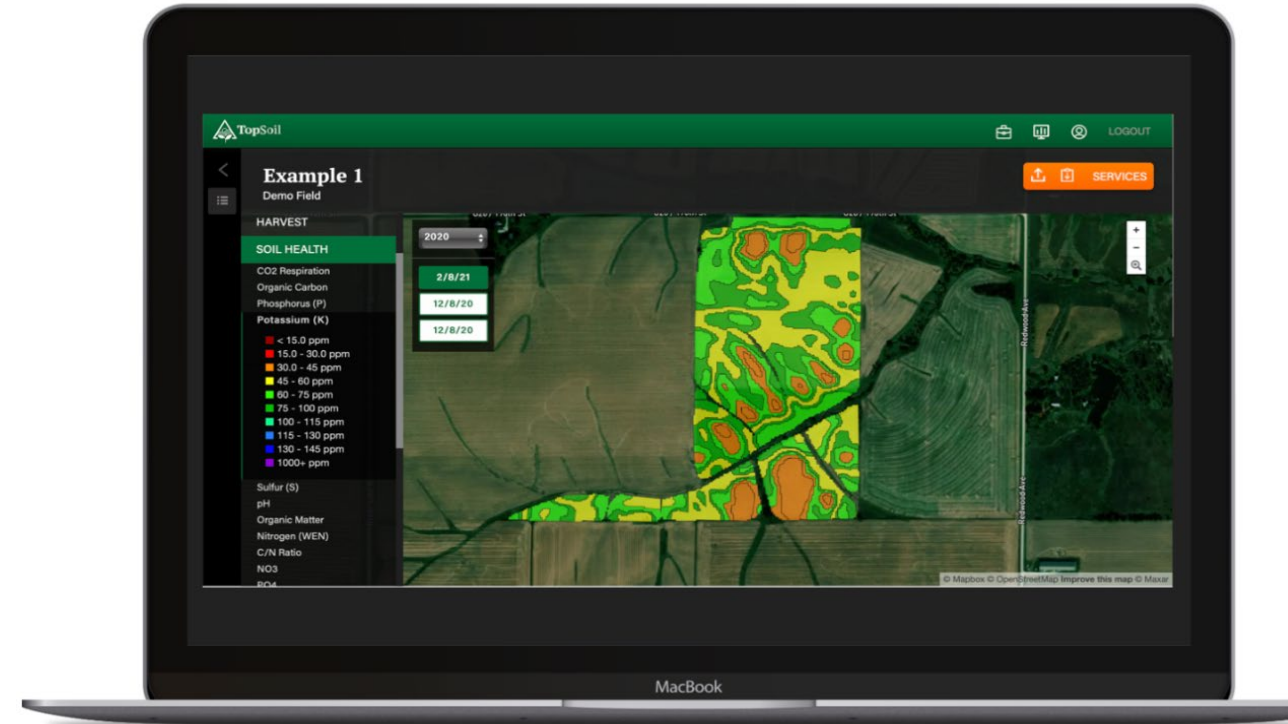
- **High salts and chemicals impede nutrient availability**
- **Let mother nature do her thing and keep the dollars in your pocket**
 - **N reduced from 230 to 155 units/ac**
 - **P reduced from 250lbs MAP to 50**
 - **K reduced from 150lbs Potash to 0**
 - **Lime reduced to zero**
 - **Residuals reduced to zero**
 - **Insecticides reduced 95%**
 - **Fungicide reduced 66%**



Haney Soil Health Testing

- Quantify plant available nutrients
- Quantify microbe food (WEOC)
- Quantify microbial activity (CO2 burst)
- Quantify traditional parameters

We use 10ac zones via TopSoil.ag



Reading the Haney test

- Water extractable nutrients
- H3A extraction measures plant available nutrients
 - This is different than your traditional extraction
- Biological functions drive chemical cycles
- The test is very responsive to management, weather, and soil conditions
 - Keep this in mind as you read the results. A weird number could be caused by weird soil conditions.



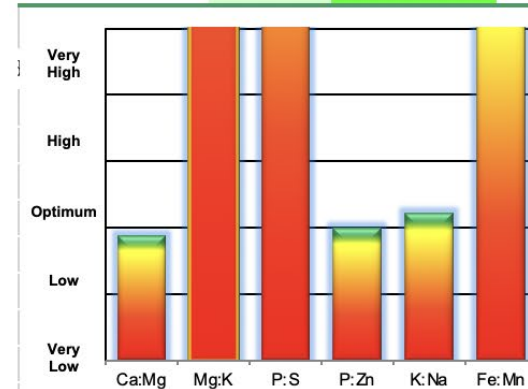
Soil Health and Fertility Report

Submitted by Continuum Ag
 Client: Brian Hora
 Location: HORA HOME
 Sample ID: 7

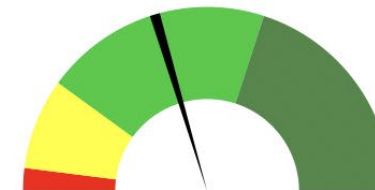
File Number: 76077
 Sample Date: 11/19/20

Intended Crop: Corn
 Crop Yield (bu/a): 200

Soil Health Factors	Ranking:	Value of Available Nutrients per acre		
IR Gas Analyzer	149.6 Very High	N + P ₂ O ₅ + K ₂ O = \$134.33		
*WEOC (ppm)	278.0 High	Available Nutrients (lbs/acre)		
*WEON (ppm)	46.9 Very High	N	P ₂ O ₅	K ₂ O
C:N ratio	5.9 Optimum	97	46	101



*NUTRIENT ANALYSIS			
Analysis	Units	Level Found	
Nitrate-N	ppm	1.3	
Ammonium-N	ppm	< 0.5	
Total Inorganic N	ppm	2	
Estimated Biological N	lb/a	94	
Estimated N for Crop	lb/a	97	
Phosphorus as P	ppm	10	
Potassium as K	ppm	84	
Calcium	lb/a	1158	
Magnesium	lb/a	244	
Sodium	lb/a	20	
Sulfur as S	ppm	3	
Boron	ppm	0.35	
Iron	ppm	19	
Manganese	ppm	1	
Copper	ppm	0.20	
Zinc	ppm	0.48	
*PECEC		4.19	
pH (H ₂ O 1:1)		6.6	
Buffer pH (Sikora)		7.1	
Organic Matter (360°C LOI) %		5.9	
Soluble Salts	ppm	122.0	
Ca:Mg	Ca+Mg:Al	Ca %	Mg %



22.7

Soil Health Score

Notes and Recommendations

USDA Cover Crop Recommendation

4.75	20.03	69.1	14.6
4.5 to 8	>1.7		

Maintain Living Roots

- **Stabilize nutrients over the winter**
 - Typically 25lbs of N for a 12” cover crop
- **Release nutrients in-season**
 - 6 weeks after termination
- **Unlock unavailable nutrients**
 - WEOC
 - CO₂ burst
 - Organic N
 - K
 - P



Maintain Living Roots

- **Manage soil moisture**
 - Plant green then terminate when hot & dry
- **Feed the system with liquid carbon**
 - Plants put up to 75% of C back into the soil
- **Sequester carbon and build OM**
 - OM is 58% carbon
 - OM is 90% microbial necromass
- **Reduce carbon intensity**





Foster Species Diversity

- Diverse plants feed diverse microbes
- Use the C:N ratio of the system to your advantage
 - Cereal rye C:N can be >50:1
 - Force the soybeans to nodulate more
 - Reaching a 200lb/ac organic N credit
- Break up disease and pest cycles
- Diversify revenue streams



Foster Species Diversity

- **Break up disease and pest cycles**
- **Diversify revenue streams**
 - **Relay crop allows for 2 crops on the same acre in northern conditions**
 - **30bu/ac rye + 70bu/ac beans**
 - **Solid seeded rye and beans, provides options**



Integrate Livestock

- **Expand market access**
 - **Animal markets often inverse crop**
- **Cycle nutrients**
 - **Variable rate fertilizer :)**
 - **Let the livestock return nutrients for you**
- **Livestock can be an array of creatures**
 - **Earthworm manure is some of the best stuff out there**
 - **17 worms per cubic foot**



Integrate Livestock

- Saliva, urine, and manure stimulates microbes
- Livestock impact stimulates plant activity
 - Plants respond quickest when they are grazed down to 50% or less
- Foster beneficial insects and pollinators

