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August 8, 2022

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

Re: Comments to Address Potential Changes to the LCFS Regulation

Summary: ADM does not see a need to adjust the LCFS to limit crop-based biofuel volumes.

Dear Dr. Laskowski,

Thank you for the opportunity to comment on potential changes to the Low Carbon Fuel Standard (LCFS). California's early influence as a global leader in the development of lower carbon energy policy has enabled the renewable fuels industry to grow with direction and purpose. Ten years of developing the LCFS underscores the California Air Resources Board's commitment to improving the lives of all Californians. We appreciate the request for information on these topics and would like to address the areas that impact the industries in which we have experience and expertise.

ADM has a vital interest in these issues. For more than a century, ADM has transformed crops into products that serve the vital needs of a growing world. We unlock the power of nature to enrich the quality of life. Today, we are one of the world's largest agricultural processors and food ingredient providers, with approximately 40,000 employees serving customers in more than 200 countries. With a global value chain that includes approximately 450 crop procurement locations, more than 330 food and feed ingredient manufacturing facilities, 62 innovation centers and the world's premier crop transportation network, we connect the harvest to the home, making products for food, animal feed, industrial and energy uses.

Renewable fuels have been a critical part of our business since we first started producing ethanol in 1978 and later added biodiesel production in 2006. Today in the U.S., we manufacture over 1.4 billion gallons of corn-based ethanol per year at eight plants in six locations. We also make or market more than 275 million gallons of biodiesel per year at our four facilities, produced from a wide variety of feedstocks. Collectively, our current biofuels production operations support nearly 4,000 jobs, and indirectly support tens of thousands more.

1. Food and fuel concerns: biofuel volumes from lipid-based feedstocks should not be limited.

ADM engages on food and fuel issues on a daily basis. To ensure we are able to feed and fuel a growing global population for years to come, it is also essential to work with suppliers to implement sustainable agricultural practices. Over the years, ADM has engaged over 13 million acres in sustainable agricultural programs across five continents. Working across 11 active projects in the U.S., we engage

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growers representing over 800,000 acres of corn, soy, and wheat. In 2020, growers in these projects planted over 130,000 acres of cover crops, reducing nutrient run-off and soil erosion while sequestering carbon in the soil. ADM plans on scaling up efforts in 2022 around incentivizing farmers to adopt regenerative ag practices that include conservation tillage, fertilizer management and cover crops. ADM expects those acres to continue to expand through 2035 under our Strive 35 corporate sustainability goals.

Engaging and educating our food customers on all market dynamics enables us to work together to address their concerns in a productive manner while staying aware and alert to any potential future pricing impacts. Previous and current commodity price increases have been influenced by issues unrelated to renewable fuels, including drought and, most recently, war and COVID-19. A well-informed market with long-term vision is able to make strategic decisions on allocation of resources. CARB's ability to provide clarity and certainty allows U.S. participants (production agriculture, food processors, transportation providers and end users) to find the most effective and efficient manner to provide food for a growing population while producing lower carbon energy.

Crop-based biofuels are the most efficient way to produce food and energy.

Fuels derived from crop-based biofuels do not negatively impact the production of human or animal nutrition. In fact, crop-based fuels, like ethanol and biodiesel, produce both food and fuel at affordable prices. According to the USDA, 2020 data shows that, for every $1 consumers in the U.S. spend on food, only about $0.16 results from raw farm commodity costs. The remaining $0.84 is a result of other post-farm factors, such as the costs of transportation, processing, packaging, and retailing. Crop-based biofuels provide a valuable source of high protein meal that is predominantly used as an efficient and cost-effective component of livestock feed.

USDA forecasts global demand for poultry to grow at a rate of 38.6% over the next 5 years while U.S. consumption is expected to grow 13.2%. Protein sources to support this rate of growth require steady expansion of protein-rich crops like soybeans and canola. Global demand for protein meals is expected to increase by 11.2% in the next 5 years. U.S. protein meal demand during this same timeframe is forecast at 10% growth. The corresponding expansion in oil supply demonstrates the nature of vegetable oil as a co-product of forecasted growth in protein demand. Lipid based biofuels are filling the gap as dietary changes are also reducing per-capita fats and oils consumption across the globe.

The corresponding by-products from renewable fuels should also be considered. For example, when ethanol is produced, only the corn kernel starch is fermented to produce the liquid fuel. There is no effect on the kernel's valuable protein, minerals, vitamins and fiber. These resulting products are converted into efficient ethanol co-products, such as animal feeds and oils. The corn distillers gluten is a valuable source of proteins for livestock and poultry production while the distillers corn oil (DCO) has proven to be a low-carbon intensity (CI) waste feedstock for biodiesel and renewable diesel. One gallon of liquid fuel produced does not mean that the corresponding bushel of corn is taken off the

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balance sheet and gone forever. Rather, producers like ADM make the most efficient use of the entire crop. Producing ethanol from field corn has no effect on the supply of food ingredients from that corn.

The same can be said for oilseeds, like soybeans and canola. Oilseeds are valued for their two co-products: a protein component (solid) and an oil component (liquid). The process begins when the seed is cracked, flaked and separated from the oil. The separated solid stream (protein) is dried, ground, and toasted to create a safe and shelf-stable feed for livestock and poultry. The liquid stream (oil) is filtered, and contaminants removed for safe bulk storage. Co-processing provides an opportunity to efficiently make the best use of all the components of the oilseed. We cannot make use of the protein of a soybean without extracting the oil. Without demand for the oil – for human consumption and renewable energy production - either the farmgate value for producers of the soybean will decline or the price of the protein must increase. Said another way, without demand for the oil, either farmers would see less profitability or the price of soy protein meal for pork, chicken and turkeys would have to increase – leading to food inflation.

2. **Indirect Land Use Change (ILUC): LCFS already accounts for all life cycle GHG emissions from crop-based fuels.**

The California LCFS program has led the way in establishing the scientific methodology to address carbon reductions in a manner that industry can interpret and use to invest accordingly. The LCFS has a proven track record in developing and adopting programs that provide the entire industry value chain with clear signals in regard to Indirect Land Use Change (ILUC). The LCFS in its current form already accounts for life cycle GHG emissions from crop-based fuels and ILUC. There is no need to develop any crop-based biofuel restrictions for the LCFS.

Today's LCFS rewards the production of low-carbon and sustainable renewable fuels, like used cooking and other waste oil-based biodiesel, while excluding feedstocks that provide an unacceptable land use change and GHG profile. To restrict or limit any type on crop-based biofuels will artificially short-circuit that process. Crop-based biofuels, like soybean and canola-based biodiesel and renewable diesel, are able to contribute to California's carbon reduction goals and will do so as directed by the economic signals the LCFS provides. Any attempt to cap or limit crop-based biofuels will have a chilling effect on potential investment that California needs right now as the U.S. – and the world – evolve to a lower carbon energy system. Also, capping crop-based biofuels would hinder the evolution of variable field level scoring that has the potential to differentiate and incentivize climate smart practices that further reduce carbon intensity of those biofuels. ADM is working towards accelerating the development of field level scoring that has the potential to reduce carbon intensity of crop-based biofuels significantly. This will be done by monitoring, measuring, reporting, and verifying actual field level data in supply chains for farmers willing to adopt lower carbon intensity practices.

Europe has witnessed first-hand the impact of using ILUC modeling that lacks a fully reviewed methodology. ADM processes soybeans in Germany and Netherlands - supplying protein meal for the European animal feed markets. This is the most efficient and cost-effective manner in which EU

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agriculture can provide this essential component to feed poultry and livestock and support the local food supply. The strong demand by the local livestock and poultry industry drives imports of soybeans. According to the USDA, over 90% of the soybeans crushed in Europe are imported. The by-product, soybean oil, is further refined for use locally, but there has been a historically consistent surplus. That surplus oil has supported the development of a European biodiesel industry that is now seeing their market demand decline as crop-based biofuels caps are being put in place. Even with the European biodiesel industry utilizing this soybean oil as a feedstock, the EU continues to export over 35% of the soybean oil they produce. A biofuels cap or ban will not reduce the production of these oilseeds as the protein meal continues to drive demand. Forcing the oil into another use outside the local market is both inefficient and increases the use of higher carbon fuels as these biofuels are taken off the market.

The California LCFS ILUC methodology is working.

CARB currently uses the heavily reviewed GTAP model and incorporates this into their CI scoring. This results in a market-based mechanism that signals and reinforces avoidance of high ILUC feedstocks. The GTAP model is also continuously improved as data is compiled and markets evolve around solid scientific evidence.

By comparing the feedstock makeup of California's lipid-based fuels, the current life-cycle analysis (LCA) model has been successful in prioritizing the usage of low-CI feedstocks that do not have ILUC impacts. From 2018 to 2021 CARB data, distillers corn oil (DCO) has provided 43% of all biodiesel while used cooking oil (UCO) and tallow average 40% and 11%, respectively. Using the EPA's EMTS data for this same time period, biodiesel feedstocks for the entire country saw 44% soy, 42% tallow and 11% UCO. The LCFS has been effective in prioritizing low-CI feedstocks in biodiesel over crop-based biofuels. We see similar results for renewable diesel as follows: tallow – 38%, UCO – 31% and DCO – 18%. EMTS reported almost identical data: tallow – 37%, UCO – 34% and DCO – 18% due to the fact that nearly all renewable diesel is consumed in California.

U.S. RFS–driven biofuels growth has not increased ILUC.

U.S. EPA does not include an ILUC component in the Renewable Fuel Standard (RFS) as the CA LCFS does. The RFS is the U.S.'s largest biofuels market directive program – covering the entire U.S. and influencing investments and agricultural pricing both nationally and globally. Despite the fact that the RFS does not address ILUC, we have not seen any ILUC impact due to this program, which has seen domestic oilseed biomass-based diesel (BMBD) increase 72% (over one billion gallons) since 2013. During this same timeframe, domestic ethanol (predominately corn-based) also increased by over a billion gallons. Remarkably, acreage in the U.S. dedicated to the three predominate crops – corn, soybean and wheat - actually decreased by 1.28%, according to USDA data. Individually, soybean acreage did increase by almost 15% while wheat acreage declined by over 16% and corn declined roughly 5.5%

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A 2022 study by Purdue University and National Center for Food and Agriculture Policy illustrates the minimal impacts of the RFS on commodity prices since its inception in 2005. They found that "…many factors have been involved in the evolution of commodity and food prices, with the RFS and biofuel production in general being only one. (Taheripour, 2022)" In regard to commodity prices, the study went on to say "Our results confirm that, in general, the long-run impacts of biofuel production were not large." As the stringency of the RFS increased from 2011 to 2016 and became the primary driver for increased utilization of biofuels in the U.S., the study concluded "…the long-run effects of biofuel production and policy on food prices were negligible."

In regard to the questions posed by CARB considering limiting crop-based biofuels due to ILUC impacts, the study clearly demonstrates that the RFS did not significantly impact food and commodity prices while promoting an improvement in per-acre production of these same crops.

3. The future of agriculture and clean transportation fuel: today's advancements in production agriculture are making a difference.

Yields of underlying oilseeds have increased concurrently with the demand for biodiesel and renewable diesel. U.S. soybean production (total bushels) has increased roughly 15% since 2014 while soybean yields per acre increased nearly 8% in this time span. At the same time and as stated above, total U.S. acres actually declined by 1.28%. Clear demand signals incent investment and innovation all along the production process. Investments encompass areas from farm-level tillage, fertilization, cover crop adoption, plant health and seed technology to improved harvest, grain handling and crop storage investments.

ADM has been working with farmer producers on regenerative agricultural practices in three areas, specifically, conservation tillage, fertilizer efficiency, and cover crop adoption. These and other investments are transforming agriculture to become more sustainable. The LCFS should not restrict crop-based biofuels at a time when agriculture is undergoing this fundamental transformation.
The U.S. farmer has increased no-till acres from 3 million in 1972 to 102 million in 2017 (NASS). At the same time, the U.S. has seen improved fertilizer efficiency in a time of increasing yields. EPA reported 24 million metric tons of fertilizer use in the U.S. in 1982 versus 22 million metric tons in 2015, all while almost doubling production during that time. Finally, prior to 2000 there were less than 2 million acres of cover crops grown in the US. We estimate cover crop acreage to have grown to 20 million acres since then. All three practices have significant GHG improvements. We expect the opportunity for further improvement will be accomplished with robust regenerative ag programs funded by private and public partnerships.

ADM plans to increase regenerative ag programs across 13 states in the next 12 months that will help accelerate the adoption of regenerative ag practices. Success has been proven at our Des Moines, Iowa crushing facility. As recently as 2018, after gathering over 1.4 million acres of field level data and recording only 15,000 acres of cover crops planted annually by our farmers, we evolved the program to pay a cost share for cover crop adoption. In 3 short years, our farmers are now growing 145,000 acres

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of cover crops that have positive biodiversity, water quality, soil erosion, and GHG benefits. Estimated carbon sequestered on 145,000 acres is close to 60,000 tons of CO2e/year. Scaled up efforts of similar programs have the opportunity to drastically cut GHG emissions tied to agriculture. The early success of our regenerative ag program demonstrates how agriculture can, and will, produce the crops we need in a manner that is beneficial to the environment while meeting food and fuel needs in the future.

4. Crop-based biofuels are making a positive impact in the LCFS.

According to CARB's own data, ethanol, biodiesel and renewable diesel have, by far, made up the bulk of the volumes and credits in the LCFS. When one considers only the lipid-based biofuel content of California renewable diesel and biodiesel supply, it is evident that UCO, tallow and DCO comprised the bulk of the credits generated from these fuels and have grown in tandem with their uninterrupted growth since 2011.

Crop-based biofuels, such as canola and soybean, have provided a limited number of credits in comparison over the past 10 years but have played an integral part in providing the necessary buffer to allow low-carbon fuel to flow into the California market as necessary. These fuels have acted as a safety valve, keeping fuel prices in check and moving additional transportation fuel into California as either demand or supply of the other low carbon renewable diesel substitutes dictate. To artificially limit this buffer – of proven GHG-reducing fuels – would not be in California's interest. Fuels shortages would impact the heavy-duty trucking industry transporting goods and products throughout the state. Consumer goods and manufacturing inputs depend on the heavy-duty trucking industry, as well as railroads and marine, that all rely on our ability to deliver clean diesel fuels.

Ethanol provided an early jump on the LCFS carbon reduction goals by establishing a steady supply of GHG-reducing gasoline alternatives. Biomass-based diesel (BMBD) was also one of the early contributors and has seen steady growth for the each of the past 11 years. BMBD is now responsible for more than half of all renewable fuels by volume and almost 45% of credits generated in 2021. California's carbon neutrality goals will require significant growth in BMBD volumes. The Scoping Plan demonstrates a need to grow BMBD from 1.22 billion gallons in 2021 to 2.42 billion gallons in 2030 in order to meet 2045 carbon neutrality targets. Restricting the readily available supply of BMBD that could come from an ever-increasing supply of soybean and canola oil would be counterproductive and potentially lead to long-term impacts in reaching those goals. The best approach to sustainable carbon reductions needs to take advantage of products and technologies that currently exist in order to achieve long-term results.

Potential changes to 2030 CI reduction targets will be difficult to achieve if crop-based biofuels are not fully utilized.

CARB has indicated and is requesting comment on potential CI reduction targets for 2030. With a current target of 20% and potential CI reduction targets of either 25% or 30%, restricting the use of

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crop-based biofuels would have a negative impact. Today, these low CI fuels are providing a necessary and effective mechanism to achieve these goals. It would be counter-intuitive to enhance CI reduction targets while limiting the use of the most readily available carbon reducing liquid fuels.

5. Scientific research supports continued growth of biomass-based diesel.

Clean Fuels Alliance America has completed a study of the price impacts that biodiesel and renewable diesel provide at the retail pump and indicate a 4% reduction. At today's prices, that amounts to roughly $0.22/gallon. This underscores the benefits of having diverse and robust renewable fuel supplies. Reliance on any single energy source does not allow for any inevitable supply disruptions. Crop-based biofuels, which provide durable and flexible carbon reducing options, must be a key part of any lower carbon energy plan. Limits on lower carbon fuel substitutes will further increase prices and reliance on higher carbon fuels at a time when markets are stressed by logistical and other supply issues.

6. ADM's commitment to improving agriculture and the world around us.

At ADM, we have been working with growers in our supply chains to implement advanced agricultural practices for more than a decade. As members of Field to Market, we engage with growers to collect field-level data as well as provide technical and financial incentives to switch practices. Two of our projects have received the Collaboration of the Year award for joint efforts through the supply chain to promote sustainable and regenerative practices and transparency. Recently, we entered into agreements with National Fish and Wildlife Foundation (NFWF) and with Farmers Business Network (FBN) to enable us to increase the scale of our efforts. Many growers have been making conscious decisions for several years to protect their land and the population at large. Reinforcing those practices and providing guidance to production agriculture in the future is something that only comes from clear and consistent policy. Ultimately, ADM encourages the development of variable field level scoring focused on conservation tillage, fertilizer efficiency, and cover crop adoption. This has the ability to shrink carbon intensity of crop-based biofuels by 50%-100% through carbon reduction and sequestration efforts. With the creation of climate smart markets like variable field level scoring, CARB has the opportunity to unlock a significant solution to mitigating climate risks. These conservation practices also include positive impacts on other environmental factors like water quality, soil erosion, and improved biodiversity with the same practices that reduce greenhouse gas emissions.

ADM is proud of our proven record of innovation when it comes to providing the market with clean fuels. We were recently recognized by "Environment + Energy Leader" magazine as Top Project of the Year for the world's first successful completion of a pure storage carbon capture and storage (CCS) project in Decatur, IL. Since 2011, this project has safely and permanently sequestered over four million metric tons of CO2 underground. CCS is a proven, measurable technology available today to help decarbonize the fuel industry. There is no other technology available today that can have as large of an impact on liquid fuels at scale as CCS. This type of significant climate-smart innovation stands as an example of the commitment of the biofuels industry to continue to make the world a better place at the nexus of agriculture, food and energy.

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In sum, ADM does not support any effort to limit the use of crop-based biofuels under the LCFS. These clean, low carbon, renewable fuels have been the predominate source of credits generated in the LCFS since its inception and should be acknowledged as a strong contributor and vital solution to power California's transition to a carbon neutral economy.

Thank you for the opportunity to comment on these potential changes to California's Low Carbon Fuel Standard. If there are any follow-up questions or clarifications, please let me know.

Respectfully,

Greg Morris

Gregory Morris
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ADM