

March 15, 2023

Dr. Cheryl Laskowski
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 and supports increasing the carbon intensity reductions from the current 20% target by 2030.

Dear Dr. Laskowski,

Thank you for the opportunity to comment on potential updates to the Low Carbon Fuel Standard (LCFS). As the California Air Resources Board (CARB) works to align with the 2022 Scoping Plan by increasing Carbon Intensity targets for 2030, transitioning away from fossil fuel demand and supporting low-carbon fuel production while ensuring no resulting unintended consequences, credible feedback from stakeholders can be extremely valuable. 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 and deep expertise 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 nearly 200 countries. With a global value chain that includes approximately 440 crop procurement locations, more than 300 food and feed ingredient manufacturing facilities, 64 innovation centers, and the world's premier crop transportation network, we connect the harvest to the home, making products spanning food and beverage, fuels, and industrial and consumer products.

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 North American 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.

As a company that has provided food and fuel solutions for 120 years, food security – including safeguarding, improving and growing global food supplies – is a major priority for ADM. 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 last 10 years, ADM has engaged over 13 million acres in sustainable agricultural programs across five continents. Working across 19 active projects in the U.S., with 12 downstream customers including PepsiCo, we engage growers representing over 1.2 million acres of corn, soy, wheat, peanuts, sorghum, flax, and even mint. In 2020, growers in these projects planted over 130,000 acres of cover crops (roughly 11% of their farms), reducing nutrient run-off and soil erosion while sequestering carbon in the soil. By 2022, that has increased to over 750,000 acres (62% of those producers' farmland), demonstrating rapid growth that only comes with agricultural policy stability and certainty. In addition to these cover crop efforts, the remainder of those growers' acres focused on conservation tillage and fertilizer efficiency methods. Across the U.S., ADM has also begun executing International Sustainability & Carbon Certification (ISCC) certification programs with growers to collect field boundary data and confirm no de-forestation. ADM plans on scaling up efforts this year around incentivizing farmers to adopt regenerative agriculture practices, including conservation tillage and fertilizer management, on 2 million acres. And going forward, ADM intends to continue to expand this ambitious and important program.

Engaging and educating our food customers on all market dynamics enables us to work collaboratively to address their concerns in a productive manner while staying aware and alert to any potential future supply and/or pricing impacts. Previous and recent commodity price increases have been influenced by issues unrelated to renewable fuels, including drought and, most recently, COVID-19 and war. A well-informed market with long-term vision is able to make strategic decisions on allocation of resources while alleviating price volatility. 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 should not be characterized as negatively impacting the production of human or animal nutrition. In fact, crop-based fuels, like ethanol and biodiesel, produce both food and fuel at competitive prices. 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. An increase in production of soybeans contributes to a corresponding increase in supply of essential protein for "center of the plate" entrees like poultry, pork and beef.

USDA forecasts global demand for poultry to grow 19.1% from 2021 to 2030 while U.S. consumption is expected to grow 9.3%.¹ Protein sources to support this rate of growth require steady expansion of protein-rich crops like soybeans and canola. Total global demand for soy protein meal is expected to increase by 23.2% during this same timeframe.² The corresponding expansion in oil supply demonstrates the nature of vegetable oil as a co-product of forecasted growth in protein demand. Put another way, soybean demand for the next seven years will necessarily create additional soy and canola oil supply. Lipid-based biofuels are filling the gap as dietary changes are also reducing per-capita fats and oils food consumption across the globe.

Crop-based biofuels, like soybean and canola-based biodiesel and renewable diesel, contribute to California's carbon reduction goals and will do so as directed by the economic signals the Low-Carbon Fuel Standard (LCFS) provides. Any attempt to cap or limit crop-based biofuels will have a chilling effect on potential investment as the U.S. – and the world – transition to a lower carbon energy system. Recent expansion in U.S. soybean and Canadian canola crush capacity is evidence that state and federal renewable fuel policies, as well as forecasted food demand, are spurring investment. National Oilseed Processors Association (NOPA) points to crush industry investments of over \$6 billion since 2021 that will increase U.S. capacity by 30% from 2023 to 2026. Historically, previous oilseed crush capacity had been relatively stagnant. From 2005 to 2014, domestic crush capacity was static at an average of 1.7 billion bushels/year. Beginning in 2015, capacity saw a slight increase from 1.8 billion bushels to 2.2 billion bushels – an average of 3.1% growth per year. Food oil users will also see a benefit from an increasing oilseed crush driven by the certainty and stability of these renewable fuel policies. Without renewable fuels providing this bedrock support, the oilseed crush industry does not expand.

Europe has witnessed first-hand the impact of misguided crop-based biofuel limitations. 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 agriculture can provide this essential component to feed poultry and livestock and support the local food supply. The 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 some 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.³ A biofuels cap or ban in Europe 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.

¹ (USDA - ERS, 2022)

² (USDA - ERS, 2022)

³ (USDA - FAS, 2022)

Recent rising food prices are not the result of California's LCFS

According to the USDA, 2020 data shows that, for every \$1 consumers in the U.S. spend on food, only about \$0.145 is driven by raw farm commodity costs. The remaining \$0.855 is a result of other post-farm factors, such as the costs of transportation, processing, packaging, and retailing.⁴ While it is true that vegetable oil prices – and all food prices - have risen recently, several factors contributed to the increase, including the Ukraine/Russia conflict; extreme weather events in U.S. and other global soybean growing areas; and post-COVID impacts of supply chain disruptions including rising fuel and labor costs. In 2020 and 2021, U.S. production of biodiesel and renewable diesel reduced the price of diesel transportation fuel by 4% due to the impact of increasing total fuel supply.⁵ That reduction in diesel prices has a favorable impact on all food costs due to the extensive supply chain required to bring food to the consumer's table.

A 2022 study by Purdue University and the 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." 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."⁶

Furthermore, another 2022 Purdue University study researched the relationship between U.S. biofuel policy's influence on the recent growth of renewable fuel production and retail food prices for consumers. This study modeled a hypothetical 20% increase in soybean oil demand (1.85 billion pounds – the equivalent of the biofuels production increase from the 2020/2021 to the 2021/2022 crop year) in an isolated market situation and determined the following impacts:

- Crude soybean oil prices increase 8.17%. The fact that actual crude soybean oil prices have increased by a larger amount in recent years suggest that factors beyond increasing biofuel demand have contributed to the price rise.
- "Retail prices for oil used in frying/baking, margarine, salad/cooking oil, and other oil-containing food items increase 0.16%, 0.82%, 4.41%, and 0.16%, respectively. The retail oil price increases are smaller than the wholesale price increases because soybean oil is only a small share of the overall cost involved in producing these retail foods."
- Absent other factors, "Retail dairy, beef, pork, chicken, and egg prices are projected by fall by -0.02%, -0.01%, -0.06%, -0.13%, and -0.16%, respectively. Animal product prices

⁴ USDA, 2022

⁵ (WAEES, 2022)

⁶ (Taheripour, 2022)

- fall because soybean meal, a primary animal feed input, is a co-product of the soybean crush, which also produces oil.”
- “Overall impacts of increased demand for soy-based biofuels on the Consumer Price Index are mixed, but the reductions in meat, dairy and egg prices partially offset the increases in oil and bakery prices, leaving the overall food at home portion of the Consumer Price Index essentially unchanged.”⁷

2. The future of agriculture and clean transportation fuel: today’s advancements in production agriculture are making a positive difference.

Yields of underlying oilseeds have increased concurrently with the growing demand for biodiesel and renewable diesel as supported by the RFS and various state clean fuel programs and incentives. U.S. soybean production (total bushels) has increased 13.7% since 2014 while soybean yields per acre increased 8.8% in this time span. At the same time and as stated above, total U.S. acres actually declined by 3.2%.⁸ 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. Signaling to the agriculture sector – as well as the entire transportation fuel network of feedstock suppliers, refiners, and obligated parties – that the California LCFS is limiting crop-based biofuels will contribute to price uncertainty and send mixed messages. In turn, this could negatively impact continued investments that contribute to the LCFS’ policy objectives.

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. Regenerative agriculture practices need clear policy signals that sustainable farming practices are to be applauded and supported.

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 where farmers adopt lower carbon intensity practices.

The U.S. farmer has increased no-till acres from 3 million in 1972 to 102 million in 2017.⁹ 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

⁷ (Lusk, 2022)

⁸ (USDA-NASS, 2022)

⁹ (Lessiter, 2022)

almost doubling production during that time.¹⁰ Finally, prior to 2000 there were less than 2 million acres of cover crops grown in the U.S. 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 agriculture programs funded by private and public partnerships.

ADM plans to increase regenerative agriculture programs across 13 states in the next 12 months that will help accelerate the adoption of these 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. Four years later, our farmers are now growing 178,000 acres of cover crops that have positive biodiversity, water quality, soil erosion, and GHG benefits. Estimated carbon sequestered on 178,000 acres is close to 53,400 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 agriculture 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.

3. 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.¹¹ When one considers only the lipid-based biofuel content of California renewable diesel and biodiesel supply, it is evident that used cooking oil (UCO), tallow and Distillers Corn Oil (DCO) comprised the bulk of the credits generated from these fuels and, when the three are combined, have seen uninterrupted growth in volume since 2011.¹² Crop-based biofuel have historically seen California usage increase compared to other feedstocks when LCFS credit values are moderate or declining. As credit values increase, the market tends to source higher percentages of UCO, tallow, and DCO feedstock due to the corresponding increase in per-gallon margin of blended transportation fuels. Soy and canola based biofuels saw their share of the biomass-based diesel (BBD) market decline from 2015's high of 33% to an average of 16% from 2016 to 2020 before rebounding to 18% in 2021 as credit prices grew steadily from 2017 to a high of \$200 in 2021. Once credit prices began their decline in 2021 as the credit bank grew, soy and canola blends increased to 18% of the BBD market.¹³ In other words, increasing credit values facilitate growth of non-crop-based biofuels in California. The proposed CI reduction targets (25%, 30%, or 35%) will signal to the market to utilize more UCO, tallow and DCO. To cap crop-based biofuels at this time, prior to finalizing the CI reduction targets, would not be prudent. CARB should allow these prospective changes in CI reduction to be implemented and review the impacts before considering a crop-based biofuels cap.

¹⁰ (EPA, 2020)

¹¹ (CARB, 2023)

¹² (CARB, 2023)

¹³ (CARB, 2023)

Biomass-based diesel (BBD) was one of the early contributors to the CA LCFS carbon reductions and has seen steady growth for each of the past 11 years. BBD is now responsible for more than half of all renewable fuels by volume and almost 45% of credits generated in 2021¹⁴. California's carbon neutrality goals will require significant growth in BBD volumes. But it is important to note that crop based biofuels have not been over 33% since 2013 and have averaged just over 16% since 2016¹⁵. Furthermore, the Scoping Plan demonstrates a doubling of demand for liquid biofuels including biodiesel and renewable diesel between 2021 and 2030 in order to meet 2045 carbon neutrality targets.¹⁶ Restricting the readily available supply of BBD 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.

We support increasing the carbon intensity reduction targets from 20% by 2030, and crop-based biofuels are enablers to meet this objective. Crop-based biofuels are a key component of the CA renewable fuel supply and must be encouraged. Today, these low CI fuels are providing a necessary and effective mechanism to achieve these goals. It would be counterintuitive to enhance CI reduction targets while limiting the use of the most readily available carbon reducing liquid fuels. Crop-based biofuels have been one of the biggest carbon reduction success stories of the LCFS and should be celebrated as such. The fact that BBD has increased from 2% in 2011 to 44% in 2021 can be attributed to California's priority to reduce carbon from the transportation fuel supply.¹⁷

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

In regard to sustainability of crop-based biofuels, ADM – and all of agriculture – is investing in foundational changes through our regenerative agriculture programs. 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, a diverse alliance providing quantifiable sustainability metrics and solutions, we engage with growers to collect field-level data as well as provide technical and financial incentives to switch practices. Our projects have received the Collaboration of the Year award in 2021 and 2022 for joint efforts throughout the supply chain to promote sustainable and regenerative practices and transparency. Recently, we entered into agreements with National Fish and Wildlife Foundation (NFWF), American Farmland Trust, Ducks Unlimited, Practical Farmers of Iowa, Minnesota Soil Health Coalition, Flint River Soil and Water Conservation districts, and Kansas Association of Conservation Districts, along with Farmers Business Network (FBN) to enable us to increase the scale of

¹⁴ (CARB, 2023)

¹⁵ (CARB, 2023)

¹⁶ (CARB - Scoping Plan, 2022)

¹⁷ (CARB, 2023)

our efforts. Many growers have been making conscious decisions for 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 potential to shrink carbon intensity of crop-based biofuels by 50%-100% through carbon reduction and sequestration efforts. With the creation of climate smart practices 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.

“The LCFS is designed to decrease the carbon intensity of California's transportation fuel pool and provide an increasing range of low-carbon and renewable alternatives, which reduce petroleum dependency and achieve air quality benefits.”

CARB: “Low Carbon Fuel Standard – About”¹⁸

CARB should support and celebrate the contributions of soy and canola-based biodiesel and renewable diesel in reducing GHG in California. Every gallon of biomass-based diesel consumed in California is providing benefits for the citizens of California while decreasing carbon intensity, reducing petroleum dependency and helping improve air quality – exactly why the LCFS was designed and implemented.

¹⁸ (CARB, 2022)

In sum, ADM does not support any effort to limit the use of crop-based biofuels under the LCFS and supports increasing the carbon intensity reductions from the current 20% target. If the CI reduction targets are increased, there will be a reaction in the California transportation fuels market similar to when the LCFS was implemented. The credit bank would tighten – incentivizing inflows of low-CI fuels as the market moves to satisfy the new requirements. This significant change will transform the market. Any effort to cap crop-based biofuels while reducing CI targets simultaneously will send conflicting signals to potential clean fuel suppliers and investors.

We recommend that CI reductions be implemented while expert stakeholders review and study the proper course of action regarding any potential cap on crop-based biofuels. Maintaining technology-neutral, full lifecycle carbon intensity targets will spur innovation, promote climate-smart agricultural practices, and support development of future feedstocks and biofuels. Renewable fuels have been the predominate source of credits generated in the LCFS since its inception and can be relied upon to be a strong contributor and vital solution to power California's transition to a carbon neutral economy.

Finally, we would like to endorse and incorporate by reference the comments filed by the Clean Fuels Alliance America, California Advanced Biofuels Alliance, National Oilseed Processors Association, and Growth Energy.

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

Respectfully,

Gregory Morris
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President, Ag Services and Oilseeds
ADM