<u>Via Regulations.gov</u>

William Hohenstein
Director of the Office of Energy and Environmental Policy
U.S. Department of Agriculture
1400 Independence Avenue SW
Washington, DC 20250

RE: Request for Information on Procedures for Quantification, Reporting, and Verification of Greenhouse Gas Emissions Associated With the Production of Domestic Agricultural Commodities Used as Biofuel Feedstocks (Docket No. USDA-2024-0003)

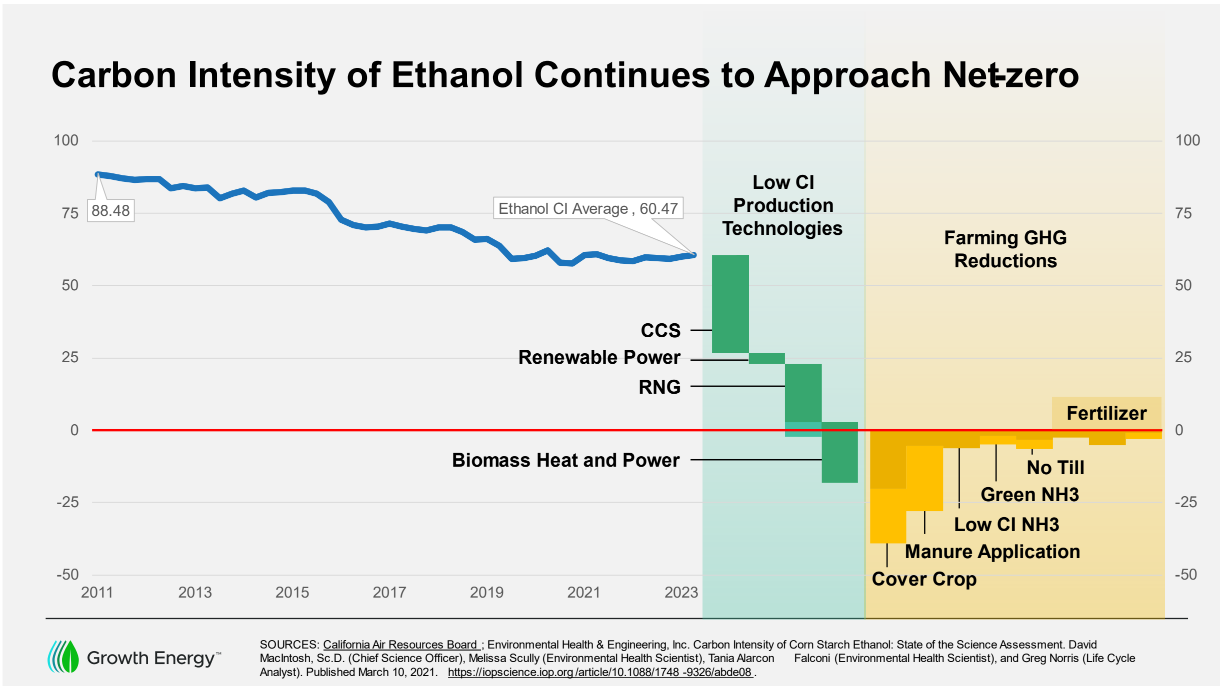
Dear Mr. Hohenstein,

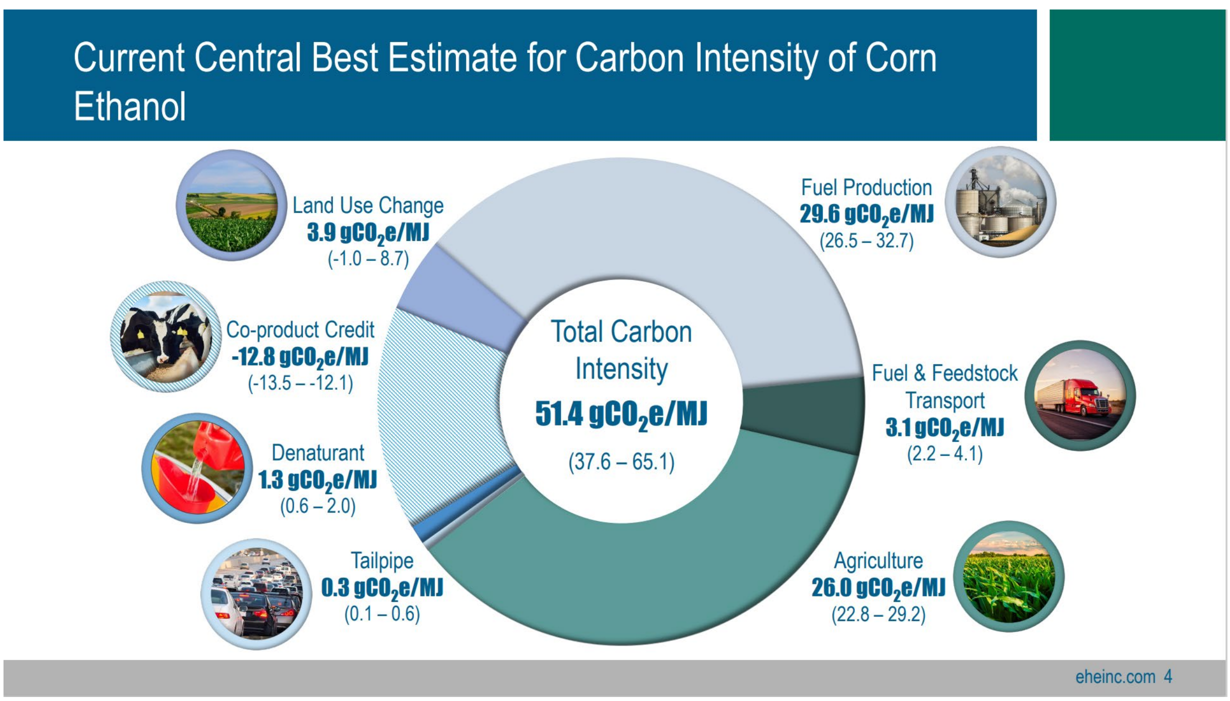
Thank you for the opportunity to respond to the most recent request for information (RFI) regarding Procedures for Quantification, Reporting, and Verification of Greenhouse Gas Emissions Associated with the Production of Domestic Agricultural Commodities Used as Biofuel Feedstocks. Growth Energy is expanding the bioeconomy and is the nation's largest association of biofuel producers, representing 97 U.S. plants that each year produce 9.5 billion gallons of low-carbon, renewable fuel and purchase more than 3 billion bushels of grain; 121 businesses associated with the production process; and tens of thousands of biofuel supporters around the country. Our members make low-carbon fuels, high-protein animal feed, and they supply plant-based ingredients for everything from bioplastics to safer cleaning products.

As we have noted in many other venues, U.S. leadership in global biofuels markets is vital to the decarbonization of, and future economic competitiveness in, on-road light-duty vehicles, aviation, marine shipping, off-road, and some industrial applications. Our members are focused on long-term solutions throughout the bioeconomy that would provide an opportunity for our low-carbon biofuels and other key coproducts to compete and help drive down greenhouse gas (GHG) emissions. As such, we are happy to be a resource for the Department as it seeks to quantify the important GHG reductions achievable at the farm for the production of biofuel feedstocks.

The U.S. biofuels industry continues to prove its ability to lower GHG emissions and deliver jobs and economic benefits to American workers and farmers. Extensive research from the Department's own Argonne National Laboratory through its Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET) model has shown that today's bioethanol provides a nearly 50 percent reduction compared to gasoline in lifecycle GHG emissions and can achieve net-zero emissions with readily available technologies such as CCUS, renewable power, renewable natural gas, combined heat and power, biomass to power including corn stover, and many other technologies.

While our biorefineries are focused on a range of innovative technologies to reduce carbon intensity at the plant, agriculture represents more than 50 percent of bioethanol's carbon intensity (CI) score. It is therefore essential to recognize the full range of climate-smart agriculture (CSA) innovation taking place on the farm – including farm applications such as cover crops, reduced tillage, manure application, crop nutrient management and other ag innovations – that can reduce the lifecycle carbon intensity (CI) score of bioethanol.





Use of the Argonne Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model with Granular Carbon Intensity Reductions

As you know, the U.S. Department of the Treasury is in the midst of implementing several key biofuel tax incentives, including the Clean Fuel Production Credit (45Z), the Credit for Carbon Oxide Utilization and Sequestration (45Q), and the Sustainable Aviation Fuel Blender's Credit (40B). These provisions are critical to our industry's capital-intensive investments to reduce GHG emissions and ultimately to the achievement of the administration's broad climate goals, including the SAF Grand Challenge, which aims to achieve net-zero aviation by 2050.

As we have articulated in multiple comments to Treasury (available here, here, here, and here), it is essential that the Argonne GREET model be used for any lifecycle emissions assessment as it is the best tool available for measuring biofuel lifecycle emissions. In fact, earlier this year, EPA highlighted that "the GREET model is well established, designed to adapt to evolving knowledge, and capable of including technological advances."[1] Also, implementation of these credits and related accounting for CSA must recognize granular CI reductions at the farm and at the plant. Any meaningful goals for the use of crop-based biofuels for decarbonization cannot be achieved without the use of the Argonne GREET model coupled with recognition of these reductions. It only follows that USDA should use the GREET model in its quantification of CSA practices in this venue. Further below, we outline some of the specifics relative to the use of GREET Feedstock Carbon Intensity Calculator (FD-CIC) for CSA practices.

Additionally, while tangential yet related to USDA's efforts here, it is essential that the Department of Treasury also use GREET moving forward for implementation of the Section 45Z Clean Fuel Production Credit. As part of that process, Treasury must be as expansive as possible when including innovative technologies in-use or in development for the production of bioethanol. Our previous comments have outlined major, but not all, CSA provisions and plant technologies, but USDA and Treasury should be far more expansive and allow bioethanol producers to utilize these technologies to reduce their carbon intensity. We will be working to advance this as part of the 45Z rulemaking process, but we include here for USDA's awareness as it will be impactful in its own process:

---

[1] *New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule*, 88 Fed. Reg. 33,240, 33,328 (May 23, 2023).

Non-SAF Plant/Feedstock Types

Corn Starch
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Corn Kernel Fiber
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Sorghum Starch
- Nat Gas Dry Mill

Sorghum Kernel Fiber
- Nat Gas Dry Mill

Proso Millet Starch
- Nat Gas Dry Mill

Proso Millet Kernel Fiber
- Nat Gas Dry Mill

Non-SAF Technologies List

CCS (Biogenic)
CCS (Non-biogenic)
Landfill RNG
Livestock RNG
Biomass Heat
Corn Stover to Process Heat
Combined Heat and Power (on -site)
Combined Heat and Power (over -the-fence)
Wet Distiller's Grains
Membrane Dehydration
Thermal Energy Storage
Power Energy Storage
Mechanical Vapor Recompression
Thermal Vapor Recompression
High-Yield Yeasts and Enzymes
Electrified Wastewater Boiler
Biomass Electricity
Wind Electricity
Solar Electricity
Nuclear Electricity
Hydro Electricity
Waste Electricity

Bolded and italicized practices indicate those found in 40B

7

SAF Plant/Feedstock Types

Corn Starch
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Corn Kernel Fiber
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Distiller's Corn Oil
- Nat Gas Dry Mill

Wet Mill Corn Oil
- Coal Wet Mill
- Nat Gas Wet Mill

Sorghum Starch
- Nat Gas Dry Mill

Sorghum Fiber
- Nat Gas Dry Mill

Distiller's Sorghum Oil
- Nat Gas Dry Mill

Proso Millet Starch
- Nat Gas Dry Mill

Proso Millet Kernel Fiber
- Nat Gas Dry Mill

SAF Technologies List (Feedstock Production)

CCS (Biogenic)
CCS (Non-biogenic)
Landfill RNG
Livestock RNG
Biomass Heat
Corn Stover to Process Heat
Combined Heat and Power (on -site)
Combined Heat and Power (over -the-fence)
Wet Distiller's Grains
Membrane Dehydration
Thermal Energy Storage
Power Energy Storage
Mechanical Vapor Recompression
Thermal Vapor Recompression
High-Yield Yeasts and Enzymes
Electrified Wastewater Boiler
Biomass Electricity
Wind Electricity
Solar Electricity
Nuclear Electricity
Hydro Electricity
Waste Electricity

Bolded and italicized practices indicate those found in 40B

8

Concerns with the 40B Climate-Smart Agriculture Pilot Program Requirements

As part of its implementation of the 40B Sustainable Aviation Fuel Credit, the Department of Treasury's guidance includes a new CSA Pilot Program that for the first time provides for quantification of GHG reductions from CSA practices in conjunction with a federal incentive. This guidance crosses an important threshold in carbon modeling, recognizing for the first time that farming techniques can reduce the CI of crops, and, by extension, bioethanol production. It is also the first time Treasury has used the Argonne National Laboratory's GREET model in federal tax policy. However, we have several notable concerns with the implementation of the 40B CSA Pilot Program. Most significantly, the pilot requires the "bundling" of cover crops, no-till, and enhanced efficiency nitrogen fertilizer together in order to get any GHG reduction credit for CSA practices for both corn and soybean acres. Using this restrictive all-or-nothing approach to recognizing the value of CSA practices will limit innovation and make farmers, blenders, and producers less – not more – likely to invest in emissions-reducing technologies. Numerous factors including local weather patterns, soil type and health, growing seasons, and equipment costs determine which CSA practices are feasible for a particular farm—and farmers should have the flexibility to implement the CSA practices that are most effective for their unique circumstances and allow producers the ability to maximize carbon reductions based on their specific farm. Just last week, the National Corn Growers Association (NCGA) along with the American Soybean Association (ASA) released an important analysis, "Qualifying Acres in the 40B Conservation Programs".[2] In their analysis for corn acres, the groups show that a maximum of 13.8M acres would qualify for the incentive based on the restriction while allowing for independent consideration would yield 400,000 more acres for cover crops and 56 million more acres for no-till. Their analysis goes further to show that, absent this restriction, nearly 70 percent of acres could potentially qualify while less than 20 percent would be eligible with the bundling requirement.

Moreover, the carbon intensity reduction of all three practices under the Pilot Program (10 gCO2e/MJ) substantially undervalues the GHG benefits of these practices when counted using the most recent data from the Argonne GREET analysis. It is unclear how the Pilot Program arrived at this estimate, but it is not supported by current science. Best available science using the GREET model instead indicates these practices together achieve two to three times greater GHG emissions reductions than established under the Pilot Program, depending on the region.

Moving forward, USDA and Treasury must be less prescriptive and more expansive—fully embracing the totality of innovations that can demonstrably reduce CI while also recognizing carbon reductions on a practice-by-practice basis.

Again, we appreciate the opportunity to comment on this important topic. Our responses to the questions outlined in the Request for Information (RFI) are as follows:

Qualifying Practices

(1) Which domestic biofuel feedstocks should USDA consider including in its analysis to quantify the GHG emissions associated with climate smart farming practices? USDA is considering corn, soybeans, sorghum, and spring canola as these are the dominant biofuel feedstock crops in the United States. USDA is also

---

[2] NCGA, ASA Release July 18, 2024, available at https://ncga.com/stay-informed/media/the-corn-economy/article/2024/07/qualifying-acres-in-the-40b-conservation-programs.

considering winter oilseed crops (brassica carinata, camelina, pennycress, and winter canola). Are there other potential biofuel feedstocks, including crops, crop residues and biomaterials, that USDA should analyze?

For bioethanol, the focus should be on corn and sorghum feedstocks, which should also include the kernel fiber, stover, wet mill corn, distillers corn oil, and sorghum oil. While these are the primary feedstocks used in our facilities, some bioprocessing facilities are exploring the use of proso millet, barley, and wheat as secondary feedstocks, which also include the starch, fiber, oil, and other relevant components that are converted into biofuel. Additionally, some facilities are planning to use corn stover as a feedstock for biomass-based power for bioethanol production. USDA should develop sustainability protocols for stover collection based on the best available research and existing state protocols as part of this potential rulemaking. All feedstocks should be considered in conjunction with all bioethanol biorefinery processes including both dry and wet mills, which will include a variety of process heat energy sources and electricity sources.

(2) Which farming practices should USDA consider including in its analysis to quantify the GHG emissions outcomes for biofuel feedstocks? Practices that can reduce the greenhouse gas emissions associated with specific feedstocks and/or increase soil carbon sequestration may include, but are not limited to: conservation tillage, no-till, planting of cover crops, incorporation of buffer strips, and nitrogen management (e.g., applying fertilizer in the right source, rate, place and time, including using enhanced efficiency fertilizers, biological fertilizers or amendments, or manure). Should practices (and crops) that reduce water consumption be considered, taking into account the energy needed to transport water for irrigation? Should the farming practices under consideration vary by feedstock and/or by location? If so, how and why?

USDA should be as expansive and as inclusive as possible when considering farming practices that may provide a GHG reduction for biofuel feedstocks. In our previous work, we focused on practices specified further below; however, we encourage the agency to think as broadly as possible, including about the future potential of these practices. As you know, the agency produces an expansive list of Climate Smart Practices through the Natural Resources Conservation Service (NRCS). For Fiscal Year 2024, that list may be found here: Climate-Smart Agriculture and Forestry Mitigation Activity List (usda.gov). Given federal, state, and global incentives for the production of low-carbon biofuels, farmers supplying bioethanol producers will only continue to seek out additional opportunities for GHG reductions moving forward. While not all of the practices outlined by NRCS are relevant for biofuel feedstock production, USDA should not unnecessarily limit its consideration of all possible CSA practices for production of biofuel feedstock crops.

Low-Carbon Agricultural Practices

- *Use of cover crops*. Use of cover crops improves soil health and enhances soil organic carbon (SOC) sequestration. By sequestering atmospheric carbon dioxide in the soil, such use of cover crops offsets other carbon dioxide emissions from feedstock production and lowers the lifecycle GHG emissions ethanol produced from corn feedstock grown using this method. USDA currently offers cover crop initiatives as part of its climate smart agriculture programs and has issued national conservation practice standards to define the practice.[3]

- *Effect of tillage*. Another method to enhance SOC sequestration is switching to no-till or reduced-till practices. Reduced disturbance of the soil supports greater sequestration of atmospheric carbon dioxide. USDA has also issued national conservation practice standards for both no-till and reduced-till agriculture.[4]

- *Manure application*. Application of agricultural byproducts and waste products such as manure can materially increase SOC sequestration. GREET's FD-CIC model (discussed further below) can calculate changes in SOC emissions resulting from the use of swine, dairy cow, beef cattle, or chicken manure.

- *Improved fertilizer practices.* Precision application of fertilizer through "4R" techniques (right time, right place, right form, right rate) can significantly reduce emissions attributable to fertilizer usage. Similarly, applying bio-based fertilizers to corn, such as nitrogen-fixing biological products, legumes, or manure can significantly reduce the need for conventional fertilizer, providing a lower carbon-intensive source of fertilizer for the corn. In addition, nitrogen stabilizers can reduce the loss of nitrogen into the environment. This often leads to a reduced application rate of fertilizer, further reducing its environmental impact.[5]

- *Green or low-carbon ammonia*. Ammonia used to make fertilizer can be produced using renewable energy (where hydrogen from electrolysis of water reacts with atmospheric nitrogen) or with carbon-reducing technologies, reducing lifecycle GHG for producing corn feedstock to ethanol production.[6]

These feedstock production factors each reduce lifecycle GHG emissions from bioethanol and are among the most likely to be adopted by the industry. As calculated using GREET model emissions factors, these production factors can be adopted individually or in any combination that makes sense for farm growing conditions and individual grower decisions. The GREET model has default values for upstream

---

[3] USDA Press Release No. 0005.22, *USDA Offers Expanded Conservation Program Opportunities to Support Climate Smart Agriculture in 2022* (Jan. 10, 2022); USDA Conservation Practice Standard # 340, *Cover Crop (Ac.)* (Sep. 2014).
[4] USDA Conservation Practice Standard # 329, *Residue and Tillage Management, No Till (Ac.)* (Sep. 2016); USDA Conservation Practice Standard # 345, *Residue and Tillage Management, No Till (Ac.)* (Sep. 2016).
[5] GHG reductions from precision application of fertilizer and use of nitrogen stabilizers are available from standard values in GREET's FD-CIC module. GHG reductions from bio-based fertilizer can be calculated based on farming inputs.
[6] GHG reductions from green ammonia are available from standard values in GREET's FD-CIC module. GHG reductions for low carbon ammonia can be calculated based on the ammonia production process.

feedstock production absent these agricultural practices, and then provides incremental adjustments to account for each factor.

USDA may incorporate default values from GREET, including for feedstock production factors FD-CIC module, and where a default value does not exist, USDA could consider certain simplified assumptions as presented below.[7] Argonne National Laboratory and the DOE's Advanced Research Projects Agency developed the FD-CIC calculator as a transparent and easy-to-use tool for regulatory agencies to "enable an accurate measurement of key farming parameters that can help robust accounting of the GHG benefits of sustainable, low-carbon agronomic practices."[8] The tool both provides default values and allows biofuels producers to provide user-specific input values to determine individualized estimates of SOC emissions. For example, a feedstock producer that applies manure from its own farm would obtain higher GHG emissions reductions than the default in FD-CIC, based on reductions in the amount of energy used in manure transportation.[9] As part of GREET, FD-CIC is updated annually to incorporate the best available science in GHG accounting.

(3) For practices identified in question 2, how should these practices be defined? What parameters should USDA specify so that the GHG outcomes (as opposed to other environmental and economic benefits) resulting from the practices can be quantified, reported, and verified?

Definitions should follow other qualifications for USDA programs where eligible (such as EQIP for cover crops). Tillage methods should be defined by the Soil Tillage Intensity Rating (STIR) method using the RUSLE2 calculator. Enhanced Efficiency Fertilizer (EEF) should be defined from the list of eligible feedstocks that GREET follows.

As we noted above, we strongly urge USDA to use the latest GREET model and FD-CIC calculator to quantify the GHG impact of those feedstocks grown using these agronomic practices. While not exhaustive, the table below from Lifecycle Associates outlines values from the GREET FD-CIC for notable biofuel feedstock practices (see next page):

[7] Available at https://greet.es.anl.gov/tool_fd_cic.
[8] FD-CIC User Manual at 7, available at https://greet.anl.gov/tool_fd_cic.
[9] In addition, FD-CIC values could be averaged across a biofuels producer's feedstock sources to account for biofuels producers which contract with multiple suppliers with differing agricultural practices.

Table 1. Principal Options for GHG Reductions at Corn Ethanol Plants

Scenario	kg CO_2/MMBtu	Description	Assumption/ Calculation Basis[b]
Baseline	55.5	U.S. Average dry mill ethanol.	22,480 Btu/gal, 0.61 kWh/gal, 2.86 gal/btu
	CI Reduction[a]	**Low CI Production Technologies**	
CCS	-33.8	Store CO_2 underground	Capture 90% of fermentation CO_2
Renewable Power	-3.8	REC for electricity as well as on-site wind or solar power	0 g CO_2e/kWh, per GREET
Biomass Heat and Power	-20 to -25	Power and heat generated at corn ethanol plant.	Eliminates natural gas and electric power emissions. Calculate GHG emissions from biomass use in GREET.
RNG	-21	40% of natural gas from RNG	- 100 g CO_2/MJ diary, swine, or steer manure. Calculate GHG emissions based on RNG use and CI of RNG.
		Farming GHG Reductions	
Green NH_3	-6.1	Green Ammonia for Fertilizer	FD-CIC Green Ammonia
Low CI NH_3	-2 to -5	Ammonia with CO_2 capture	Calculate GHG emissions based on ammonia production process.
No Till	-3.4 to -6.5	Switch Reduced to No Till farming	FD-CIC Reduced Till to No Till depending upon region.
Fertilizer	-2.4 -5.2 -1 to -3	Nitrogen efficiency Precision application Bio-based fertilizer	FD-CIC Enhanced Efficiency Fertilizer FD-CIC (4R) Right time, place, form, rate Calculate based on farming inputs
Manure Application	-5.5 to -28	Mix of dairy, swine, cattle, poultry manure	FD-CIC Manure Application
Cover Crop	-20.4 to -39.1	Grow winter cover crop	FD-CIC Cover Crop

[a] Reductions apply to baseline for typical dry mill ethanol plant; where multiple technologies or practices apply, reductions may be added together to calculate the fuel's emission rate.
[b] GHG reductions are available from standard values in the FD-CIC or from additional calculations as indicated.

(4) For practices identified in question 2, to what extent do variations in practice implementation affect the overall GHG benefits of the practice (e.g., the date at which cover crops are harvested or terminated)? What implementation strategies maximize the GHG benefits of these climate-smart agriculture practices?

The timely implementation of 45Z, with a robust universe of CSA practices from the NRCS list qualifying under 45Z, would be an incredibly important way to best optimize the ability to incentivize a farmer to take up farming practices that would lower GHGs.

(5) What scientific data, information, and analysis should USDA consider when quantifying the greenhouse gas emissions outcomes of climate-smart agricultural practices and conventional farming practices? What additional analysis should USDA prioritize to improve the accuracy and reliability of the GHG estimates? How should USDA account for uncertainty in scientific data? How should USDA analysis be updated over time?

Please see our earlier discussion of the GREET model and FD-CIC for data, information, and analysis of GHG quantification. For other and future practices, we encourage USDA to work with Argonne National Laboratory (ANL) and the Department of Energy (DOE) to provide the most up to date agronomic and crop data.

(6) Given the degree of geographic variability associated with each practice, on what geographic scale should USDA quantify the GHG net emissions of each practice (e.g., farm level, county-level, state, regional, national)? What are the pros and cons of each scale? How should differences in local and regional conditions be addressed?

Different geographic regions have different growing conditions and yields, and we urge USDA to work towards the most granular geographic scale that can be supported by robust and sufficient data.

As an example, GREET FD-CIC can calculate CI values at the county level, so if users have the option to choose by county, it would only make sense to allow variability by county through the GREET model, provided there is sufficient data. To the extent bioethanol producers work with growers and other 3rd parties who can appropriately quantify and verify GHG reduction values at the farm level, USDA should allow for that option as well.

(7) How should USDA estimate the GHG emissions and soil carbon fluxes of baseline crop production?

Please see our earlier discussion of the GREET model and FD-CIC for data, information, and analysis of GHG quantification.

(8) Where models can be used to quantify changes in greenhouse gas emissions and sinks associated with climate smart agricultural practices, which model(s) are most appropriate for quantifying the greenhouse gas effects of these practices? What are the tradeoffs of different modeling approaches for accurately representing carbon, methane, and nitrous oxide fluxes under climate smart agricultural practices?

As we have stated previously, the GREET model and FD-CIC module are the most appropriate to quantify these reductions in GHG emissions. To the extent there is not a value in GREET and FD-CIC for an existing or emerging practice, USDA should work with Argonne National Laboratory and the Department of Energy to establish a value moving forward. Additionally, for emerging practices and to avoid any undue delays, USDA should establish an efficient mechanism for growers and bioethanol producers to receive a provisional GHG reduction value if such a value can be quantified appropriately.

(9) How should net greenhouse gas emissions, including soil carbon sequestration, be attributed among crops produced in a rotation, for example crops grown in rotation with one or multiple cover crops?

Initially, allocation of emissions for multi-crop rotation should follow the current methodology in GREET (allocation by biomass production of the crops in rotation).

(10) To what extent do interactions between practices either enhance or reduce the GHG emissions outcomes of each practice? Where multiple practices are implemented in combination, should the impacts of these practices be measured individually or collectively?

Pointing back to GREET FD-CIC, the practices can be measured individually, but they can also be stacked in any combination or stand alone. As stated above, unlike the CSA pilot for the Section 40B tax incentive, there should be no requirement that practices be bundled to show GHG reductions. Growers and bioethanol producers should have flexibility to do what makes the most sense based on agronomic and economic conditions and include the maximum acreage associated with these practices. Additionally, as biorefineries seek innovative plant practices such as corn stover used for power, stover collection should not be unduly penalized when it is then used for a quantifiable GHG reduction practice at a bioethanol facility.

(11) How should the GHG emissions of nutrient management practices (e.g., applying fertilizer according to the ''4Rs'' of nutrient management—right place, right source, right time, and right rate; variable rate technology; enhanced efficiency fertilizer application; manure application) be quantified? What empirical data exist to inform the quantification? What factors should USDA consider when quantifying the GHG emissions outcomes of these practices?

Again, we point back to GREET FD-CIC for quantification of these nutrient management practices including the "4Rs", enhanced efficiency fertilizer application, and manure. As seen in the table above, specific values can be quantified through the GREET FD-CIC module.

<u>**Soil Carbon**</u>

(12) How should the GHG outcomes of soil management practices that can increase carbon sequestration or reduce carbon dioxide emissions (e.g., no-till, cover crops) be quantified? What empirical data exist to inform the quantification? Over what time scale should practices that sequester soil carbon be implemented to achieve measurable and durable GHG benefits?

The GHG benefits of soil management practices can be derived using values from GREET FD-CIC.

(13) For practices that can increase soil carbon sequestration or reduce carbon dioxide emissions, how should the duration and any interruptions of practice (e.g., length of time practice is continued, whether the practice is put in place continually or with interruptions) be considered when assessing the effects on soil carbon sequestration?

The GREET FD-CIC module should be utilized to determine the CI impact of disrupted practices that may shorten the expected duration of a particular CSA practice.

(14) How should the baseline rates of change in soil carbon and uncertainty around the greenhouse gas benefits of these practices be characterized? Does this uncertainty and variability depend on the type or longevity/permanence of the practice?

The GHG emissions of the baseline crop production could be derived using values from GREET FD-CIC. When setting the baseline, USDA should be careful not to unnecessarily disadvantage early adopters of reduced/no-till and other CSA practices.

Verification and Recordkeeping

(15) What records, documentation, and data are necessary to provide sufficient evidence to verify practice adoption and maintenance? What records are typically maintained, why, and by whom? Where possible, please be specific to recommended practices (e.g., refer to practices identified in question two).

Some practices could be verified by relatively simple documentation such as invoices, scale tickets, and sales receipts for seeds to plant cover crops. To the maximum extent practicable, USDA should strive to use the simplest methods to verify practice adoption and maintenance.

(16) How can market participants leverage remote sensing and/or other emergent technologies as an option to verify practice adoption and maintenance?

Remote sensing tools such as satellite imagery continue to improve and can be a valuable tool to detect and verify no-till and cover crop practices where it may be necessary. These tools can be used to reduce and eventually replace on-site audits.

(17) Are there existing reporting structures that can potentially be leveraged?

A number of bioethanol producers use the International Sustainability & Carbon Certification (ISCC) program.

ISCC has been administering and tracking CI traceability for grain for over 15 years. Though many of the qualitative requirements for ISCC do not fit the context of the recently approved incentives from the Inflation Reduction Act, many quantitative CI measures and traceability principles in ISCC could also work well in the US biofuel supply chain.

(18) Should on-site audits be used to verify practice adoption and maintenance and if so, to what extent, and on what frequency?

The documents needed to support a feedstock carbon intensity score can be supported by data that can be digitally supported and shared. On-site audits would not be needed to review these documents.

In the event that a CI score is provided, the third-party CI provider will be able to provide all of the supporting data that went into that CI score. This creates a centralized place for the verification to occur and avoids much (if any) direct contact with the grower.

(19) If only a sample of farm/fields are audited on-site, what sampling methodology should be used to determine the sample of farms selected for an on-site audit, and how can the sampling methodology ensure that selected farms are representative across geographies, crops, and other factors?

ISCC guidance requires that the square root of participating growers' crop cultivation acreage be audited each year. The method gathers data from enough users to effectively mitigate the risk of fraud without creating an excessive administrative burden.

(20) What system(s) should be used to trace feedstocks throughout biofuel feedstock supply chains (e.g., mass balance, book and claim, identity preservation, geolocation of fields where practices are adopted)? What data do these tracking systems need to collect? What are the pros and cons of these traceability systems? How should this information be verified?

Either a mass-balance or book-and-claim approach could be used to track sustainability attributes and commodity embedded CI values and avoid other impractical solutions. Because functional characteristics of the crop do not change with the method of production, there is no need for identity preservation or further segregation. Given varying supply chain and logistics approaches across the bioethanol industry, it is essential that those choosing to use a mass-balance approach be able to do so across an entire enterprise including but not limited to operators of multiple biorefineries. In addition, workable traceability requirements should allow verification of CSA contracts to be passed through intermediaries, such as feedstock providers and biofuel producers, without requiring a direct contract between farmers and the final fuel processor.

Longer term, a book and claim type system could be established that would allow the value to be detached from the crop and potentially monetized by the grower. This type of system could operate in a similar fashion to other markets such as renewable energy certificates (REC).

Verifier Qualifications/Accreditation Requirements

(21) How could USDA best utilize independent third parties (i.e., unrelated party certifiers) to bolster verification of practice adoption and maintenance and/or supply chain traceability? What standards or processes should be in place to prevent conflicts of interest between verifiers and the entities they oversee?

Currently, renewable fuel producers under the RFS are required to conduct third-party engineering reviews as part of the RFS registration process. The independent engineering review validates all of the information provided by the producer to register its fuel with the EPA. That information includes, for example, descriptions of (i) the feedstocks used at the facility (ii) the facility's production processes, (iii) the types of co-products produced with the renewable fuel, and (iv) the process heat fuel supply plan for the facility, among other detailed aspects of the producer's operations that would affect the overall lifecycle GHG analysis of the fuel.[10] Additionally, bioethanol producers have various registration requirements under the federal renewable fuel standard (RFS) and various state low carbon fuel standards (LCFS). For example, the California LCFS requires validation and verification by an independent third party. This includes validation of information in the "fuel pathway", including, for example, (i) the methods used by the producer to quantify and report data, (ii) the data management systems and accounting procedures used to track data for the fuel pathway application, and (iii) information about the entities in the supply chain upstream and downstream of the fuel producer that contribute to site-specific carbon intensity data.[11] These existing regulatory frameworks include standards relevant to addressing conflicts of interest.

(22) What qualifications should independent third-party verifiers of practice adoption and/or supply chain traceability possess?

Verification should be done by third-party verifiers commonly accepted by USDA, DOE, the California Air Resources Board (CARB), or other states with verifiers accepted for LCFS compliance.

(23) What independent third-party verification systems currently exist that may be relevant for use in the context of verifying climate-smart agricultural practices (as identified under questions 1 and 2) and/or biofuel supply chains?

We believe that existing third-party verification systems should be utilized by USDA, including verification systems that utilize third-party verifiers commonly accepted by USDA, DOE, the California Air Resources Board (CARB), or other states with verification systems utilized for LCFS compliance.

(24) How should oversight of verifiers be performed? What procedures should be in place if an independent third party verifier fails to conform to verification and audit requirements, or otherwise conducts verification inappropriately?

---

[10] See 40 CFR 80.1450(b)(1)
[11] See Cal. Code Regs. Tit. 17 Section 95501(b)(1)(A)

USDA should maintain a database that tracks inaccurate CSA verification, and those verification entities that are found to have inappropriate verification and certification of CSA grain should have consequential actions that would impact their future ability to verify CSA claims.

(25) What procedures should be in place to prevent potential inaccurate or fraudulent claims regarding feedstock production practices or chain of custody claims, how should monitoring occur to identify such inaccurate claims, and what should the remedy be when such inaccurate claims are discovered?

CSA practice claims should be supported by comprehensive documentation that includes verification materials that support recordkeeping that identifies specific practices on specific land for a specific crop. As stated above, some CSA practices could be verified by relatively simple documentation such as invoices, scale tickets, and sales receipts for seeds to plant cover crops. To the maximum extent practicable, USDA should strive to use the simplest methods to verify practice adoption and maintenance, and proper recordkeeping should be a first line of defense to ensure that there are not potential inaccurate or fraudulent claims.

(26) What preemptive measures are appropriate to guard program integrity against both potential intentional fraud and inadvertent reversal or nonaccrual of credited GHG emissions benefits?

It is incumbent that USDA develop a strong regulatory framework to help guide CSA practice and compliance up front, making sure to utilize existing rubrics that are currently in place for other related compliance and regulatory efforts. As this marketplace is generally limited today, ensuring the application and usage of existing resources will be helpful in addressing any potential malfeasance on CSA program integrity.

* * * *

Thank you for your consideration. We are happy to be a resource as USDA continues to move forward with quantification of CSA practices for bioethanol production.

Sincerely,

Chris Bliley
Senior Vice President of Regulatory Affairs
Growth Energy