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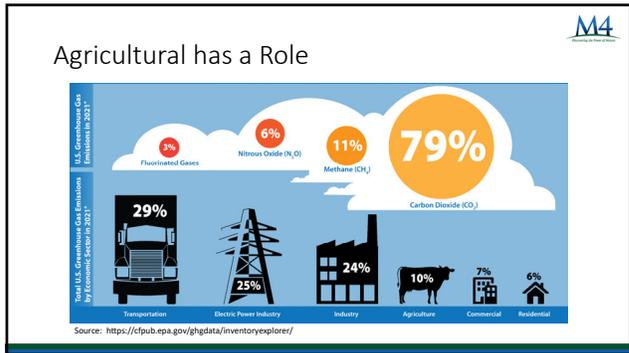
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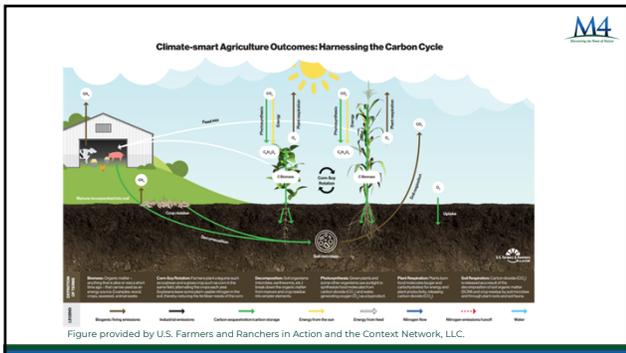
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How are farmers getting paid?

- Outcome based  
*(paid per MT of carbon sequestered)*
- Paid by practice
- Premium per bushel

Soil and Water Outcomes Fund<sup>®</sup>

TRUTERRA

STAR

ForGround by Bayer

ADM

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### Potential Markets to Monetize Carbon

**Voluntary Carbon Offset Markets**

Corporate Carbon Accounting

**Supplier Insetting Programs and Consumer Preference**

Carbon Accounting &/or Branding

**Compliance Markets (Biofuels)**

LCA (Carbon Intensity)

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### Voluntary Carbon Offset Market

Reducing Carbon Footprint OUTSIDE the Ag Supply Chain

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### Offsets versus Insetting

**Carbon offsets**

- Companies offset their emissions by doing something extra, so they don't have to change how they do things.

**Carbon insets**

- Companies "inset" by changing how they do things.

Slide Credit: Veronica Bradley

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Major companies have made plans to reduce their carbon footprint.

They establish goals, most in line with what the latest climate science deems needed to meet the goals of the Paris Agreement.

Typically expressed as a % reduction from a baseline year and measured in tons of CO<sub>2</sub>e.

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### Organizing a Corporate Inventory

**GREENHOUSE GAS PROTOCOL**

- Scope 1:** direct emissions
- Scope 2:** purchased electricity, steam, heating & cooling
- Scope 3:** 15 categories of indirect upstream & downstream emissions in your supply chain

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### Multiple Players in the Value Chain

**1**

Buyer

Example(s)

Microsoft

**2**

Registry

Example(s)

VERRA, Gold Standard, American Registry of Carbon Assets

**3**

Aggregator

Example(s)

TRUFERRA

**4**

Grower

Example(s)

Indigo

Protocols: →

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**M4**

### Carbon Aggregators (examples)

Multiple companies and programs contracting with growers. Some programs are practice based (\$/ac based on management practice) and others based on estimates of additional sequestered carbon (\$/ac based on MT of carbon).

Illustrative lists only; no implied endorsement

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**M4**

### What is M(M)RV?

- MMRV — Monitoring, Measurement, Reporting, and Verification
  - Some Aggregators have their own internal MMRV systems.
  - Also stand-alone companies providing those services.
- Options
  - Remote sensing (satellites), models, in-field verification (soil sampling, etc.)

Illustrative lists only; no implied endorsement

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### Thoughts on the Offset Market

- For offset credits to have value, the protocols (and aggregators) must demonstrate:
  - Additionality—GHG reductions are *additional* if they would *not* have occurred in the absence of a market for offset credits
  - Permanence—carbon needs to be kept out (sequestered) of the atmosphere for 100 years to be considered “permanent.”
- Credit value has, typically, been < \$30 per metric ton for farmers.
  - How many credits can be generated per acre depends upon the climate smart practices utilized and verification.

**PAY ENOUGH, LARGE-FARM SURVEY FINDS**

By FERN's Ag Insider 10/21/2023

By contract, nearly half said the minimum payment they would accept was “\$60 per acre or more.” Fourteen percent said their minimum was \$30-\$45 an acre and 9% wanted \$45-\$60 an acre.

Slide Credit: Veronica Bradley

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### Insetting Markets

Reducing Carbon Footprint INSIDE the Value Chain

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### Offsets versus Insetting

• **Carbon offsets**

• Companies offset their emissions by doing something extra, so they don't have to change how they do things.

• **Carbon insets**

• Companies “inset” by changing how they do things.

Slide Credit: Veronica Bradley

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### Example: Food and Beverage Companies

**KELLOGG ANNOUNCES REGENERATIVE AG PROGRAM FOR LOWER MISSISSIPPI BASIN RICE FARMERS**

By Successful Farming Staff 10/19/2023

More than half of the world's population relies on rice as a primary source of nourishment. Yet, rice production is responsible for an estimated 9% of total global methane emissions, a greenhouse gas that is 80 times more potent than carbon dioxide.

In support of Kellogg's Better Done global purpose platform, Kellogg Company today announced Kellogg's Incentive, a \$2 million, five-year program that will partner with Lower Mississippi River Basin rice farmers to reduce their climate impact.

**PepsiCo to invest \$216 million in regenerative ag**

Jeff Gehl

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Markets & Analytics

### Example: Brazen™ Beef (Tyson)



- Potential for premiums to livestock producers that lower their carbon footprint by at least 10%
  - Source & Age
  - CARE Certified + quantify emissions
- Grass Fed, Grain Finished
  - Must be grass until feedlot

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Markets & Analytics

### Example: Bayer ForGround (2024 Program)



**Bayer Carbon Program Payment**

**Potential Payments**

- **\$48 Per Acre**: Carbon sequestration (100% of 48¢ per acre)
- **\$6 Per Acre**: Nitrogen Management Programs (50% of 12¢ per acre)
- **\$6 Per Acre**: Removal Bonuses (50% of 12¢ per acre)

**ForGround by Bayer**

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Markets & Analytics

### Example: Truterra (2025 Program)

- Truterra Carbon Program
  - \$30 per metric ton, with \$2 per acre minimum
  - 10 acre minimum
  - Enrollment cap of 1.5 million acres
- Truterra Early Adopter Program—USDA Climate Smart Ag Supported Program
  - Reward eligible farmers who made the transition to strip/no-till before crop year 2015.
  - \$25 per acre.



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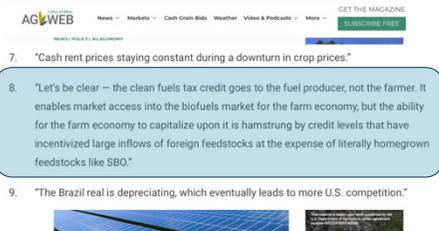
### Compliance (Regulated) Markets

LCFS Programs and Biofuels

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**M4**  
Markets & Analytics

### What could impact agriculture in 2025



7. "Cash rent prices staying constant during a downturn in crop prices."
8. "Let's be clear — the clean fuels tax credit goes to the fuel producer, not the farmer. It enables market access into the biofuels market for the farm economy, but the ability for the farm economy to capitalize upon it is hamstrung by credit levels that have incentivized large inflows of foreign feedstocks at the expense of literally homegrown feedstocks like SBO."
9. "The Brazil real is depreciating, which eventually leads to more U.S. competition."

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**M4**  
Markets & Analytics

### Carbon intensity important parameter of multiple programs

**452 Tax Credits**

**What's in the Inflation Reduction Act?**

The Congressional Budget Office has estimated that the energy and climate programs in the Inflation Reduction Act will cost \$391 billion. This number is probably increased because of uncertainties about spending on tax credits and other factors. Here are the parts that add up to the \$391 total.

Building Efficiency, Electrification, Transmission, Industrial, DOE	\$12 billion
Conservation, Rural Development, Forestry	\$18 billion
Clean Fuel and Vehicle Tax Credits	\$18 billion
Clean Manufacturing Tax Credit	\$27 billion
Individual Clean Energy Excesses	\$37 billion
Other Energy and Climate Spending	\$18 billion
<b>TOTAL</b>	<b>\$191 billion</b>
Clean Electricity Tax Credits	\$44 billion
Air Pollution, Hazardous Materials, Transportation and Infrastructure	\$40 billion

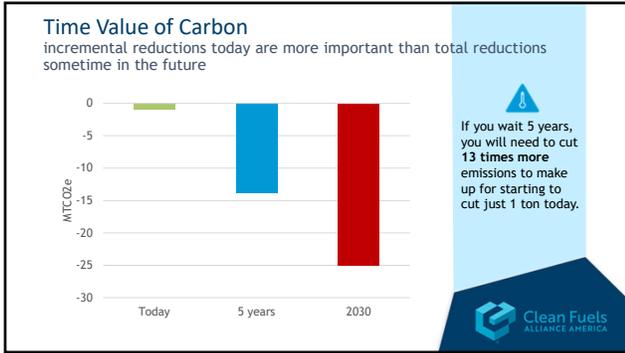
NOTE: Percentages do not equal 100% due to rounding. SOURCE: CBO. FILE: M4/2024/Climate News

**Low Carbon Fuel Standards (LCFS)**

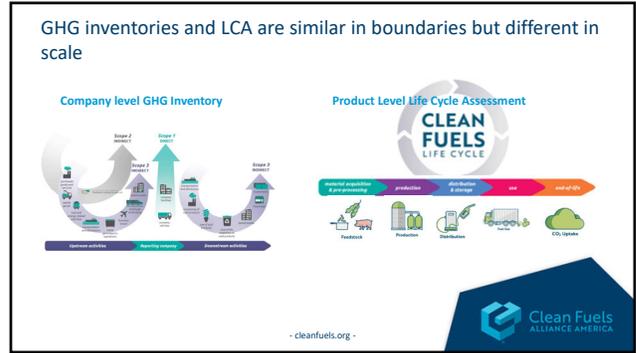


The Way of Clean Fuels is a coalition of clean energy advocates, farmers, and industry groups that supports clean energy and clean transportation.

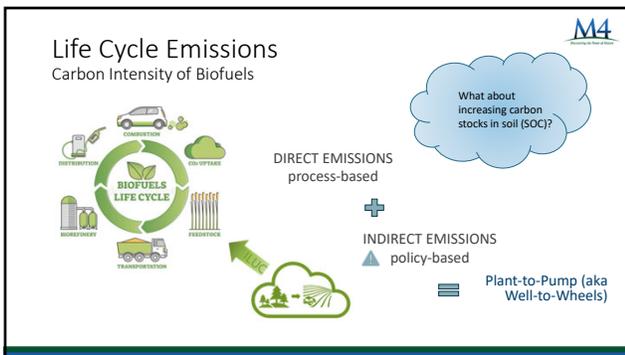
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### California LCFS does not include SOC in CI Scoring

- CARB utilizes CA-GREET for direct emissions and GTAP-BIO combined with AEZ factors for iLUC.
- Concerns over permanence and model uncertainty with including soil organic carbon in CI values.
- CARB has finalized a change in their LCFS program which would “steepen the curve” for carbon reductions and requires field level sustainability certification for crop based fuels (among many other changes.)

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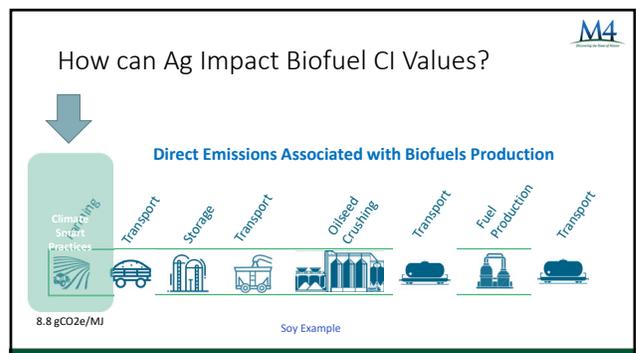
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### We Anticipate that 45Z (Biofuels Producers Tax Credit) will include SOC in CI Scoring

- Provides a tax credit to biofuels producers based upon carbon intensity.
  - Emissions rate not greater than 50 kg of CO<sub>2</sub>e per million BTU
  - Base amount of 20¢ per gal for non SAF up to \$1 per gallon.
  - Base amount of 35¢ per gal for SAF up to \$1.75 per gallon
- US Treasury expected to issue Guidance this month (January 2025).
- 40B (SAF Blenders Tax Credit which ended 31 Dec 2024) included climate smart ag practices and 45Z also expected to include.
  - USDA has been active with the Treasury process.

M4

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### M4

## Carbon Opportunity Comparison

	Offset Markets	Insetting Opportunities	Biofuels Credits
Contract with....	Aggregator	Aggregator/Corporation	Biofuels Producer
Methodology	Carbon Accounting	Carbon Accounting	Life Cycle Analysis
Additionality	Yes	Depends	No (most likely)
Type of Payment	Outcome (\$/MT)	Outcome (\$/MT) or Practice Based	Premium based on Carbon Intensity

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## Farmer Opportunities

Two Examples

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## Missouri Climate-Resilient Crop and Livestock (CRCL) Project

Center for Regenerative Agriculture  
University of Missouri

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### Cover Crop Programs

**Rye-Soy Cover Crops**

CLOSED for this year

Learn more

Establish a ground system by planting cereal rye in the fall before a soybean crop.

Payment per acre: \$30

Sign-up Period: June 3 - July 31, 2024

**Diverse covers**

CLOSED for this year

Learn more

Add broadleafs and/or one of two fall-planted mixes before a non-legume cash crop such as corn, sorghum, or cotton.

Payment per acre: \$40

Sign-up Period: June 3 - July 31, 2024

**Late termination**

CLOSED for this year

Learn more

Allow additional spring growth of cover crops by delaying termination until at least May 1.

Payment per acre: \$15

Sign-up Period: June 3 - July 31, 2024

**Cover crop grazing**

CLOSED for this year

Learn more

Combine livestock and live cover by allowing livestock to graze cover cropped fields.

Payment per acre: \$20

Sign-up Period: June 3 - July 31, 2024

[www.cra.missouri.edu/mo-crcl](http://www.cra.missouri.edu/mo-crcl)

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### Soy-rye cover crop Incentive payment program

- \$30 per acre
- Minimum planting rate for cereal rye: 40lb drilled, 50lb broadcast
- Follow Missouri NRCS guidance on planting dates

Photo credit: Ezyon Photography

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### Diverse cover crop mix Incentive payment program

- \$40 per acre to plant one of two diverse mix options before non-legume cash crops such as corn, sorghum, or cotton
- Mix A – is winter wheat cover crop with crimson clover and hairy vetch; this mix is intended for fields that have crop rotations with no winter wheat for grain
- Mix B – is fall-planted oats with crimson clover and a brassica (winter rapeseed, radishes or turnips); this mix is intended for rotations that include wheat harvested for grain

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### Late termination (planting green) Incentive Payment Program



- \$15 per acre to delay termination of cover crops until at least May 1<sup>st</sup>
- Payment can be stacked with other cover crop payments

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### Cover crop grazing Incentive Payment Program



- \$20 per acre for cover crop grazing
- Payment can be stacked with other cover crop payments
- Cover crop(s) will not be harvested for grain, seed production, or hayed.
- When grazing, cover crops must have enough biomass produced to justify grazing and to maintain the soil health benefits, following Missouri NRCS practice standards.

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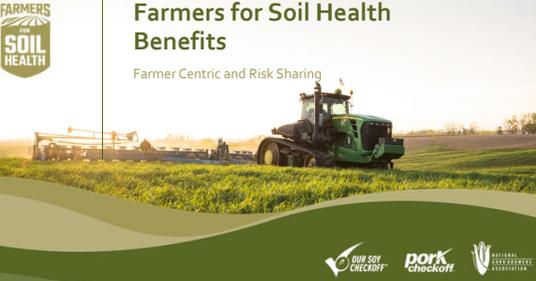


[www.cra.missouri.edu/mo-crcl](http://www.cra.missouri.edu/mo-crcl)

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### Farmers for Soil Health Benefits

Farmer Centric and Risk Sharing

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### A Farmer-led, Collaborative Initiative

**Cover-crop cost-share program**

The Soy Checkoff, Pork Checkoff, and National Corn Growers Association lead Farmers for Soil Health, which advances the use of soil health practices like cover crops to help improve farmer profitability.

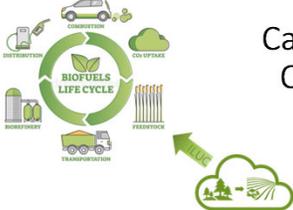
- Transition Incentive Payments (TIP) \$50 per new acre of cover crops
  - \$25 (year 1) - \$15 (year 2) - \$10 (year 3)
- Signing Incentive Payments (SIP) of \$2 per acre for existing cover crops
- Marketplace to sell "climate-smart" commodities
- State-led technical assistance available to enrollees



Visit [farmersforsoilhealth.com](http://farmersforsoilhealth.com)

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### Can iLUC Create Opportunity?



INDIRECT EMISSIONS  
▲ policy-based



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**M4**

### Winter Annual Oilseeds: Crops with Eco-System Service Benefits of a Cover Crop (examples)

Brassica carinata      CoverCress™      Winter Canola      Camelina

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### Intermediate Crops - U.S. Planting Areas

camelina, carinata & pennycress/CoverCress are expected to be key contributors of sustainable biomass supply

CoverCress  
 Global Clean Energy  
 TruSeed Carinata  
 Vision  
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Source: Intermediate Oilseed Crop Alliance (IOCA), M. Lueder, 2021

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## CoverCress™

Example of winter annual oilseed

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### CoverCress® is a new winter oilseed, rotational cash crop designed to be a non-feed / non-food feedstock source with cover crop benefits

Field Pennycress

CoverCress®

Breeding    Agronomy    Gene Editing

A Decade of Extensive R&D Efforts and a Proprietary Development System using Traditional Breeding & Non-GMO Gene Editing

52      Company Confidential

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### The CoverCress® agronomic system is proven and based on learnings from a decade of seasons at over 50 research locations, and with farmers on approximately 10,000 demonstration and production acres

**Planting** (SEP): Piggyback trip into lightly disturbed soil residue cover.  
**Rosette** (OCT): Large rosette established mid-winter.  
**Bolting** (MAR): Buds form mid-spring at the top of the plant.  
**Seed Pod** (MAY): Pod setting complete.  
**Severing** (SEP): Colophons emerge with root & shoot after emergence.  
**Bolting** (OCT): Bolting begins in early spring and temperatures warm and day length increases.  
**Flowering** (MAR): Each plant produces multiple flower stalk stems in late spring.  
**Maturity** (MAY): The crop turns a golden color and begins to dry down at maturity.

53      Company Confidential

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### Fit in Rotation Key!!!!

Photo by Mike Weber

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**CoverCress® delivers a new climate-smart economic opportunity for farmers with the added benefits of a cover crop**

Benefits of a cover crop, improving soil health, reducing nutrient run-off and sequestering carbon	Leverages off-season arable land and existing farm equipment – resulting in an ultra low carbon intensity score
Provides farmers the economic benefits of a new rotational crop transforming a corn-soy rotation into 3 cash crops	Closed-loop system and controlled market increases the likelihood for farmer adoption of CoverCress®

55 Company Confidential



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In addition to the economic and soil health benefits, CoverCress™ delivers on decarbonization in 2 ways

**1 Carbon sequestration**

- CoverCress™ over winter vs. bare land sequesters 1+ tons/acre of CO<sub>2</sub> into the soil.
- CO<sub>2</sub> offset markets are expected to have well defined and attractive prices in the next 10 years.
- CoverCress™ can be a great source for companies needing offsets to get to net zero. This is a second income stream for farmers and CoverCress Inc.

**2 Low carbon intensive feedstock**

- CoverCress™ is produced on unused land over winter, requires low inputs and scavenges nitrogen.
- Oil produced from CoverCress™ will be a new, uniquely scalable low carbon intensive (CI) feedstock for bio and renewable diesel.
- The value of these unique low CI oils is expected to increase as demand grows.



CO<sub>2</sub>

**- Both expected to grow in value in the near future -**

56 Company Confidential

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**Summary Thoughts** 

- Carbon landscape continues to shift—growers will have to be vigilant with keeping up to speed.
- Voluntary carbon markets may be problematic for many growers due to additionality.
- Insetting opportunities will depend upon MRV requirements (costs) and carbon values.
  - Will the SEC, at some future point in time, put more teeth in regulations?
- “Wait and see” approach for 45Z and biofuels. Could be a catalyst for increased ethanol blend levels.
- Many benefits to Climate Smart Ag practices beyond potential carbon payments.

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