September 14, 2023

Dr. Thomas Armitage
Designated Federal Officer (DFO)
Science Advisory Board
United States Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington. D.C. 20460

Response to EPA's Science Advisory Board workgroup letter to Administrator Regan on the Greenhouse Gas Impacts of Corn Starch Ethanol via "Draft Commentary on the Volume Requirements for 2023 and Beyond under the Renewable Fuel Standard"

Dear Dr. Armitage:

As the CEO of the American Coalition for Ethanol (ACE), I appreciate the opportunity to respond to the Environmental Protection Agency (EPA) Science Advisory Board (SAB) workgroup draft commentary letter to Administrator Regan regarding the Renewable Fuel Standard (RFS) "Set" rule.

The SAB does not have statutory authority to promulgate EPA regulations, but to the degree the highly-misleading letter from the RFS workgroup might influence Agency decision making, it demands a response. In particular, I am responding to the biased allegations made by the workgroup concerning the greenhouse gas (GHG) impacts of corn starch ethanol.

ACE members agree with one statement by the RFS workgroup. The "Set" rulemaking for 2023-2025 renewable fuel volumes presented an "***opportunity for the EPA to incorporate the best available science on the environmental impacts of conventional and advanced biofuels in setting new volume requirements***." However, we strongly differ with the workgroup's distorted view of what constitutes the "best available science."

The best available science regarding the lifecycle GHG impacts of biofuels, and other transportation fuels for that matter, is reflected in the U.S. Department of Energy's Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model, developed by the scientists at the Argonne National Laboratory.[1] With nearly 45,000 registered uses around the world, GREET is the global gold-standard for lifecycle analysis and serves as the basis for the carbon intensity estimates of all fuels regulated under the California Low Carbon Fuel Standard (LCFS), Oregon Clean Fuels Program, and Washington Clean Fuel Standard. What's more, Congress directed the Department of Treasury to utilize the GREET model to determine carbon intensity for the §45Z Clean Fuel Production and §45V Clean Hydrogen tax credits within the Inflation Reduction Act.

No model can fully replicate real-world activities, but GREET is equipped to represent the best available science on the lifecycle GHG emissions of transportation fuels and technologies because the assumptions and estimates used by Argonne scientists in GREET are under constant review and updates to the model occur annually. While the draft letter released by the RFS workgroup fails to inform us about its view of the best available science, by way of demonstrating our commitment to urging EPA to adopt the best available science, in every opportunity to comment on RFS-related rulemakings dating back to 2016, ACE

[1] https://greet.es.anl.gov/

has called on the Agency to replace its badly antiquated approach for assessing the GHG impacts of corn starch ethanol with the GREET model.[2]

Among the many outrageous claims made in the workgroup letter, perhaps the two most inaccurate are;

- "*There is vigorous scientific debate as to whether corn starch ethanol meets the necessary scientific requirement of having no more than 80% of the lifecycle GHG emissions of gasoline."*
- *"…corn starch ethanol may not meet the definition of renewable fuel under the EISA, requiring biofuel GHG emissions not exceed 80% of that of gasoline."*

There is no fact-based debate regarding the lifecycle GHG emissions of corn starch ethanol compared to gasoline. To the degree debate exists at all, it is not vigorous, unless one takes into consideration the vigor of misinformation campaigns orchestrated by various groups who are self-interested in their opposition to ethanol.

According to the best available lifecycle science (via the GREET model), average corn ethanol GHG emissions are 52 grams CO_2e/megajoule, making corn starch ethanol at least 50% cleaner than the GHG emissions of gasoline on average.[3] In fact, many ACE member facilities have installed equipment or invested in technology resulting in verifiable unique carbon intensity scores that are more than 60% cleaner than gasoline. In other words, and to transpose the proposition as the SAB workgroup strangely does, corn starch ethanol greatly exceeds the necessary scientific requirements of "having no more than 80% of the lifecycle GHG emissions of gasoline." A peer-reviewed study published by researchers at MIT, Tufts, and Harvard, reinforce the fact corn starch ethanol GHG emissions do not exceed 80% of that of gasoline, and given improvements occurring in corn farming and within ethanol facilities, the study finds corn ethanol's carbon footprint will continue to decline over time.[4]

Specific to the RFS, Argonne scientists determined the displacement of gasoline by corn starch ethanol from 2005 through 2019 resulted in a total GHG reduction benefit of 544 million metric ton CO_2 equivalent.[5] RFS1 was enacted in 2005.

Workgroup's Regurgitation of False Land Use Change Narrative Problematic

Evidence of the workgroup's seemingly purposeful bias against corn ethanol instead of the science can be highlighted by the fact its draft letter makes zero mention of or citation to the GREET model developed by scientists in the U.S. Department of Energy's Argonne National Laboratory, but makes multiple references to discredited studies by Lark et al.[6] Land use change (LUC) represents one of the most glaring discrepancies between EPA's outdated approach to lifecycle modeling and more recent versions of the

[2] Docket ID Numbers: EPA-HQ-OAR-2016-0004 (2017 RVO), EPA-HQ-OAR-2016-0041 (REGS rule), EPA-HQ-OAR-2017-0091 (2018 RVO), EPA-HQ-OAR-2018-0167 (2019 RVO), EPA-HQ-OAR-2019-0136 (2020 RVO), EPA-HQ-OAR-2020-0322 (Response to COVID General Waiver Petitions), EPA-HQ-OAR-2021-0324 (2020 revised through 2022 RVOs), EPA-HQ-OAR-2021-0921 (Response to Scientific Understanding of GHG Modeling of Crop-based Biofuels), and EPA-HQ-OAR-2021-0427 (2023 through 2025 RVOs)

[3] Lee, U., Kwon, H., Wu, M. and Wang, M. (2021), Retrospective analysis of the U.S. corn ethanol industry for 2005–2019: implications for greenhouse gas emission reductions. Biofuels, Bioprod. Bioref., 15: 1318-1331. https://doi.org/10.1002/bbb.2225

[4] Melissa J Scully et al 2021 Environ. Res. Lett. 16 043001

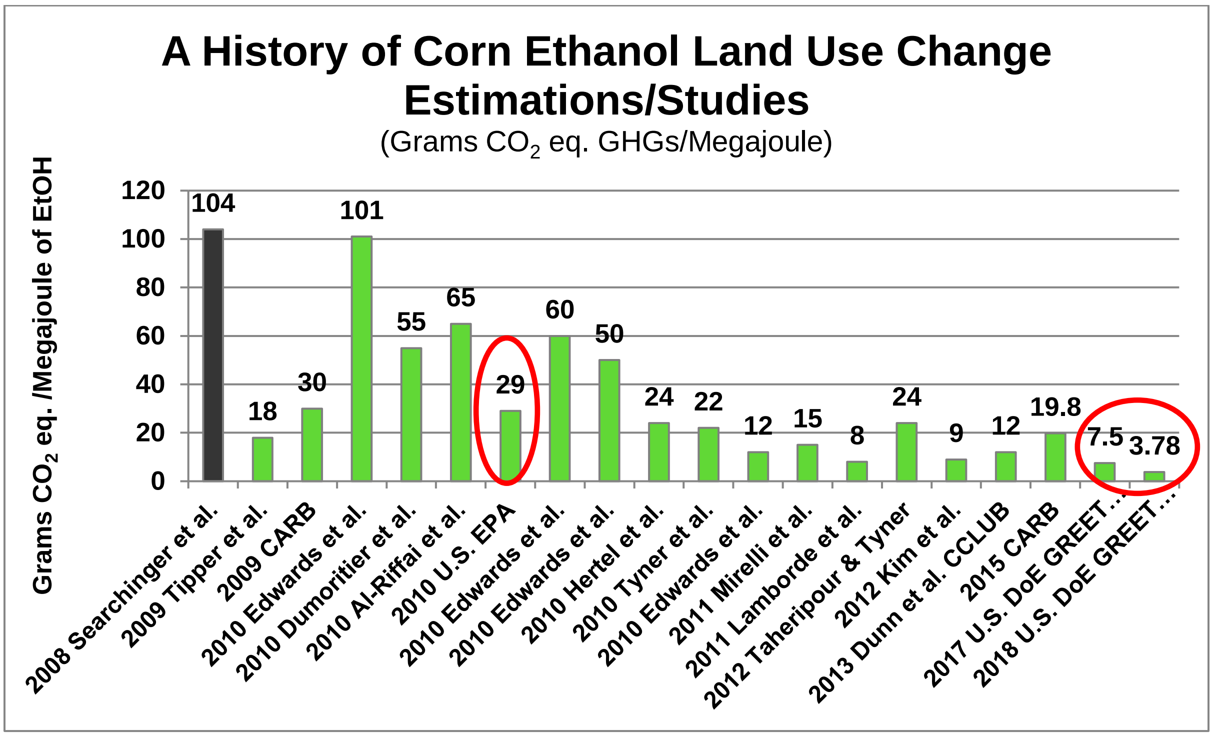
[5] Id.

[6] Lark, Tyler. Nathan Hendricks, Aaron Smith, Nicholas Pates, Seth Spawn-Lee, Matthew Bougie, Eric Booth, Christopher Kucharik, and Holly Gibbs. 2022a. Environmental Outcomes of the U.S. RFS

GREET model, and LUC happens to be the center of Lark's attacks on corn ethanol. Lark's history of wildly overstating the GHG emissions of ethanol has led several distinguished scientists to publish rebuttals exposing his flawed methodology and findings.[7][8][9][10]

Since 2010 the GREET model has employed the Carbon Calculator for Land Use and Land Management Change from Biofuels production (CCLUB) to analyze GHG emissions from LUC. CCLUB estimates domestic and international land conversion driven by increased biofuel production "shocks" from business-as-usual levels. With the assistance of simulations run via Global Trade Analysis Project (GTAP) model data, CCLUB can generate CO_2, N_2O, and NH_3 emissions from both domestic and international LUC.

EPA's outdated modeling used in the final RFS rule assigns a LUC penalty of 29 grams to the carbon intensity of corn ethanol, as illustrated below. Subsequent and more sophisticated research on land use change, in addition to the fact that the U.S. has produced more than 15 billion gallons of corn ethanol so actual land use changes can be observed, indicates a more accurate land use factor between 3.78 and 7.5 grams, as illustrated on the far right of the graph using recent versions of the GREET model.



[7] Farzad Taheripour, Steffen Mueller, Hoyoung Kwon, Madhu Khanna, Isaac Emery, Ken Copenhaver, and Michael Wang, 2022. Comments on "Environmental Outcomes of the U.S. Renewable Fuel Standard."

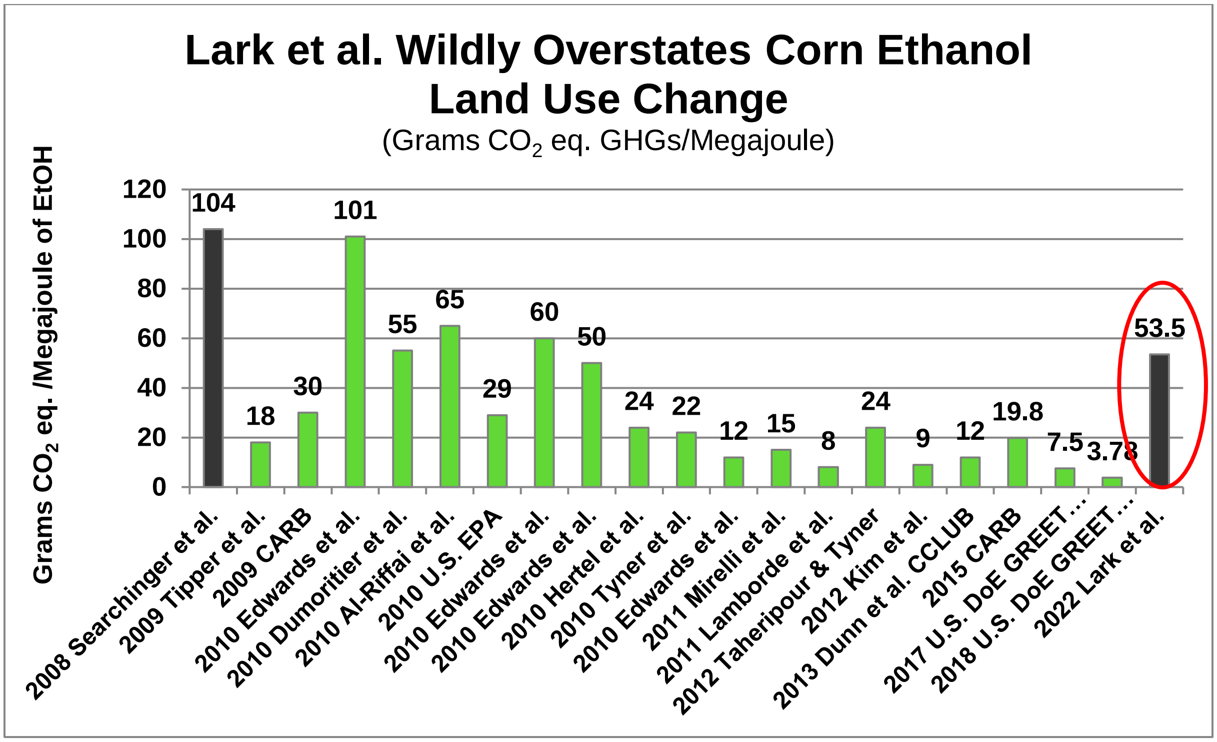
[8] K.G. Austin, J.P.H. Jones, C.M. Clark. A review of domestic land use change attributable to U.S. biofuel policy. Renewable and Sustainable Energy Reviews. Volume 159. 2022. https://doi.org/10.1016/j.rser.2022.112181

[9] Joshua Pritsolas and Randall Pearson, GeoSpatial Mapping, Applications, and Research Center. Southern Illinois University Edwardsville. A Cautionary Tale: A Recent Paper's Use of Research Based on the USDA Cropland Data Layer to Assess the Environmental Impacts of Claimed Cropland Expansion. June 2021

[10] D.S. Shrestha, B.D. Staab, J.A. Duffield. Biofuel impact on food prices index and land use change. Biomass and Bioenergy, Volume 124, 2019. https://doi.org/10.1016/j.biombioe.2019.03.003.

While the Lark paper received outsized attention from the RFS workgroup letter, the biased methodology led to a LUC "result" which is far outside GREET CCLUB results and other comprehensive and authoritative research done on this topic.

To illustrate how extreme Lark et al. overstates LUC resulting from corn ethanol production, refer to penalty of more than 50 grams to the far right of the chart below. In response, scientists and researchers from Argonne, Purdue, and the University of Illinois among others wrote in a recent report, "After a detailed technical review of the modeling practices and data used by Lark et al., we conclude that the results and conclusions provided by the authors are based on several questionable assumptions and a simple modeling approach that has resulted in overestimation of the GHG emissions of corn ethanol."



Argonne, Purdue, and the University of Illinois identified several material overestimations made by Lark et al., some of which are summarized below:

- **Land Conversions** – LUCs identified by Lark et al. are actually conversion of idle cropland to crops and therefore would not result in a large carbon debt upon conversion.
- **Overestimate of Soil Organic Carbon Changes** – Lark et al. overestimated carbon loss by a factor of two to eight for LUC by mistakenly response functions related to native grasslands instead of CRP to crops or idle land to crops.
- **Double Counting Nitrous Oxide Emissions** – Lark et al. double-counted the nitrous oxide (N_2O) emissions from fertilizer use for corn farming by adding 9 grams of CO_2e/MJ and overlooking the fact that N_2O emissions from changes in nitrogen fertilizer use are already captured in the corn farming related land use change lifecycle assessment from the GREET model.
- **Misattribution of Ethanol Volumes to RFS2** – Lark et al. attributed 5.5 billion gallons of ethanol per year to RFS2 between 2008 and 2016 by comparing the volume under RFS2 and RFS1 without considering that other factors impact ethanol production, such as the removal of MTBE from the market.

In 2022, a literature review of studies examining domestic LUCs attributed to the RFS was conducted by officials with the Center for Applied Economics and Strategy and EPA. The researchers reviewed 29 studies published since 2008 and found that only 3.8 million acres of new cropland in the U.S. is directly attributed to the RFS, far less than the estimates published by Lark.[11]

Efforts by Lark et al. to rely on questionable methods and unreliable satellite image land use classification to exaggerate corn ethanol's GHG emissions remind me of an earlier attempt by Searchinger et al. in 2008 to allege biofuel-induced LUCs cause food price increases. This bogus "food versus fuel" theory has been debunked by research which examined actual LUC since the RFS was enacted and the link between ethanol production and oil prices to food prices.

One of the most definitive analyses done on this topic was published in the *Biomass and Bioenergy Journal* by D.S. Shrestha et al. in 2019.[12] According to the abstract (emphasis added): "Food price and land use data over an extended time period have been examined to identify possible correlations between biofuel production and food price or land use changes. We compared the food price index before and after the biofuel boom in the 2000s to evaluate biofuel's impact on the inflation rate. We found that the U.S. food price inflation rate since 1973 could be divided into three distinct regions. The inflation was lowest at 2.6% during 1991-2016, which encompasses the biofuel boom. Among many factors, continuously rising food production per capita was identified as the likely cause of low food price inflation during this period. The U.S. exports of corn have not declined since the 1990s and soybean exports are rising at a steady rate. <u>Among several variables tested as a cause of food price index increase, crude oil price had the highest correlation</u>. We also manually verified the automated land use classification of satellite image covering 664 km^2 in three selected areas in the U.S. We found that 10.9% of non-agricultural land was misclassified as agriculture, whereas only 2.33% of agricultural land was misclassified as non-agriculture. The automated classification showed an 8.53% increase in agricultural land from 2011 to 2015, which the manual classification showed only 0.31% increase. This result was within the margin of error alluding to no significant land use change. <u>We concluded that automated satellite image land use classification should be verified more rigorously to be used for land use change analysis</u>."

Knowing Lark relies on considerable use of satellite images for estimating LUC, I share the conclusion from Shrestha et al. (emphasis added): "<u>Based on our findings, it was concluded that satellite analysis is not an accurate method of determining land use change. In summation, our findings indicate that there has been no significant change in U.S. food prices due to biofuels and biofuels have not caused any significant agricultural land use change. We conclude that machine classified satellite images do not have needed accuracy yet to be used for land use change analysis</u>."

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[11] K.G. Austin, J.P.H. Jones, C.M. Clark. A review of domestic land use change attributable to U.S. biofuel policy. Renewable and Sustainable Energy Reviews, Volume 159. 2022. https://doi.org/10.1016/j.rser.2022.112181.

[12] Id.

The fact that USDA's Cropland Data Layer (CDL) was never intended to be a tool for measuring LUC should be sufficient justification for dismissing the inaccurate "conclusions" from Lark et al. Many papers have been published to explain why the CDL should not be used to determine land use change.[13][14][15]

Workgroup Fails to Appreciate Advancements in Soil Sequestration and Nitrous Oxide Emissions That Further Lower Corn Ethanol's Carbon Intensity

The workgroup letter closes by referring to ***nitrous oxide (N_2O) emissions from corn farming and "field-scale" GHG emissions***. Farming practices can play a meaningful role in reducing lifecycle GHG emissions for corn starch ethanol, particularly practices to apply nitrogen fertilizer more efficiently and minimize N_2O emissions, as well as reduced tillage practices to increase soil carbon sequestration. My response to the workgroup letter will conclude with additional information on these critically important topics.

N_2O has a very high global warming potential. According to GREET, it's effect on climate change is 265 times that of CO_2, so N_2O emissions have a very large impact on total corn production GHG emissions. In contrast to the workgroup's erroneous claim that "…***nitrous oxide emissions are not well constrained by existing models***…" the GREET model estimates GHG emissions associated with the manufacturing and on-farm use of nitrogen fertilizer products (and other fertilizers and chemicals). With respect to nitrous oxide, the GREET model estimates nearly one-half of all corn production lifecycle GHG emissions are due to nitrogen-induced N_2O emissions.

One of the reasons the GREET model is by far the most superior tool for estimating the lifecycle GHG emissions of biofuels is that it is constantly updated to reflect real-world developments, and one example of this is how the scientists at Argonne have reviewed the vast literature on the impacts of 4R (Right rate, Right time, Right placement, and Right form) nitrogen fertilizer management on N_2O emissions. In a 2021 update to the GREET model, there is a significant N_2O reduction credit if 4R nitrogen management is used to produce corn. This is a positive development because many farmers already use 4R but the GREET model previously assumed no farmers employed this climate-smart practice.

Not only do nitrogen fertilizers have the potential to significantly impact GHG emissions, but they also represent a major cost of production for biofuel feedstocks such as corn (as evidenced by the geopolitical market shocks and supply chain disruptions stemming from Russia's ongoing invasion of Ukraine). This high cost of adoption is one reason so many farmers have carefully applied nitrogen fertilizers using 4R management and enhanced efficiency fertilizer (EEF) products where they can.

Corn producers who implement the 4Rs begin by determining the Right rate. This is a multi-step process often done in consultation with their agronomist, fertilizer retailer, or university soil and crop scientists. First, a yield goal is determined (based on historical yields) and the nitrogen that will be embedded in the corn grain protein and removed from the field. Many producers also employ global positioning system (GPS) yield monitoring/mapping and precision fertilizer application equipment, which enables them to easily conduct nitrogen rate strip trials to determine the economic optimum rate for each field. Producers

[13] Dunn, Mueller, and Eaton. Comments on Cropland Expansion Outpaces Agricultural and Biofuel Policies in the U.S. April 29, 2015

[14] Reitsma, Clay, Clay, Dunn, and Reese. Does the U.S. Cropland Data Layer Provide an Accurate Benchmark for Land-Use Change Estimates? January 14, 2016

[15] Wang, Wander, Mueller, Martin, and Dunn. Evaluation of Survey and Remote Sensing Data Products Used to Estimate Land Use Change in the United States: Evolving Issues and Emerging Opportunities. Environmental Science and Policy Journal. December 2021.

also utilize soil sampling/testing to determine nutrient and organic matter levels in their fields. This information is used to calculate an optimum economic fertilizer application rate.

Implementation of other 4R components also help minimize N_2O emissions. The GREET model assumes that 10% of nitrogen fertilizer is lost via ammonia (NH_3) volatilization. Choosing the Right form of nitrogen fertilizer and then injecting or incorporating the fertilizer into soil (Right placement) at application time can greatly reduce losses from ammonia volatilization. Right placement of nitrogen fertilizer (injecting into soil) can also significantly reduce runoff and associated N_2O emissions. Finally, Right timing of nitrogen fertilizer applications can significantly reduce direct N_2O emissions due to nitrification, denitrification, and the indirect N_2O emissions resulting from runoff and leaching losses.

The scientific data are strong that precision fertilizer management can significantly reduce both direct and indirect N_2O emissions resulting from nitrogen fertilizer losses from fields due to volatilization, runoff and leaching. If 4R management is fully implemented and EEFs are used, N_2O emissions could be reduced by up to 50% relative to currently modeled estimates, and I am confident the GREET model is the best tool by which to continue estimating these emissions.

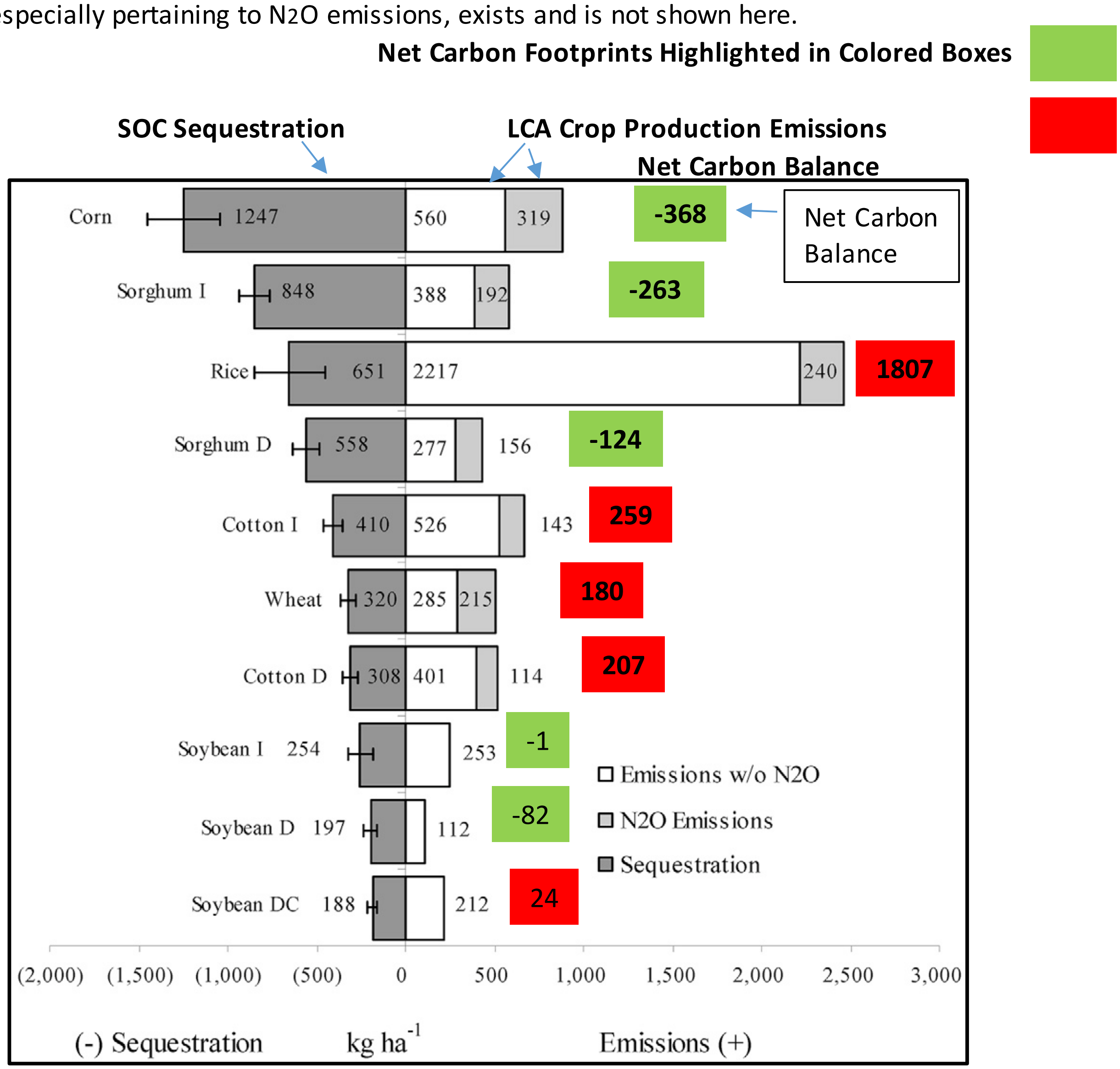
USDA has indicated agriculture can play an important role in mitigating climate change through soil carbon sequestration, which the department identifies as “among the best options for carbon storage in terrestrial ecosystems,” and estimates that U.S. farmers already store 20 million metric tons of carbon per year. USDA forecasts that agriculture could store an additional 180 million metric tons per year, representing an estimated 12-14 percent of total U.S. carbon emissions annually.

Each biofuel feedstock crop has a unique carbon footprint, not only for the energy and emissions due to production, but also for its effect on soil organic carbon stocks. For example, in 2011 Popp et al. modeled the “net” carbon emissions of crops commonly grown in Arkansas.[16] These soil and crop scientists defined “net” carbon emissions as the all-inclusive lifecycle CO_2 equivalent GHG emissions during crop production plus the effect each crop has on soil carbon stocks. Their peer-reviewed data show that C4 crops such as corn and sorghum can sequester significant amounts of atmospheric carbon in soil that offset some of their production-related lifecycle GHG emissions and when managed well can offset all or more than all of their GHG emissions and are “net” GHG sinks. On the following page is a graphical illustration from Popp et al. of the “net” carbon emissions from several crops:

[16] “Estimating Net Carbon Emissions and Agricultural Response to Potential Carbon Offset Policies”. http://agris.fao.org/agris-search/search.do?recordID=US201500052566

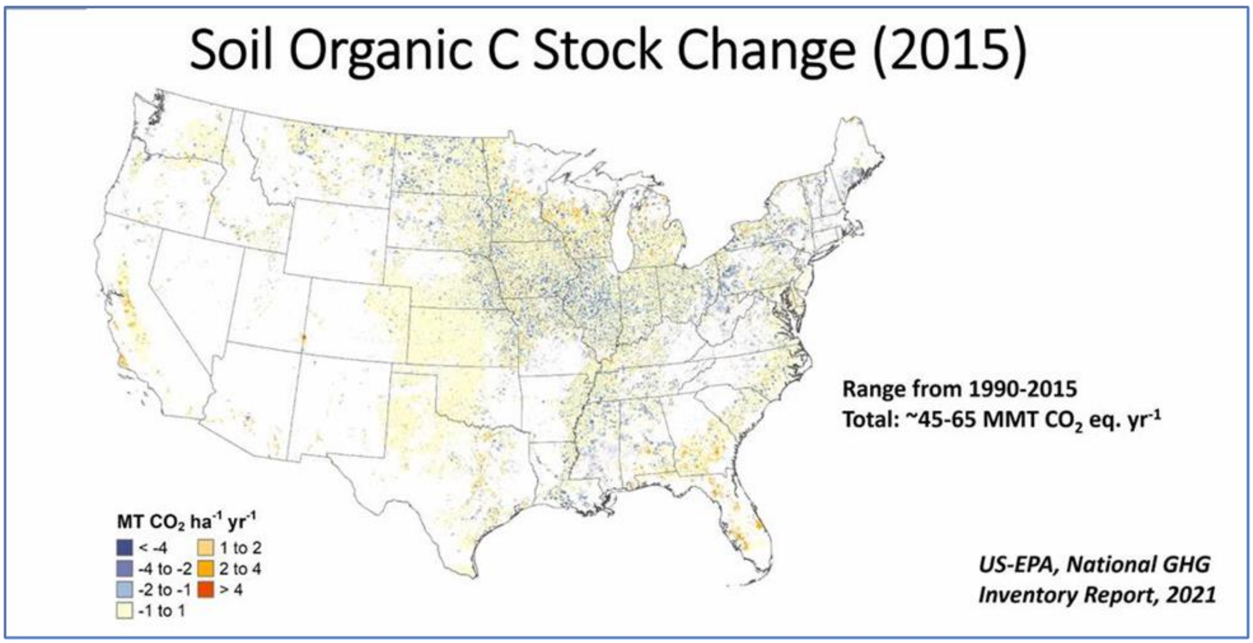
Figure 1, page 1134

Carbon equivalent emissions and sequestration by crop including variation in C sequestration due to yield, soil, and tillage effects; I = irrigated, D = unirrigated or dryland, DC = double cropped. Error bars on the sequestration side include variation due to yield, soil type, and tillage effects but exclude expected variation in harvest index and root/shoot ratio. Also note that soybean production entailed no N fertilizer application and hence no N_2O emissions. Additional uncertainty, especially pertaining to N_2O emissions, exists and is not shown here.



As Popp et al. show, there are significant differences in the “net” GHG emissions during the production of major crops. Corn is the most GHG-intense crop (other than rice) due to the fertilizer nutrient requirements to produce corn’s large mass of grain, residue and root biomass. But corn’s large production of root and unharvested residue can result in significant carbon sequestration in soil which can offset its production-related GHG emissions. This research from Popp et al. indicates C4 crops such as corn and sorghum can be net GHG sinks. Crops with C4 atmospheric carbon fixation pathways such as corn and sorghum produce significantly more biomass, calories and protein per unit of land, water and fertilizer nutrients than C3 crops, so it is no surprise that corn and sorghum stand out in terms of “net” LCA carbon emissions. This research indicates that corn production systems can lead to soil carbon sequestration which offset significant, if not all, soil and production energy GHG emissions.

This point was reinforced during EPA’s 2022 workshop on biofuel GHG modeling by Dr. Stephen Ogle of Colorado State University. Dr. Ogle discussed a map he produced (below) using the DAYCENT soil carbon model for the latest version of the EPA Inventory of U.S. GHG emissions and sinks.

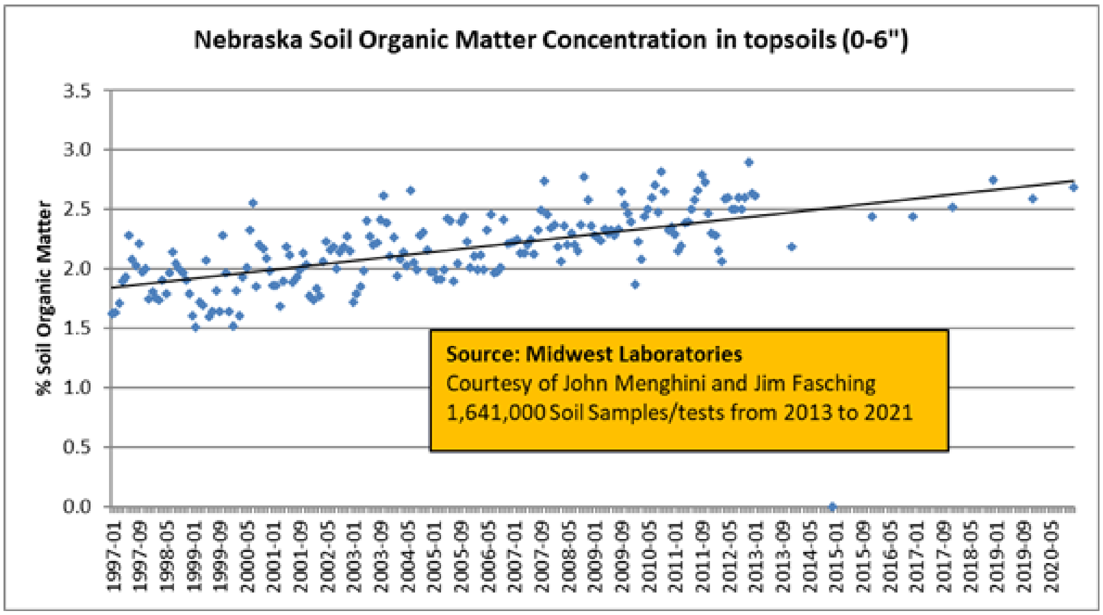


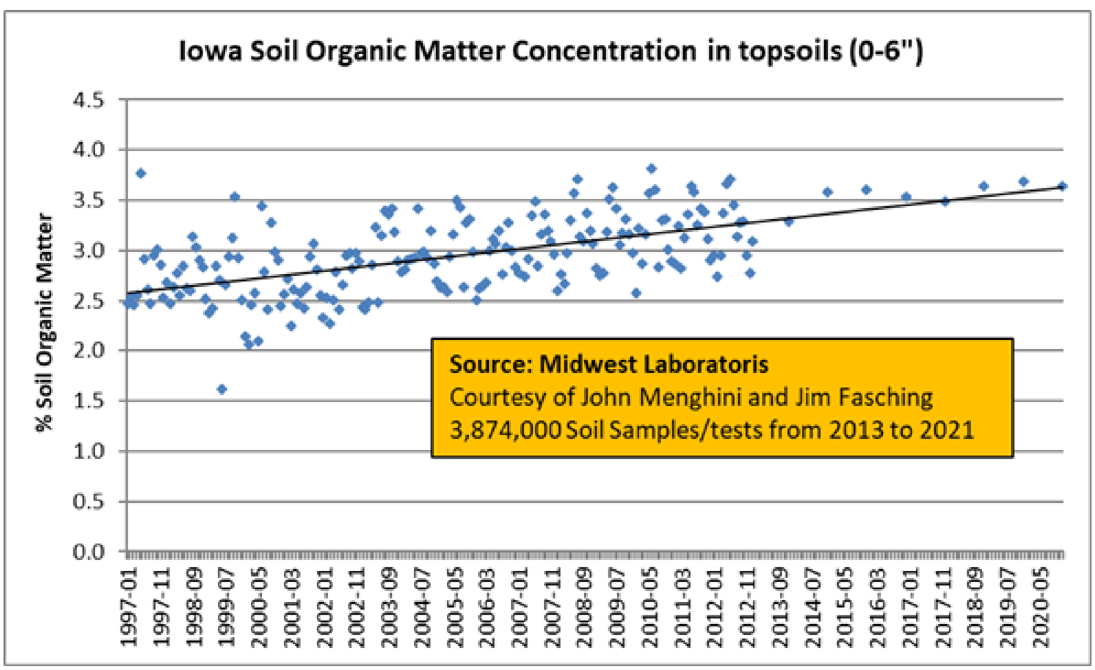
Negative values on this map indicate CO_2 is being sequestered in the soil. When speaking about this map, Dr. Ogle indicated soil carbon sequestration on croplands far surpass any soil carbon losses from biofuel demand driven land use change and that increasing crop yields over time is the principal reason for this increase in soil organic carbon stocks.

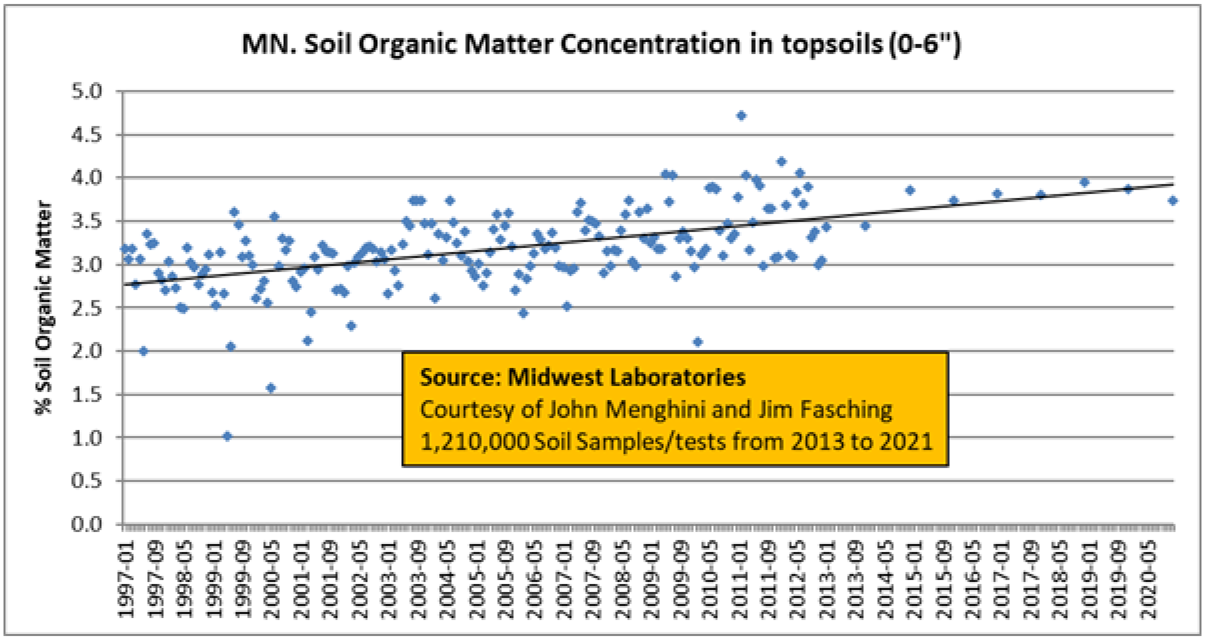
Soil scientists and others have studied and quantified the significant loss of soil organic matter since the Midwest prairies were first plowed more than a century ago. In many regions, 50 percent of the total soil organic carbon was decomposed and entered the atmosphere as CO_2. This occurred for two reasons: 1) croplands were intensively tilled to control weeds, which oxidized and decomposed the soil organic matter, and 2) the low-yielding annual crops that replaced the prairie grasses failed to produce enough unharvested organic material to maintain soil organic matter. This cropland carbon deficit situation continued for several decades until annual crop yields rose high enough to meet and exceed soil organic matter maintenance levels. At the same time, herbicides were developed to control weeds so intensive tillage of croplands was decreased. The combined result of these two positive developments has been increases in cropland soil organic matter.

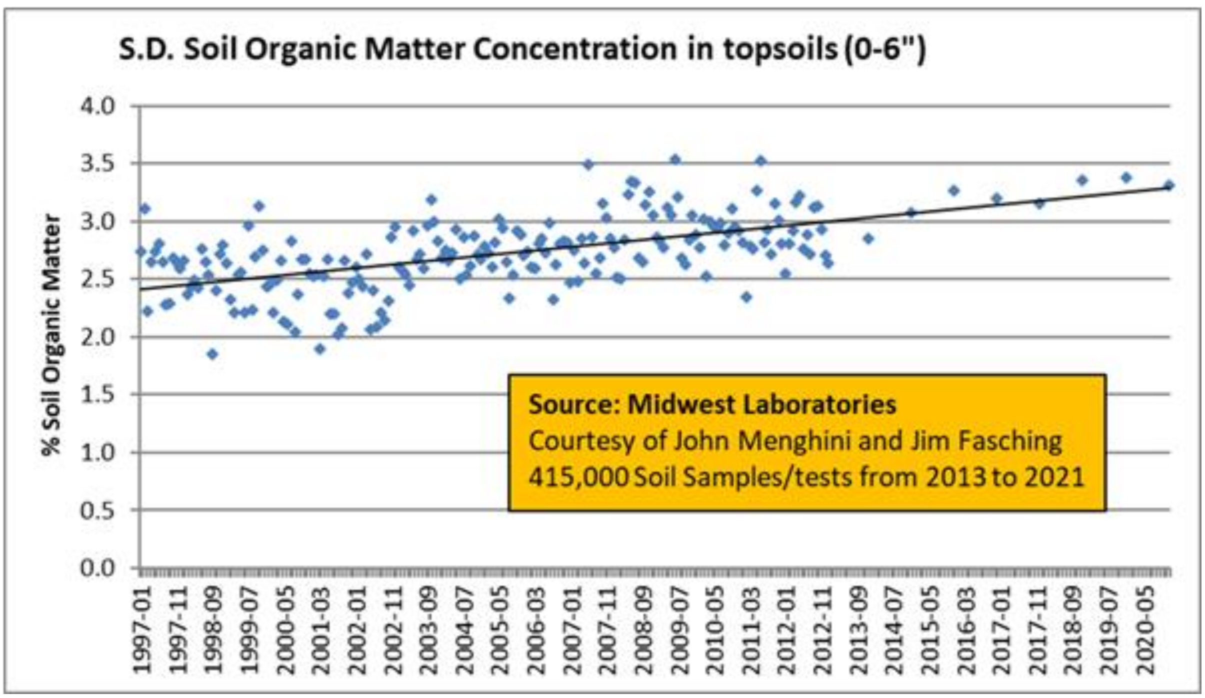
Midwest Laboratories, a large Nebraska-based soil testing laboratory, has documented the uptrend in soil organic matter. During the past 23 years, Midwest Laboratories tested more than 10 million soil samples from croplands in Iowa, Nebraska, Minnesota and South Dakota for soil organic matter content. These tests indicate that on average soil organic matter has increased more than 40 percent, from 2.3 percent in 1997 to 3.3 percent in 2020.

Please refer to the following graphs illustrating the state-specific increases in soil organic matter as verified by Midwest Laboratories.









The long-term trendlines indicate soil organic matter levels are on the rise. To put this into perspective, a 1 percent increase in topsoil organic matter means removal of about three-fourths of a ton of atmospheric CO_2 per acre per year.

Moreover, a summary of 74 peer-reviewed soil carbon studies in corn fields (Xu et al. 2019 meta-analysis) has confirmed what soil carbon models have long predicted; if crop yields are high enough, crop residues are left in place in fields, tillage is reduced, and soil organic matter stocks increase.[17]

ACE believes soil carbon models and the GREET model should be used by regulators such as EPA and CARB to assign carbon credits for climate-smart farming practices that help reduce the overall CI of biofuels such as corn ethanol, such as 4R nutrient management or reduced tillage of corn production. However, Argonne has noted that local soil and cropping systems may generate differences in GHG benefits, and that localized assessments may be needed to facilitate access into LCFS markets. CARB and other regulators lean on the "need" for localized assessments as an excuse for not providing farm-level carbon credits for biofuels, despite the fact CARB willingly uses models to assign carbon penalties (such as LUC) to biofuels.

To help breakthrough this stonewalling and convince market regulators and lifecycle modelers to provide carbon credits for certain farming practices, ACE is leading a pilot project in South Dakota funded by USDA's Natural Resource Conservation Service Regional Conservation Partnership Program (RCPP). In general, our project pays farmers surrounding Dakota Ethanol, LLC (a farmer-owned ethanol facility in Wentworth, South Dakota) to implement climate-smart conservation practices to benefit soil health, increase productivity, and sequester carbon and other GHGs over a five-year period. We are collecting field-level data to calibrate existing models and validate the GHG benefits of these climate-smart farming practices. Our ultimate goal is to develop a non-proprietary tool for farmers and ethanol plants to prove farm-level benefits in securing pathways to low carbon or clean fuel markets.

More specifically under our RCPP, farmers in a seven-county grain-shed surrounding the ethanol facility are paid competitive rates for no-till, reduced-till, nutrient management and cover crop practices. Farmers who are already undertaking such practices will be eligible for payments to share relevant soil and cropping data that will help expedite the calibration and validation of beneficial scientific results from the project. To this end, USDA funds will be used to quantify and measure/verify the carbon reductions resulting from these climate-smart farming practices. A statistically relevant number of annual soil samples will be collected throughout the grain-shed to ensure scientific rigor of the project findings. Soil information collected will include bulk density, soil texture, soil water, pH, organic matter carbon, and nitrogen and phosphorus concentration. Information related to farm management will also be requested from participating farmers. This includes dates such as planting to harvest, yield, nutrient application rate, management history, tillage type. In addition, weather information will be collected each crop year related to temperature, precipitation, wind, and humidity. Each of these factors are necessary to help validate the predictive model carbon results.

Demonstrating scientific rigor of GHG benefits related to climate-smart farming practices at relevant landscape scale is critical to increase confidence levels in existing models and enable farmers and ethanol producers to monetize the farm-level GHG reductions in regulated low carbon or clean fuel markets. While proprietary quantification and verification systems designed by private companies for voluntary markets tend to siphon significant value away from farmers for GHG reductions, our project will create a non-proprietary agro-ecosystem tool that can be used by all farmers and ethanol producers to meet quantification and verification requirements and maximize opportunities in regulated clean fuel markets.

[17] https://onlinelibrary.wiley.com/doi/10.1111/gcbb.12631

Ultimately, the combination of climate-smart farming practices, constant improvements and efficiencies within ethanol facilities, and carbon capture and sequestration (CCS) puts corn ethanol on a trajectory to reach both net-zero and net-negative emissions – a trajectory that is unique to ethanol and squarely puts farmers and biofuel producers in a position to be a meaningful part of the solution to climate change.

Conclusion

In closing, I am compelled to comment that the six-person RFS workgroup established by the SAB does not reflect the breadth nor depth of interests and expertise necessary for a fair and balanced assessment of the GHG emissions of corn starch ethanol. In fact, one of the workgroup members is employed by an organization which has called for repeal of the RFS in Congress. Should the SAB expect any credibility from the RFS workgroup in the future, I call on you to withdraw their misleading draft letter and reconstitute the workgroup to represent a more balanced range of expertise and interests.

I hope this information helps set the record straight regarding corn starch ethanol GHG emissions during the SAB's September 21-22 public meeting.

Sincerely,

Brian Jennings, CEO
American Coalition for Ethanol

cc: The Honorable Michael Regan, Administrator, Environmental Protection Agency
The Honorable Tom Vilsack, U.S. Secretary of Agriculture