April 29, 2021

Mr. Seth Meyer
Chief Economist
Office of the Chief Economist
United States Department of Agriculture
1400 Independence Ave, SW
Washington. D.C. 20250

RE: Docket No. USDA-2021-0003 request for information

Submitted via: ***www.regulations.gov***

Dear Mr. Meyer:

On behalf of the members of the American Coalition for Ethanol (ACE), I appreciate the opportunity to provide comments as the U.S. Department of Agriculture (USDA) evaluates ways to facilitate a new climate-smart agriculture strategy.

ACE is a grassroots advocacy organization, powered by rural Americans from all walks of life who have built an innovative industry that delivers low carbon biofuel and food for a growing world. Our members include U.S. ethanol biorefineries, investors in biofuel facilities, farmers, and companies that supply goods and services to the U.S. ethanol industry.

The Challenge

The Biden administration has outlined ambitious climate goals. During last week's global summit, President Biden said the U.S. would aim to reduce greenhouse gas (GHG) emissions by 50 percent (compared to 2005 levels) by 2030. More broadly, the President has set a goal of "net-zero" GHG emissions in the U.S. by 2050.

Simply put, the U.S. will not achieve these goals unless steps are taken to reward farmers and biofuel producers for their ability to be part of the solution to mitigate climate change.

Therefore, as USDA contemplates the role it will play to advance climate-smart agriculture, we strongly urge you to help develop a commonsense framework to finally reward farmers for soil carbon sequestration practices in anticipation of a national low carbon fuel standard (LCFS) market in the future. It is a matter of when, not if, a national LCFS program is enacted by Congress or developed by the Environmental Protection Agency (EPA) through rulemaking. A properly crafted LCFS rewarding farm-level activities that help reduce the lifecycle carbon intensity (CI) of corn ethanol can be a strong market driver for farmer conservation practices that remove CO_2 from the atmosphere and sequester it in soil, improve soil and water quality, advance agricultural climate resilience, and reduce GHG emissions.

In 2018 ACE published a report titled "The Case for Properly Valuing the Low Carbon Benefits of Corn Ethanol" to highlight how U.S. farmers and ethanol producers are improving efficiencies, investing in technologies, and adopting practices to dramatically reduce lifecycle GHG emissions from corn ethanol. This report explains how increasing the use of corn ethanol beyond levels called for in the Renewable Fuel Standard will help reduce GHGs. It also calls on EPA to adopt the latest U.S.

Department of Energy "GREET" model for making determinations about ethanol's lifecycle GHG emissions, because EPA's own analysis overstates reality. Finally, the White Paper reinforces USDA's conclusion that agriculture can help mitigate climate change and connects the dots between reduced till corn production and low carbon ethanol which could generate an economic premium with an appropriate market incentive.

The Opportunity

To be clear, today's corn ethanol meets the definition of an advanced biofuel. According to the latest GREET model, average corn ethanol already reduces GHG emissions by 50 percent compared to gasoline. In other words, we do not need to wait for so-called next generation crops or biofuels, or electric vehicles (EVs) and an entirely new supply chain to support them, to immediately begin tackling climate change.

The GREET model is likely to be updated soon to account for the increased adoption of reduced tillage corn production, enhanced efficiency fertilizer use, and soil carbon sequestration from corn. When the GREET model reflects these updates, corn ethanol will get credit for reducing GHG emissions by between 60 and 70 percent compared to gasoline. In fact, ethanol is the only transportation energy source that can reach net-negative carbon intensity through carbon capture and sequestration (CCS) and continued advancements within ethanol facilities and on-farm practices in how biofuel crops are grown.

Therefore, the sooner USDA helps validate the role farm-level practices can have in further reducing corn ethanol's carbon footprint, the sooner the U.S. can begin making good on ambitions to reduce GHG emissions by 50 percent by 2030 and reaching net-zero emissions by 2050.

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.

This potential can best be achieved through LCFS policies that reward farmers and ethanol facilities for CI reductions. Currently, markets like the California LCFS provide renewable fuels with a price premium based on the degree to which GHG emissions are lower than petroleum-based gasoline. While the CA LCFS credits GHG reductions at the ethanol facility, it does not yet credit reductions achieved through conservation practices undertaken in ethanol feedstock production. USDA can and should provide leadership to help regulators like EPA and the California Air Resources Board (CARB) understand the need to reward farm-level practices that help reduce the overall CI of biofuels such as ethanol.

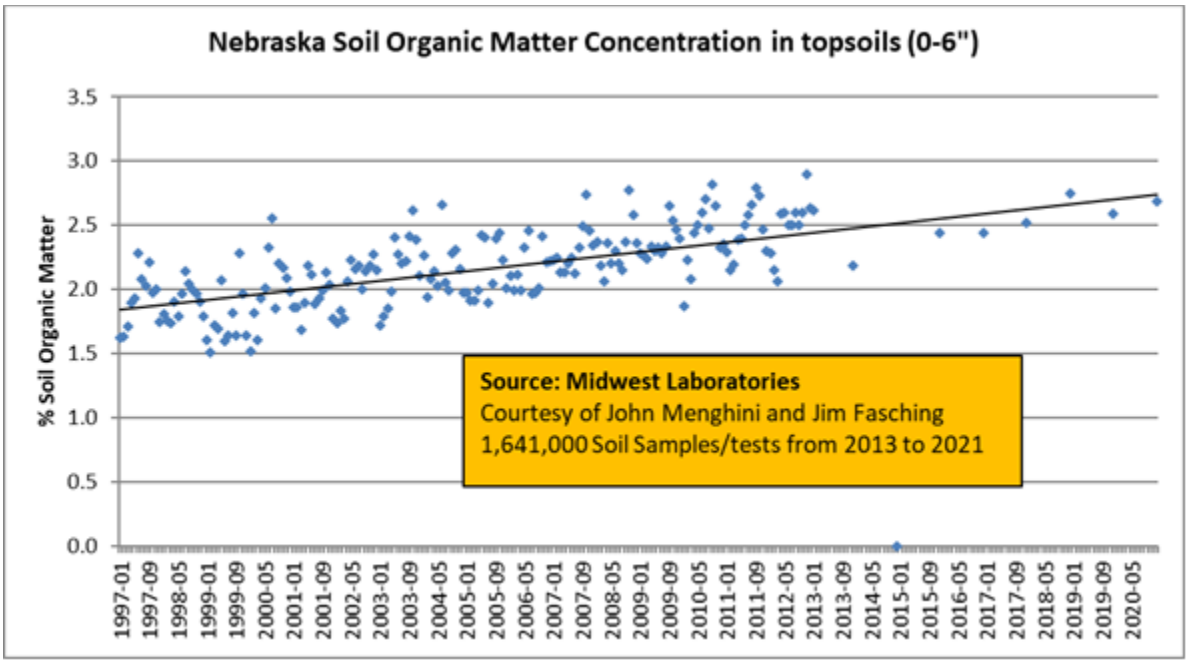
The lifecycle GHG emissions of corn ethanol can be divided between corn farming activities and the ethanol production process. Many ethanol producers have invested in technology to reduce CI within their facilities, but future progress on the ethanol production side is likely to be incremental. On the other hand, corn production holds the greatest potential for meaningful GHG improvements in the future. For example, practices to apply nitrogen fertilizer more efficiently and minimize nitrous oxide (N_2O) emissions provide near-term opportunities to reduce farm-level GHG emissions attributed to the lifecycle CI of ethanol. Additionally, tillage practices fostering enhanced soil carbon sequestration should result in a credit to offset or further reduce corn production GHG emissions.

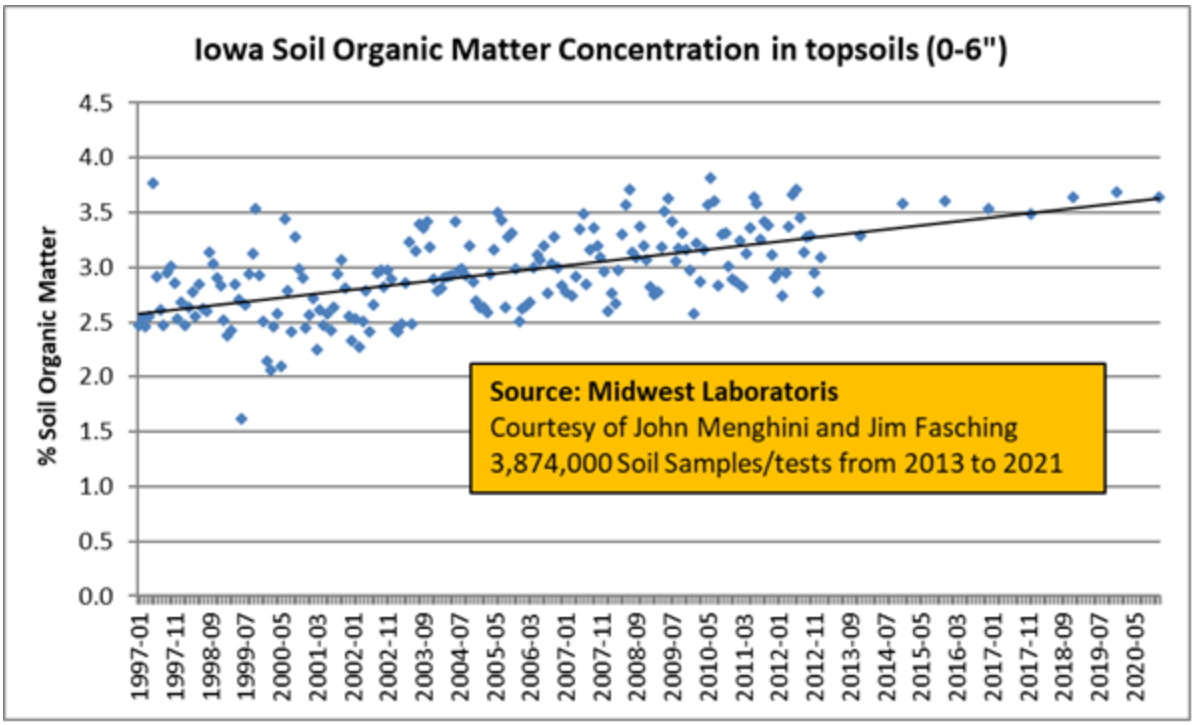
Soil scientists and others have studied and quantified the significant loss of soil organic matter since the Midwest prairies were first plowed more than a century ago. In many regions, 50 percent of the

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 were 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.




Iowa Soil Organic Matter Concentration in topsoils (0-6")
% Soil Organic Matter
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4.0
3.5
3.0
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2.0
1.5
1.0
0.5
0.0
1997-01
1997-11
1998-09
1999-07
2000-05
2001-03
2002-01
2002-11
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2004-07
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2006-03
2007-01
2007-11
2008-09
2009-07
2010-05
2011-03
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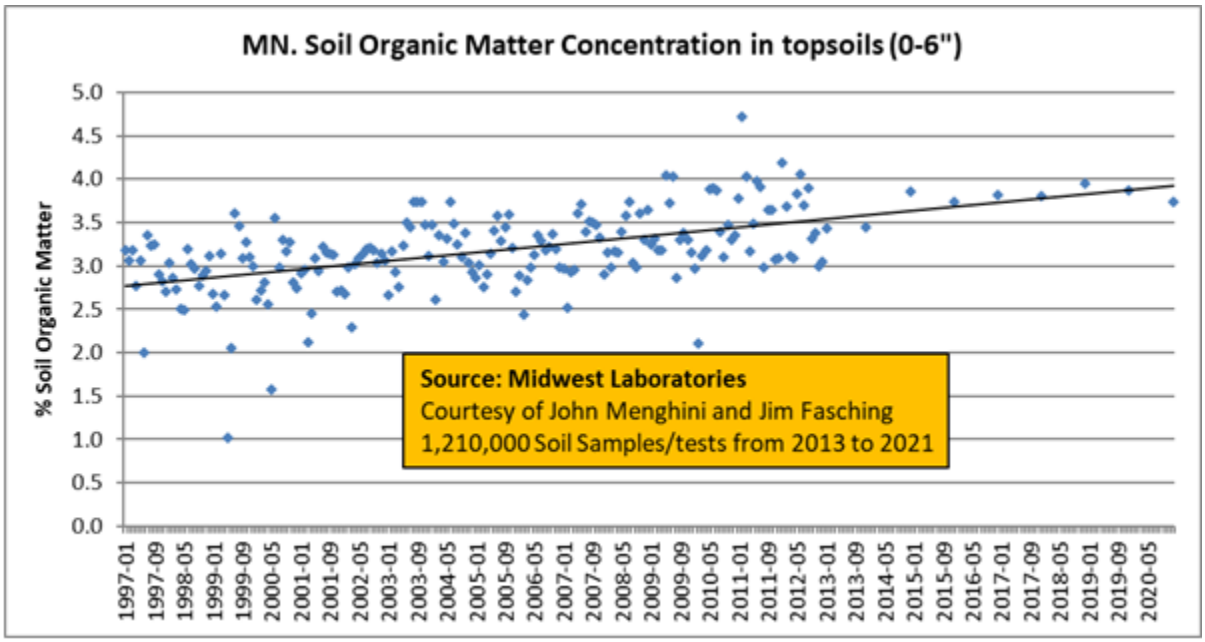
2018-09
2019-07
2020-05
Source: Midwest Laboratoris
Courtesy of John Menghini and Jim Fasching
3,874,000 Soil Samples/tests from 2013 to 2021


MN. Soil Organic Matter Concentration in topsoils (0-6")
% Soil Organic Matter
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1997-01
1997-09
1998-05
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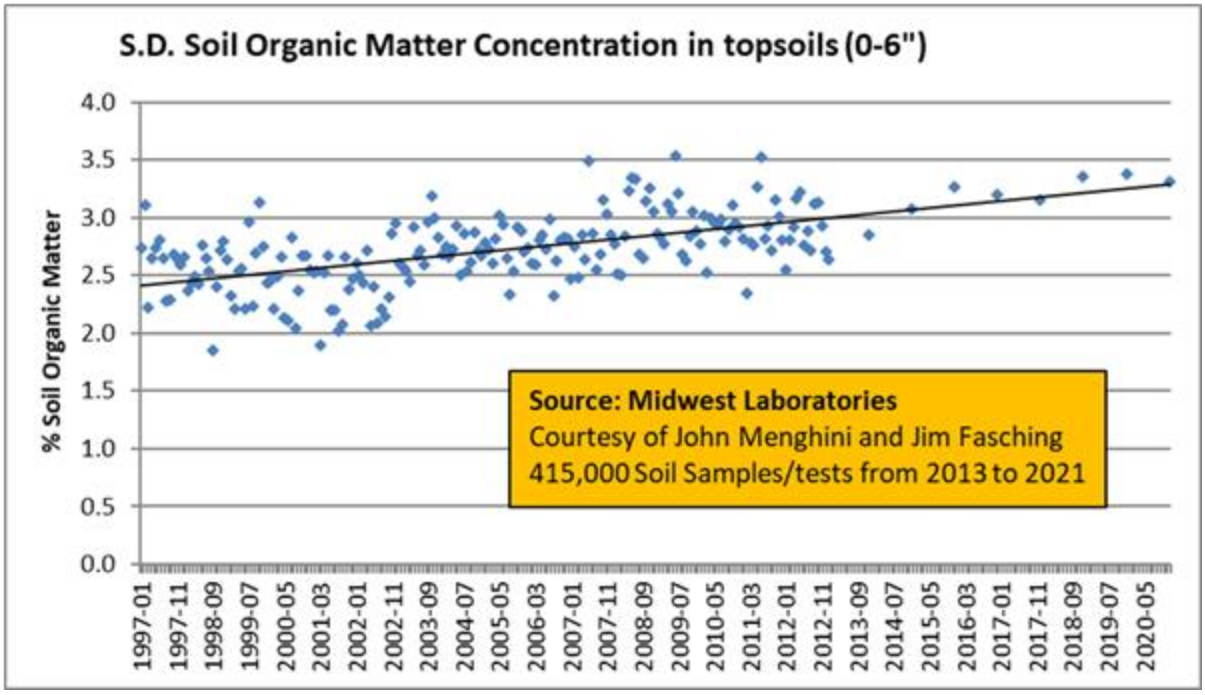
Source: Midwest Laboratories
Courtesy of John Menghini and Jim Fasching
1,210,000 Soil Samples/tests from 2013 to 2021



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. A well-crafted carbon reduction program for transportation fuels, such as a national LCFS, that incents even further tillage intensity reductions would accelerate this soil organic matter uptrend.

With respect to setting the wheels in motion to help make a national LCFS a reality, some interest groups want USDA and other government entities to slow-walk how to quantify and verify on-farm carbon reductions. We urge USDA to reject those who want to stall this process and our comments will conclude with some recommendations for how to accomplish this sooner rather than later.

Conservation tillage practices, improved nutrient management, and, in some cases, the adoption of cover crops provide significant carbon benefits. Both USDA and DOE research supports the fact that conservation practices reduce the GHG air emissions associated with ethanol production and that crediting these reductions in LCFS markets would expand conservation practice adoption by providing a market-based economic incentive to farmers.

According to a 2018 ICF report for USDA's Office of Energy and Environmental Policy, these practices would reduce the carbon intensity of corn-ethanol production by 71.6% relative to gasoline.[1] DOE's Argonne found that a corn/rye-soybean/vetch cover crop system in the upper Great Plains would result in increased carbon sequestration, reducing the carbon intensity of the agricultural production,

[1] https://www.usda.gov/sites/default/files/documents/LCA_of_Corn_Ethanol_2018_Report.pdf

and generate a $279 per acre CA LCFS payment. Argonne concluded crediting these conservation practices would incentivize additional practice adoption.[2]

This is a significant economic opportunity for farmers and ethanol producers. For example, if farmers supplying an average size ethanol facility in the Upper Great Plains shifted from conventional tillage to reduced tillage, it would result in a reduction of 91,000 metric tons of GHG emissions per year in the project area; reduce particulate matter and ozone; and improve soil health, water conservation and quality. If LCFS markets credited these GHG benefits, farmers would reap 39-49 cents per bushel, a sizable economic incentive for farmers to maintain or expand these multi-benefit practices long term.

Soil carbon models and the GREET model could be used by regulators such as CARB today to assign credits for climate-smart farming practices that help reduce the overall CI of biofuels such as corn ethanol. 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 LCFS market access. 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 land use change) to biofuels. To help breakthrough this stonewalling, we offer recommendations to overcome this and ensure farmer access to low carbon fuel markets.

<u>USDA's Critical Role to Help Validate Farm-Level Carbon Credits for Biofuels</u>
One key to pave the way for LCFS market access based on conservation practices is through commonsense localized quantification and verification measures. USDA can leverage existing conservation program authorities to help develop these measures and ensure market access that will drive further conservation practice adoption. For example, USDA could use existing flexibilities to establish an initiative to help farmers and ethanol facilities quantify and verify the value of carbon-friendly ag practices.

Under such an initiative, USDA could target a portion of existing NRCS EQIP incentives for reduced tillage and nutrient management toward farmers selling grain to ethanol facilities wishing to reduce their CI. This would help ensure sufficient participation within the grain-shed. Targeted USDA financial incentives alone, however, will not result in LCFS market access. To secure such market access, farmers and ethanol facilities will need to have commonsense and cost-effective ways to quantify and verify the carbon benefits of these practices.

This is where existing USDA conservation policies fall short because NRCS conservation funding cannot be readily accessed to pay for quantifying changes in on-farm soil health indicators and nitrogen fertilizer inputs. We recommend USDA consider working with participating farmers to collect and model the results of the supported conservation practices at the grain-shed level. This would generate the localized GHG assessments and the verification LCFS market regulators desire to provide farmers with market access based upon conservation practice adoption. This information can then be used to validate carbon measurement models by comparing the predicted emissions from these models with field observations from those farmers participating in such an initiative. This will build further confidence in the accuracy of the models and facilitate their expanded usage in valuing carbon reductions in LCFS markets and reduce the perceived need for field-level data on an ongoing and long-term basis.

In conclusion, we encourage USDA to help establish an open-source protocol that any biofuel facility and its feedstock suppliers can use to document the CI benefits of changes in agricultural practices

[2] https://iopscience.iop.org/article/10.1088/1748-9326/ab794e

including change in tillage and new nutrient management protocols. ACE strongly believes that any framework should be non-proprietary and open to farmers to maximize the benefits they can receive. Some proposals by private companies want to charge farmers and biofuel companies a significant percentage of any credit value to gain access to the LCFS market through their service. Such an approach is already making farmers skeptical about the real value of these economic opportunities.

Our recommendation for USDA is to establish a framework where farmers and biofuel facilities feel they are receiving the maximum value for their carbon contributions so that it incents further participation and climate gains.

We appreciate the opportunity to comment on this important matter and stand ready to engage with the appropriate officials at USDA about potential next steps.

Sincerely,

Brian Jennings, CEO
American Coalition for Ethanol