OHIO SOYBEAN ASSOCIATION

September 19, 2022

Cheryl Laskowski, Ph. D.
Chief, Transportation Fuels Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Via electronic submission

Re: Potential Changes to the Low Carbon Fuel Standard

Dr. Laskowski:

The Ohio Soybean Association (OSA) appreciates the opportunity to submit comments in response to the California Air Resources Board's (CARB) second public workshop on "Potential Changes to the Low Carbon Fuel Standard."

OSA represents approximately 25,000 Ohio soybean farmers on domestic and international policy issues important to the soybean industry. Ohio soybean growers have long been committed to producing the world's food, feed, fuel, and thousands of other bioproducts in a sustainable and climate-smart way.

Biomass-based diesel was developed with the support of soybean farmers and helped offset lost demand for soybean oil after the Food and Drug Administration started regulating trans fats in 2006. Soybean growers and others worked to promote commercial production of biodiesel made from soybean oil – a product that supports farmers and rural economies and diversifies the fuel supply while reducing greenhouse gas (GHG) emissions as a drop-in fuel that can be used in diesel engines on the road today.

The growth of the biodiesel industry, and more recently the renewable hydrocarbon diesel industry, has been spurred by strong federal and state-level policies that promote cleaner, lower-carbon energy sources. Increased utilization of biomass-based diesel over the past several years has had a marked impact on the rural economy. Domestic markets use over 2.5 billion gallons of biomass-based diesel which supports over 65,000 jobs—many in rural America—and creates an economic impact of $17 billion[1]. State climate programs play a critical role in supporting this industry through Low Carbon Fuel Standards (LCFS) policies.

[1] LMC International, 2019. *The Economic Impact of the Biodiesel Industry on the U.S. Economy.* National Biodiesel Board.

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As CARB begins to consider potential emissions factor updates to their CA-GREET modeling system, OSA encourages consideration of updated available scientific data throughout the process. Accurate data will ensure the continued availability of feedstocks like soy to meet California's GHG emissions goals.

Updating Emission Factors

The LCFS and the staff that oversee the program have always sought to use the best available science. We were pleased when CARB expressed interest in updating key life cycle assessment (LCA) emission factors as some of the information in GREET 3.0 is over a decade old. For example, the soybean farming inputs (energy, herbicides, etc.) stems from crop year 2012. Similarly, the assumptions for soybean processing date to 2010.

Comparison of Soybean Farming Inputs per bushel[2]

	GREET 2021 - 2018 Crop Year	GREET 2016 - 2012 Crop Year
Total N (g)	43.7	48.1
P2O5 (g)	207.8	186.7
K2O (g)	329.6	299.1
CaCO3 (g)	0	0
Herbicide (g)	19.4	17.9
Insecticide (g)	0.3	0.4
Diesel (Btu)	9,353	12,985
Gasoline (Btu)	2,065	2,902
NG (Btu)	176	933.1
LPG (Btu)	662	725.7
Electricity (Btu)	1,468	886.6

Updating the feedstock component of renewable diesel produced from soybean oil would result in a farm production score of approximately 8.9 g CO_2e/MJ[3] compared to the current 9.7 used in the program. Importantly, this change is based upon simply updating the data to accurately reflect current information. The benefits of an LCFS are only achieved if the pathway carbon intensities (CI's) accurately capture actual emissions.

In 2021 Argonne National Lab in collaboration with biomass-based diesel producers, Clean Fuels Alliance America, and USDA collaborated to survey producers and update estimates for several biobased diesel pathways including soybean oil biodiesel and renewable diesel. The updated GREET

[2] Clean Fuels Alliance America comments to EPA for Docket ID No OAR-2021-0921.

[3] Life Cycle Greenhouse Gas Emissions of Biodiesel and Renewable Diesel Production in the United States
Hui Xu, Longwen Ou, Yuan Li, Troy R. Hawkins, and Michael Wang
Environmental Science & Technology 2022 56 (12), 7512-7521
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model contains new estimates for farming inputs as well as fuel production. While it was not included in the 2021 update, the National Oilseed Processors Association (NOPA) along with the United Soybean Board are in the process of surveying farmers and NOPA members to support an industry-driven lifecycle assessment study for U.S. soy.

Beyond direct feedstock GHG emissions, OSA encourages CARB to carefully reconsider indirect land use (ILUC) emission calculations. CARB's modified version of GTAP has a value of 29.1 CO_2e/MJ for soybean oil-based biodiesel and renewable diesel. By comparison, the Carbon Calculator for Land Use and Land Management Change for Biofuels Production (CCLUB) in GREET (2019) has a value of 9.3 for soy biodiesel and 9.2 for renewable diesel[4] and GTAP-BIO has a value of 17.5 for U.S. soy biodiesel[5]. CARB's soybean feedstock ILUC score is significantly above current values generated for the same measure.

Conclusion

The U.S. soybean industry has been a long supporter and partner in the development of cleaner, lower-carbon fuels. A vibrant oilseed sector, and the biofuels produced from oilseeds, is critically important to lowering the GHG emissions in the United States' and California's fuel supply. In order for the carbon reduction to be optimized, low carbon fuel programs must use the most recent and best data to calculate emissions. If this is not regularly updated, the CI scores will not be reflective of current reality resulting in higher compliance costs and/or potentially higher emissions due to a lack of incentivized consumption of low CI fuels. This results in deadweight loss to California's economy which is a cost created by the misallocation of resources.

OSA is eager to continue working with CARB to support the role of agriculture in diversifying the fuel supply and supporting cleaner fuel options in California and beyond. On behalf of Ohio's soybean farmers, we appreciate this opportunity to comment and look forward to collaborating with CARB and other relevant stakeholders to enact policies that will address climate change while expanding the use of soy-based biofuels and market opportunities for soybean farmers.

Sincerely,

Patrick O. Knouff

Patrick O. Knouff
President
Ohio Soybean Association

[4] Life Cycle Greenhouse Gas Emissions of Biodiesel and Renewable Diesel Production in the United States
Hui Xu, Longwen Ou, Yuan Li, Troy R. Hawkins, and Michael Wang
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[5] Taheripour F, Tyner WE. US biofuel production and policy: implications for land use changes in Malaysia and Indonesia. Biotechnol Biofuels. 2020 Jan 18;13:11. doi: 10.1186/s13068-020-1650-1. PMID: 31988663; PMCID: PMC6969472.

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