June 21, 2021

By ELECTRONIC FILING

Dr. Melissa R. Bailey
Agricultural Marketing Service
USDA
Room 2055-S
STOP 0201
1400 Independence Avenue SW
Washington, DC 20250-0201

RE: Supply Chains for the Production of Agricultural Commodities and Food Products (Docket No. AMS-TM-21-0034)

Dear Dr. Bailey:

The National Retail Federation (NRF) appreciates this opportunity to comment on the Agricultural Marketing Service's (hereinafter, AMS or Agency) request for public comments that will assist the Agency, pursuant to the President's February 24, 2021 Executive Order on America's Supply Chains, in preparing a report to the President that assesses the nation's supply chains for the production of agricultural commodities and food products. We hope our comments will help the Agency in preparing this report and will lead to actionable items to strengthen and render our agricultural supply chain more durable and resilient.

By way of background, the National Retail Federation, the world's largest retail trade association, passionately advocates for the people, brands, policies and ideas that help retail thrive. From its headquarters in Washington, D.C., NRF empowers the industry that powers the economy. Retail is the nation's largest private-sector employer, contributing $3.9 trillion to annual GDP and supporting one in four U.S. jobs — 52 million working Americans. For over a century, NRF has been a voice for every retailer and every retail job, educating, inspiring, and communicating the powerful impact retail has on local communities and global economies.

As our members work to identify adequate sources of food for consumers, today and in the future, they are acutely aware of the many challenges within the global food supply chain that risk its surety of supply in times of disruption. These challenges are multiple and complex and at times are interrelated. Some of these challenges include a growing global population, demographic shifts among consumers, the exponential growth of digital commerce, climate impacts on production agriculture, labor shortages affecting all segments of the value chain, supply-chain transportation constraints and food waste, to name just a few.

Although our food system has evolved over the past several decades to become incredibly efficient, the experiences of the recent pandemic highlight the fragility of certain parts of the system when we face a major disruption. Efficiencies and a lack of redundancy created rigidity in the system. Going forward, we collectively need to look for solutions that enable more agility within systems to quickly react and mitigate potential disruptions. We saw in the early days of the pandemic that suppliers who typically served the food service industry were not able to shift production to meet the rapid increase in demand from the grocery retail sector. Consequently, too many perishable items were left without a viable marketplace. Additionally, the food donation sector did not have the adequate infrastructure or capacity to handle the significant growth in perishable products that normally would have been directed through food service channels.

As Americans were abruptly forced to prepare for and respond to the pandemic, retailers saw incredible supply and demand pressures within certain categories of food. The pandemic-driven shopping behavior that retailers saw at the beginning of the pandemic led to supply constraints in many food categories, including frozen and canned goods, and key perishable items like eggs and protein. We encourage USDA to identify opportunities to enable flexibility within food processing systems so they can shift from one type or channel of production to another during unusual times of disruption. As an example of what can be done, one NRF member worked with a Florida-based vendor of fresh green beans and connected the vendor with their private label manufacturer for canned vegetables. Typically, the fresh and canned supply chains are separated, but in this case the linkage between the two helped the retailer fill an inventory gap and helped a farmer find a buyer for his crop.

Retailers and chain restaurants also frequently manage risk by diversifying their geographic sources of supply, particularly for seasonal and perishable items like produce. As we see more frequent adverse weather events like floods, hurricanes, droughts, freezes and other climate-related impacts on production, retailers and chain restaurants are forced to find alternative sources of supply to meet the demand customers have for year-round availability for seasonal products. As a recent example, the 2021 freeze in Texas delayed its squash season by several weeks. Some produce suppliers were forced to import product from Mexico to make up for the delay in production from Texas.

Future supply chain resiliency will also require investment in innovation and technology. Protected agriculture systems like hoop houses, water sanitization, vertical production systems, harvest mechanization and shade protection will be crucial for reducing losses and improving quality. Additionally, the demand for increased transparency and traceability in food systems will continue to rise. In 2019, the U.S. Food and Drug Administration announced its “New Era of Smarter Food Safety” initiative and associated blueprint that clearly defines the need to leverage technology to improve traceability and analytics to strengthen food safety systems. Investments in technology and transparency within the supply chain will not only improve food safety, but it should also improve resiliency in the face of adverse events.

Investment in traditional infrastructure and technology extends beyond the farm gate and processing facility. A more resilient food system – particularly for perishable products – needs more adequate infrastructure, like greater access to broadband for those closer to the agricultural

production end of the spectrum, investments in traditional infrastructure like our ports of entry and roads, and investments in human capital to develop a more tech-enabled workforce in food production.

In preparation for these comments, we surveyed our food retail member companies – grocers and chain restaurants – for their views on the current deficiencies in the nation's food supply chains. Far and away the most significant concern these food retail companies expressed to us was the acute shortage of labor. This shortage is present throughout the entire food supply chain, from growing/harvesting, to processing, packing, manufacturing, distribution and, finally, retail at the end of the chain. Some also noted that they expect a smaller than average harvest of some critical components of our supply chain, such as corn, soy and other feedstocks – foundational ingredients for nearly every animal protein – which could cause major price shocks later this year and next, depending on seasonal weather conditions. However, the primary concern is a shortage of labor, the human capital required at each stage of the supply chain.

For restaurants and other food retailers, the COVID-19 pandemic exacerbated a shortage of truck drivers, both short and long haul, that has existed for several years and has only worsened over the last year during the pandemic. There are simply not enough people over 21 years of age – the minimum age required to drive a commercial vehicle in interstate commerce, per federal regulation – to get product transported through the supply chain, agricultural or otherwise, and distributed to retail locations. This problem could be mitigated if younger persons, as young as 18, were permitted to enter apprenticeship programs that would teach and prepare them for careers in trucking. Legislation has been introduced in the last several Congresses (DRIVE-Safe Act) that would create such apprenticeship programs (S. 659 and H.R. 1745 in the current Congress), and NRF has actively supported it. Moreover, the previous administration, through the Federal Motor Carrier Safety Administration (FMCSA) at the Department of Transportation, proposed a pilot program for individuals aged 18-20 to participate in apprenticeship training programs, with significant safety protocols and attainment benchmarks in place, but it is unclear whether the current administration will proceed with that pilot program. We urge the administration to continue with this important pilot program which will help alleviate the driver shortage issue and allow younger drivers to enter this critically important industry.

The labor shortage extends to food items that are produced overseas and imported into the United States. The ongoing issues facing the maritime transportation sector are well documented. Our members continue to face challenges with securing empty containers overseas for cargo, finding capacity on vessels destined for the U.S. and congestion issues at U.S. ports once a vessel finally arrives. These disruptions and delays are adding weeks to supply chains and significant costs in overall transportation. Once the food imports finally reach our ports for distribution the same labor shortage issues remain. There is not enough labor to unload items from incoming ships, load them onto long haul trucks, and then transport and deliver them to food distribution centers and to final retail locations. The labor shortage is acute and unable to keep up with the increased demand. Investments in new systems of production and harvesting that require less physical labor will allow the food system to meet the growth in demand and the need retailers have for more diverse geographic sources of supply. In addition, providing for smarter and more efficient transportation, such as the use of twin 33 trailers, will help.

Beyond the labor shortage, our members noted that there are some items critical to the operation of restaurants and other food retailers that are not currently produced or manufactured in the U.S. and which the pandemic has highlighted as problematic. For restaurants, gloves worn by employees involved in back-of-the-house operations related to food preparation are predominantly no longer made in the U.S. Although some U.S. manufacturing of gloves and other personal protective equipment manufacturing did occur through the pandemic, it was not nearly enough to meet the demands and needs of NRF's members. As demand for gloves soared during the pandemic for use in mitigating COVID-19 spread in certain settings, restaurants experienced significant challenges in locating and procuring these items.

Another issue that threatens food production in the near term is a looming shortage of soyoil (soybean oil). Soyoil – commonly called vegetable oil - is a ubiquitous ingredient in countless processed and prepared foods. It is the world's most widely used edible food oil because it is healthy and has a high smoke point. Already this year, the prices (current and futures) for soyoil have risen dramatically from one year ago; 238% and 154%, respectively. According to a recent study from Bill Lapp of Advanced Economic Solutions (AES), the reason for this recent dramatic increase in prices and availability of soyoil is the corresponding increased demand for and production of renewable diesel.[1] RBD (refined/bleached/deodorized) soyoil is not only the most common edible food oil, but it is also the primary feedstock in over a third of the renewable diesel produced in the U.S. The AES study notes that "Because RBD soyoil is required by both food users and a sizable share of renewable diesel producers, a severe availability problem for RBD soyoil has already developed."[2] Moreover, "the bidding war for RBD soyoil between food interests and renewable diesel producers is likely to continue for at least the next 12-24 months."

The AES report attributes the sudden and dramatic increase in demand for and production of renewable diesel to, among other things, the "need to meet the requirements of California's Low-Carbon Fuel Standard (LCFS)." The study predicts that, "In the near term, demand for soyoil for renewable diesel will remain large and continue to trend higher, creating a significant challenge in meeting both food and renewable diesel demand for RBD soyoil. With soyoil prices rising dramatically, the current shortfall will eventually be resolved, but it will require 2-3 years of supply/demand adjustments. The resolution of the shortfall in supply is not certain, and several critical assumptions/risks that could compound the availability problem need to be recognized, including weather disruptions, expansion of the LCFS to other states and an expansion of RFS annual volume mandates."[3]

The AES report includes much valuable information that is relevant to the Agency's request, and we include it in its entirety at the end of this comment.

Another example of a product shortage highlighted by one NRF member is an ongoing shortage of chicken for consumption. The U.S. is seeing beyond record prices in both breast meat and wings with substantial supply shortages for restaurants and grocery distribution. We believe

[1] "Outlook and Implications of Surging Renewable Diesel Demand Upon the US Soyoil Market," Bill Lapp, President, Advanced Economic Solutions, June 2021.
[2] Ibid.
[3] Ibid.

there are two fundamental reasons for this shortage. First, the labor shortages mentioned above are limiting the output of chicken producers across the board. Because they are unable to find enough labor to meet their needs, producers have limited how many chickens are hatched and then processed. The second issue is that because U.S. consumption is heavily skewed toward white meat chicken, the economics of growing chicken, and therefore the amount of chicken produced in the U.S., is heavily dependent on export values, particularly Chinese export value, for dark meat chicken. As a result, current import restrictions are further leading to the shortage we are witnessing. We believe one way to help solve this issue is to reduce or eliminate import restrictions on chicken to the U.S., similar to other proteins like beef. Elimination of these restrictions will result in greater incentive to grow chicken and increase food supply.

In addition, there are other essential non-food product shortages that also impact NRF's food retail members. One such product that has received a great deal of attention is the worldwide shortage of semiconductor chips. Most of the focus of this shortage has been on the impact on the technology sector, but the shortage has a significant impact on other industries that rely on technology driven by these chips. Computer chips are necessary components in the manufacture of numerous products utilized in restaurants and food retail, including grocers, from kitchen equipment like fryers, grills, refrigeration and other implements, to point-of-sale equipment to warehouse equipment and other technology. Moreover, these chips are not only used as components within this equipment, but they are also used in the equipment that is used to manufacture this equipment. In short, semiconductor chips are critical components in nearly every piece of equipment that is powered by electricity. Our members believe the federal government should provide incentives for companies to manufacture critical items like computer semiconductors within the U.S. to avoid supply disruptions like we are currently experiencing because of the pandemic.

As companies throughout the economy and the nation continue to recover from this pandemic and plan for the next global disruption, companies are reevaluating their supply chains. Part of this includes efforts to diversify their supply chains where available. Unfortunately, we are not able to meet consumer demand by sole sourcing in the United States. We need to make sure we work through barriers and challenges to enable companies to quickly enact their mitigation strategies when global disruptions occur. We also need to address the ongoing domestic challenges, especially the availability of labor. We thank you for the opportunity to provide input on the Agency's request for public comment on this critical issue affecting our agricultural and food production supply chain. Please do not hesitate to contact Jonathan Gold (goldj@nrf.com) or Scott Vinson (vinsons@nrf.com) on my staff with any questions.

Sincerely,

David French
Senior Vice President
Government Relations

ATTACHMENT

Outlook and Implications of Surging Renewable Diesel Demand Upon the US Soyoil Market

Bill Lapp, President, Advanced Economic Solutions

June 2021

Summary

Demand for and production of renewable diesel has been growing in recent years and is poised to surge during 2021. Advanced Economic Solutions (AES) estimates that renewable diesel production will double between 2020 and 2021 to 1.1 B gallons. Beyond 2021, significant capacity expansion and further tightening of California's emission standards is expected to drive domestic renewable diesel production to 2-3 B gallons, more than double the projected 2021 forecast.

The dramatic increase in renewable diesel production and related investments has been driven by the need to meet the requirements of California's Low-Carbon Fuel Standard (LCFS). As a result of California's LCFS, a surge in investments in renewable diesel capacity in recent years has occurred – AES estimates that industry capacity will rise by 59% to 1164 mm gallons by the end of 2021.

AES estimates that approximately 35% of the feedstock used to produce renewable diesel during 2021 will utilize refined/bleached/deodorized (RBD) soyoil. Because RBD soyoil is required by both food users and a sizable share of renewable diesel producers, a severe availability problem for RBD soyoil has already developed. AES expects renewable diesel plants currently requiring RBD soyoil will invest in "pre-treat"" capabilities over the next 12-24 months. However, in the near-term, demand for RBD soyoil for renewable diesel will remain large and continue to trend higher, creating a significant challenge in meeting both food and renewable diesel demand for RBD soyoil.

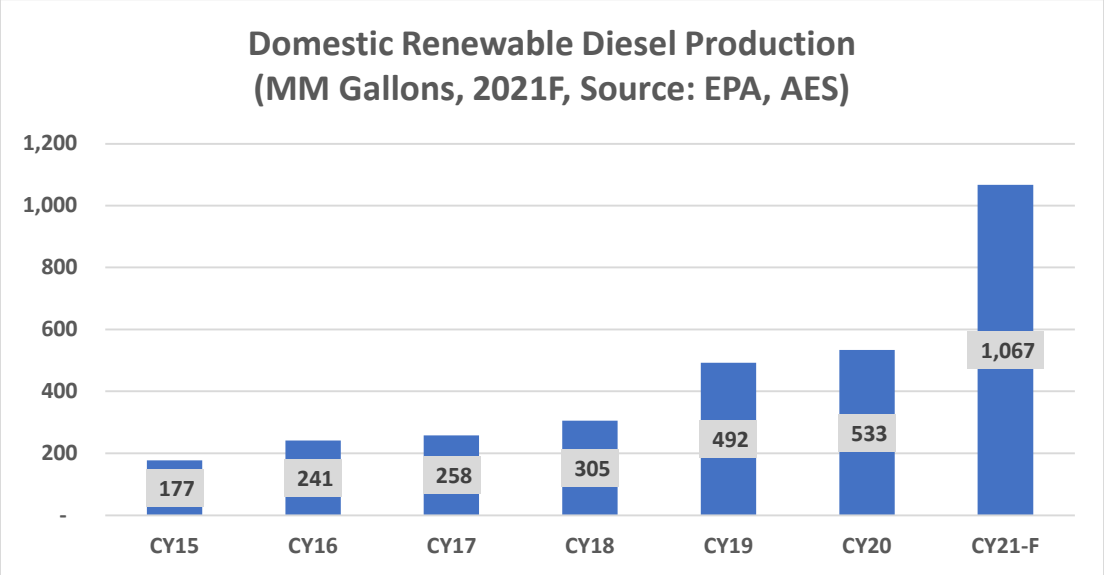
Soyoil prices, including both futures and RBD soyoil, have surged in response to a sharp increase in the amount used to produce renewable diesel. As of 6/4/21, soyoil futures ($.713/pound) had risen by 154% from a year ago. RBD soyoil was at a record $1.01/pound, a gain of 238% from a year earlier. The current economics imply soyoil prices (both futures and RBD soyoil) will remain at extreme levels during the coming year. Further, in the case of RBD soyoil there remains an availability risk that should not be overlooked. The bidding war for RBD soyoil between food interests and renewable diesel producers is likely to continue for at least the next 12-24 months.

With soyoil prices rising dramatically, the current shortfall will eventually be resolved, but it will require 2-3 years of supply/demand adjustments. Soyoil (and particularly RBD soyoil) is expected to remain in extremely tight supply for the next 24 months. Beyond that, over the next 24-36 months, the high prices and reduced availability of soyoil (and particularly RBD soyoil) is expected to be largely "remedied," primarily through a variety of economic dynamics. The resolution of the shortfall in supply is not certain, and several critical assumptions/risks that could compound the availability problem need to be recognized, including weather disruptions, expansion of the LCFS to other states and an expansion of RFS annual volume mandates.

Renewable Diesel Production Surging

Demand for and production of renewable diesel has been growing in recent years and is poised to surge during 2021. Based upon EPA RIN data, AES estimates that domestic renewable diesel production tripled between 2015 and 2020, rising from 177 mm gallons to 533 mm gallons.

AES estimates that renewable diesel production will double between 2020 and 2021 to 1.1 B gallons. Year-to-date production during January-April 2021 is 45% above year-ago levels[4]. Beyond 2021, significant capacity expansion and further tightening of California's emission standards is expected to drive domestic renewable diesel production to 2-3 B gallons, more than double the projected 2021 forecast.



The dramatic increase in renewable diesel production and related investments has been driven by the need to meet the requirements of California's Low-Carbon Fuel Standard (LCFS). The LCFS took effect in January 2011, with the ultimate goal of reducing the carbon intensity of California's transportation fuel by 6.25% during 2019 (relative to 2010), increasing linearly to a reduction of at least 20% by 2030[5].

[4] EPA EMTS data and EIA production data
[5] https://ww2.arb.ca.gov/sites/default/files/2020-09/basics-notes.pdf

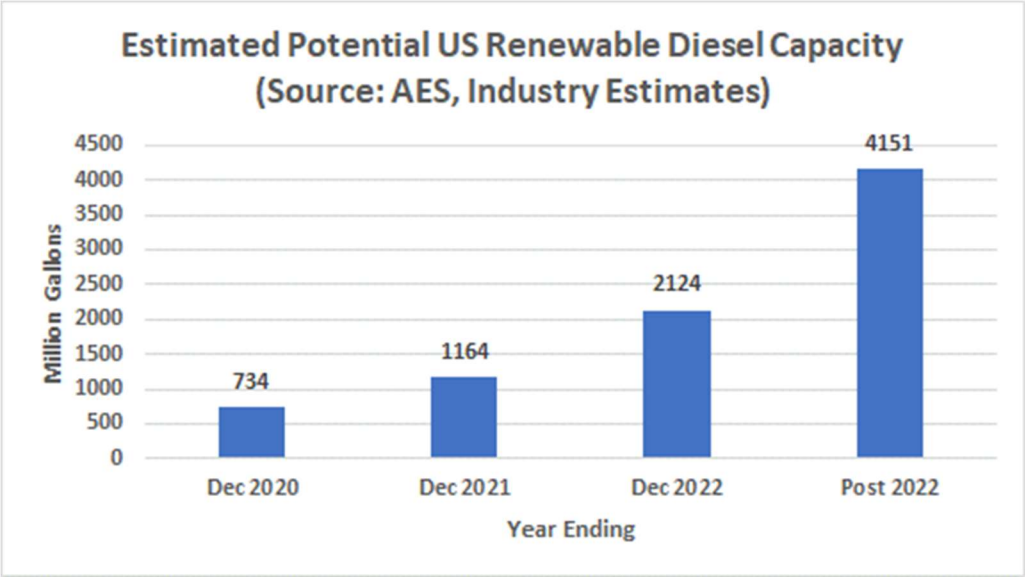
Carbon Intensity Benchmarks for Gasoline and Diesel Fuel and their Substitutes

Year	Gasoline Average CI (gCO_2e/MJ)	Diesel Average CI (gCO_2e/MJ)
2019	93.23	94.17
2020	91.98	92.92
2021	90.74	91.66
2022	89.50	90.41
2023	88.25	89.15
2024	87.01	87.89
2025	85.77	86.64
2026	84.52	85.38
2027	83.28	84.13
2028	82.04	82.87
2029	80.80	81.62
2030 onwards	79.55	80.36

In complying with the LCFS, suppliers of transportation fuel are responding to both "sticks" (requirements) and "carrots" (tax credits). Transportation fuel suppliers are required to meet the carbon intensity targets, as mentioned above. However, they also receive tax credits for providing lower carbon intensity fuels, such as renewable diesel. Relative to traditional diesel fuel, renewable diesel provides an alternative that significantly reduces carbon intensity in transportation fuel and provides a tax credit equal to $1.00-1.50 per gallon.

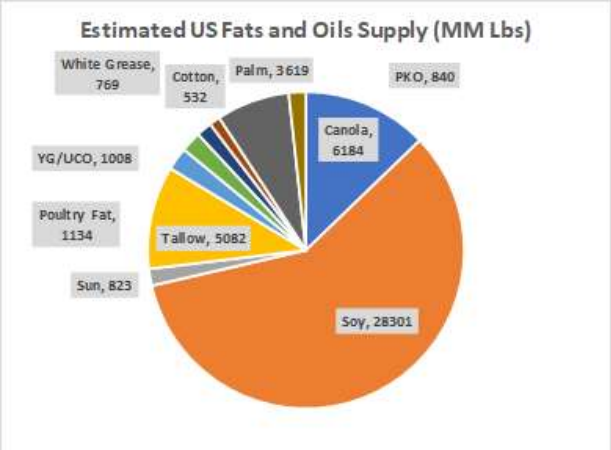
The net result of California's LCFS has been a surge in investment in renewable diesel capacity in recent years, with additional capacity expected in the coming years. AES estimates that industry capacity will rise by 59% to 1164 mm gallons by the end of 2021. AES has identified eight significant plants that are currently in operation, with annual operating capacity ranging from 5 mm gallons to 275 mm gallons. By the end of 2022, AES estimates that a total of 17 plants will be in operation, capable of producing over 2.1 B gallons.

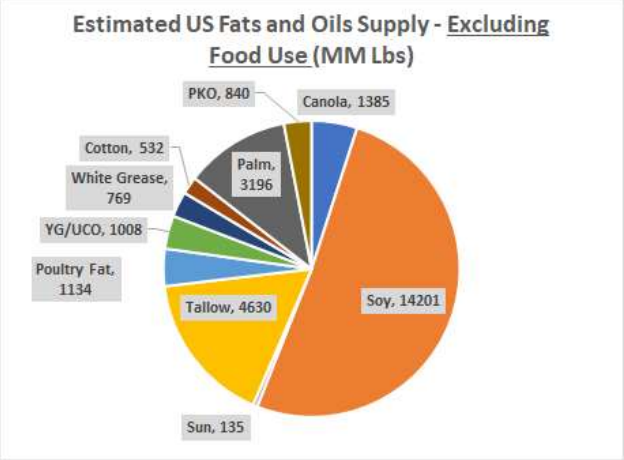
Beyond 2022, there are at least seven additional projects that are planned and have been announced that would increase industry capacity to produce renewable diesel to well over 4 B gallons. AES believes that several of these announced projects will not materialize, and that it is possible that domestic renewable diesel capacity will ultimately peak near 4 B gallons.



Implications for US Fats and Oils Availability

The annual US supply of fats and oils is estimated to total 45.9 B pounds[6]. This includes both production and imports during the 2020/21 year. Of this total, soyoil represents 25.9 B pounds or 56% of the total.



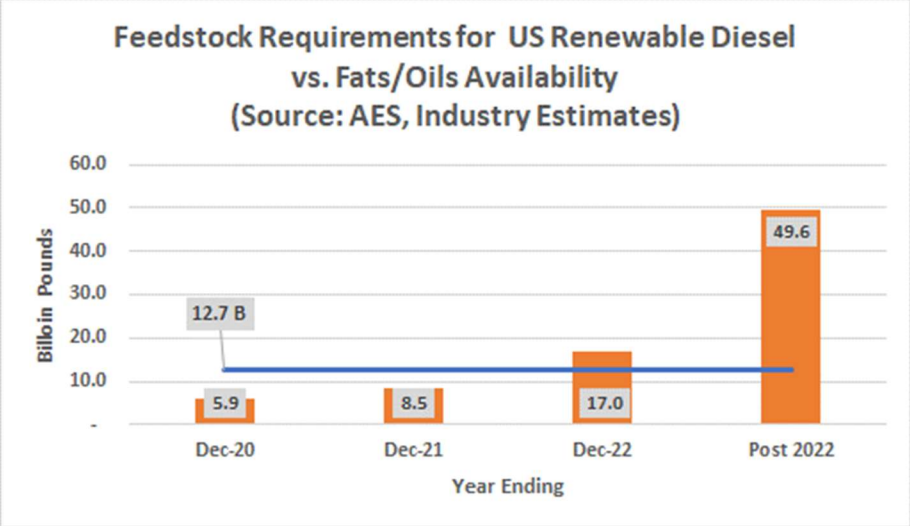


Overall availability of US fats and oils to meet renewable diesel requirements is already very limited and will become an even greater challenge in the next two years. Based upon estimated 2020/21 US fats and oil supplies, renewable demand will exceed the net available supply (total excluding food and biodiesel usage) by mid-2022[7].

With industry capacity rising to 2.1 B gallons by the end of 2022, renewable feedstock requirements will rise to 17.0 B pounds – compared to an estimated available supply of 2.7 B pounds. Further expansion of industry capacity toward 4 B gallons or more will make the challenge even greater. **Markets are**

[6] USDA Foreign Ag Service, The Jacobsen
[7] Based upon USDA FAS and Jacobsen data; assumes 8 pounds of feedstock per gallon of renewable diesel.

already attempting to adjust to the shortfall, but in the near-term US fats and oils availability will be extremely tight.



US Fats/Oils Availabillity	
US Fats/Oils Supply	45.9
US Food Use	20.5
US Biodiesel Use	12.7
Net Availability	12.7

Renewable Diesel Feedstock Feedstock Required	
Dec-20	5.9
Dec-21	8.5
Dec-22	17.0
Post 2022	49.6

In early 2021, the Energy Information Agency began publishing feedstock usage for the production of biofuels – biodiesel and renewable diesel combined. The data indicates that during January-March of 2021, 4.3 B pounds of feedstock was used – an annualized usage rate of over 17 B pounds. Soyoil usage during these three months totaled 2.0 B pounds (46% of the total)[8].

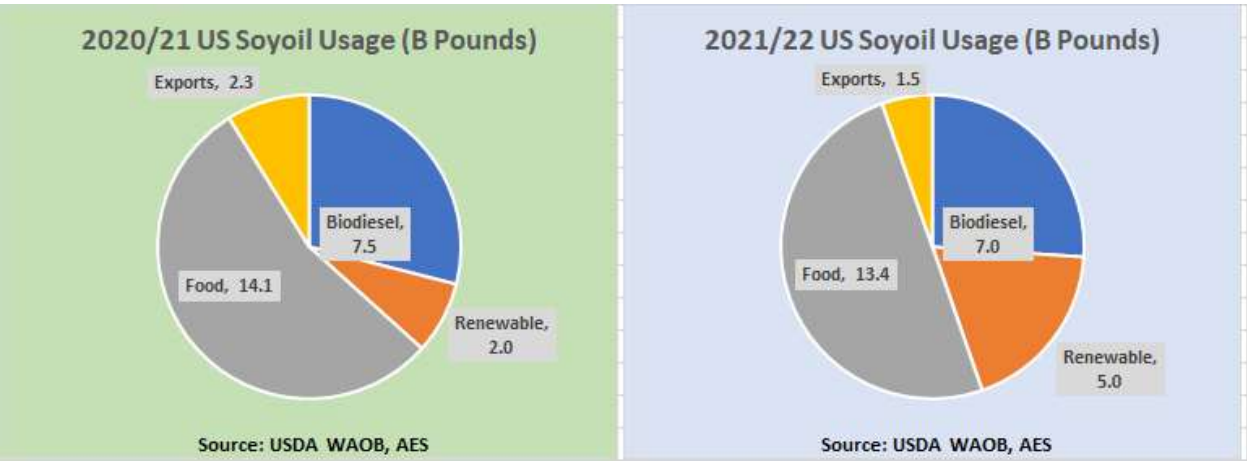
Implications for Soyoil Availability and Prices

Total US soyoil usage during the (October-September) 2020/21 crop year is forecast to total 25.9 B pounds, roughly equal to total supply (production plus imports). The breakdown of forecast soyoil usage during 2020/21 includes 14.1 B pounds (54% of total usage) for food use, 7.5 B pounds for biodiesel (29%), 2.0 B pounds (8%) for renewable diesel and 2.3 B pounds for exports (9%).

Due to the growth in renewable demand, the breakout of usage is forecast by USDA to change significantly during the 2021/22 crop year. Renewable diesel usage is forecast to rise 150% to 5.0 B pounds (19% of total usage), while each of the other categories are forecast to decline – food use to 13.4 B pounds (50%), biodiesel to 7.0 B pounds (26%) and exports to 1.5 B pounds (5%).

Food use patterns for all vegoils will begin to be impacted by the surge in the use of soyoil to produce renewable diesel. USDA is forecasting a decline of 5% in soyoil food use to 13.4 B pounds. This will be offset in part by increased use of other oils, led by canola oil gaining 8% to 4.8 B pounds. Overall usage of the seven major vegoils is forecast to decline by 0.9% to 22.6 B pounds[9].

[8] https://www.eia.gov/biofuels/update/
[9] USDA World Ag Outlook Board, May 2021; AES



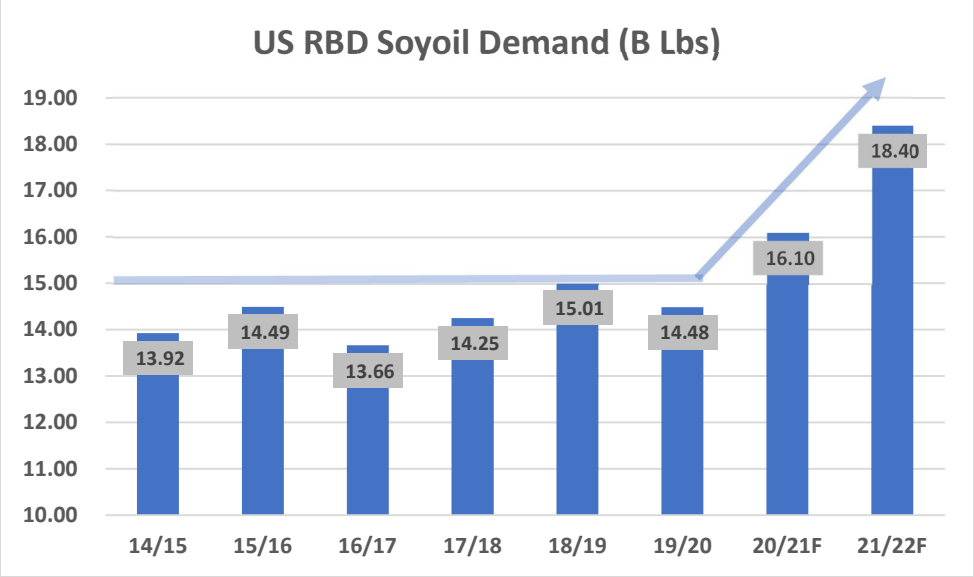
The impact of the dramatic growth in renewable diesel production has created an extremely tight US supply/demand situation for soyoil as well as other fats and oils. This has led to a doubling in the price of soyoil futures over the past year.

Because a significant share of the renewable diesel plants require refined (RBD) soyoil, an even greater concern has been availability of RBD soyoil. AES estimates that approximately 35% of the feedstock used to produced renewable diesel during 2021 will utilize refined/bleached/deodorized (RBD) soyoil. Because RBD soyoil is required by both food users and more than one third of renewable diesel producers, a severe availability problem for RBD soyoil has already developed.

AES expects renewable diesel plants currently requiring RBD soyoil will invest in "pre-treat" capabilities over the next 12-24 months – this will give these plants the latitude to use a wider variety of fats and oils. However, in the near-term, the demand for RBD soyoil for renewable diesel will remain large and continue to trend higher, creating a significant challenge in meeting both food and renewable diesel demand for RBD soyoil.

US RBD soyoil total demand (food and renewable diesel) was steady between 2014/15 and 2019/20 averaging 14.3 B pounds annually. However, during 2020/21 RBD soyoil usage surged to 16.1 B pounds during 2020/21, driven entirely by a sharp increase in the use of RBD soyoil to produce renewable diesel.

Looking ahead, demand for RBD soyoil during 2021/22 is forecast to rise by 14% to 18.4 B pounds. While the use of soyoil for food during 2021/22 is expected to decline by 5%, this will be more than offset by an expected 150% increase in the use of soyoil to produce renewable diesel.



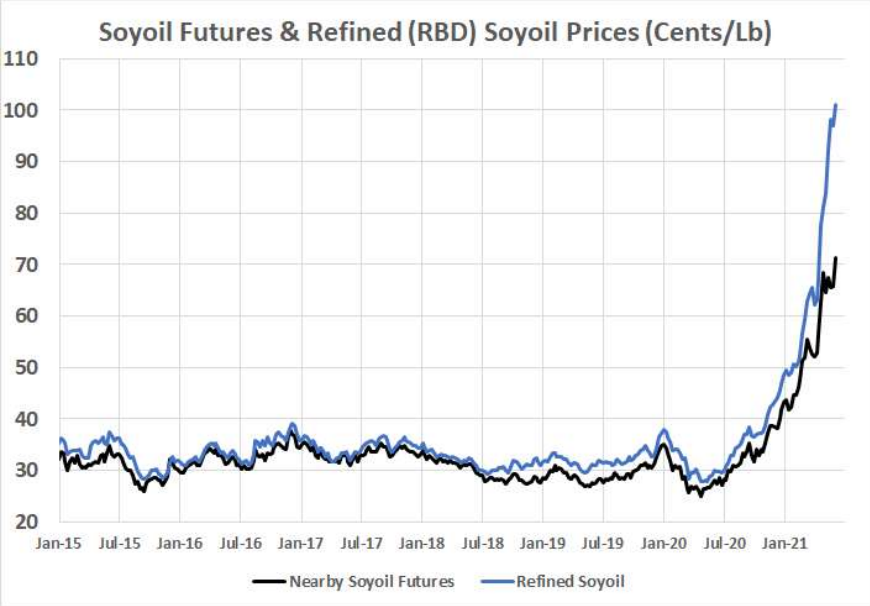
US soyoil refineries operate with limited excess capacity, and thus the surge in demand for RBD soyoil during 2020/21 has led to a sharp increase in the premium paid for RBD soyoil over futures (the "basis"). The basis for RBD soyoil is typically less than $.04 per pound but has risen to over $.30 per pound in recent months[10].

The shortfall in RBD soyoil is expected to become more extreme during 2021/22 as RBD soyoil demand is forecast to increase by an additional 14%. Eventually (12-24 months from now) the amount of renewable diesel requiring RBD soyoil will decline, as renewable diesel plants add "pre-treat" capabilities and are able to use a wider variety of feedstock. However, in the near-term, availability of RBD soyoil will remain a major challenge.

Soyoil prices, including both futures and RBD soyoil have surged in response to a sharp increase in the amount used to produce renewable diesel. As of 6/4/21, soyoil futures ($.713/pound) rose by 154% from a year ago. RBD soyoil was at a record $1.01, a gain of 238% from a year earlier[11].

The current economics imply soyoil prices (both futures and RBD soyoil) will remain at extreme levels during the coming year. Further, in the case of RBD soyoil there remains an availability risk that should not be overlooked. The bidding war for RBD soyoil between food interests and renewable diesel producers is likely to continue for at least the next 12-24 months.

[10] The Jacobsen
[11] Chicago Mercantile Exchange, The Jacobsen



Market Solutions: How and When Will Markets Adapt to Rising Renewable Diesel Production

As the use of soyoil and other fats and oils increases further in the coming year, prices have the potential to rise further and availability will remain a concern. End-users in both the food and renewable diesel sector have highly inelastic demand, as witnessed during the past year.

With soyoil prices rising dramatically, the current shortfall will eventually be resolved, but it will require 2-3 years of supply/demand adjustments. These include these seven expected adjustments:

Near-term – beginning to occur

1) Declining US soyoil exports: This has already begun, as the US has become uncompetitive in world markets. US soyoil exports during 2021/22 are forecast to decline to 1.4 B pounds, roughly half of the 2019/20 level. Beyond 2021/22, an additional reduction of 0.5-1.0 B pounds in US soyoil exports is possible.
2) Reduced use of soyoil to produce biodiesel: From the 2020/21 total of 7.5 B pounds, use of soyoil to produce biodiesel is forecast to decline to 7.0 B pounds during 2021/22. Further declines in soyoil use toward 6.0 B pounds will be dependent upon what level the EPA sets the annual mandated Renewable Volume Obligations (RVOs).
3) Rising US soyoil imports: Soyoil imports are forecast to rise toward 1.0 B pounds during 2021/22, up from 0.7 B pounds during 2020/21.

Medium-term – expected to occur during the next 12-24 months

4) Adding "pre-treat" capabilities at renewable diesel plants that currently require RBD soyoil: There currently are four plants in operation that require RBD soyoil, and an additional three

plants that will initially require RBD soyoil to operate (total potential demand of 5.5 B pounds). Each of these plants is expected to invest in pre-treat capabilities, and eventually (in 12-24 months) have the capability to use a variety of feedstock in the production of renewable diesel.

Longer-term: 24 months and beyond

5) US imports of Canadian canola/canola oil: US supplies of canola are expected to increase modestly during 2021/22 (+0.4 B pounds vs. 2020/21). However longer term, Canada has already announced plans to increase their crush capacity from 11.0 MMT to 15.6 MMT by 2023/24 – enough to add over 4 B pounds to the North American vegoil supply. The additional canola oil will be used to displace soyoil in food use and renewable diesel production.
6) Additional US crush capacity: US producers have announced plans to add over 100 mm bushels of crush capacity over the next 2-3 years, increasing the supply of US soyoil by 1.1 B pounds.
7) Development of other non-food oilseeds: Several alternative oilseeds that produce inedible oil are under discussion (e.g., camelina and jatropha). These hold longer-term potential, but the scale and timetable are uncertain.

Soyoil (and particularly RBD soyoil) is expected to remain in extremely tight supply for the next 24 months. Beyond that, over the next 24-36 months, the high prices and reduced availability of soyoil (and particularly RBD soyoil) is expected to be largely "remedied," primarily through the seven economic dynamics outlined above. Supply and demand adjustments should eventually make the risk of availability challenges diminish.

However, the resolution of the shortfall in US soyoil supply over the next 24-36 months is not certain, and several critical assumptions/risks that could compound the availability problem need to be recognized:

- Weather: if US soybean or Canadian canola production is reduced due to adverse weather, the availability and price challenges in the vegoil markets will continue
- Expansion of LCFS to Other States: Currently only California has implemented a LCFS, but other states (OR, WA, MN, MO), as well as Canada, are implementing or considering adopting a program similar to the LCFS. If the LCFS expands beyond California, the availability and price challenges facing the vegoil market would become greater.
- Expansion of RFS Mandate Levels: If the EPA increases the annual Renewable Volume Obligations (RVOs) from 2020 levels (particularly for Advanced Biofuels), the federal requirements will drive demand for soyoil and other fats and oils higher, and thus exaggerate the already tight supply of soyoil.

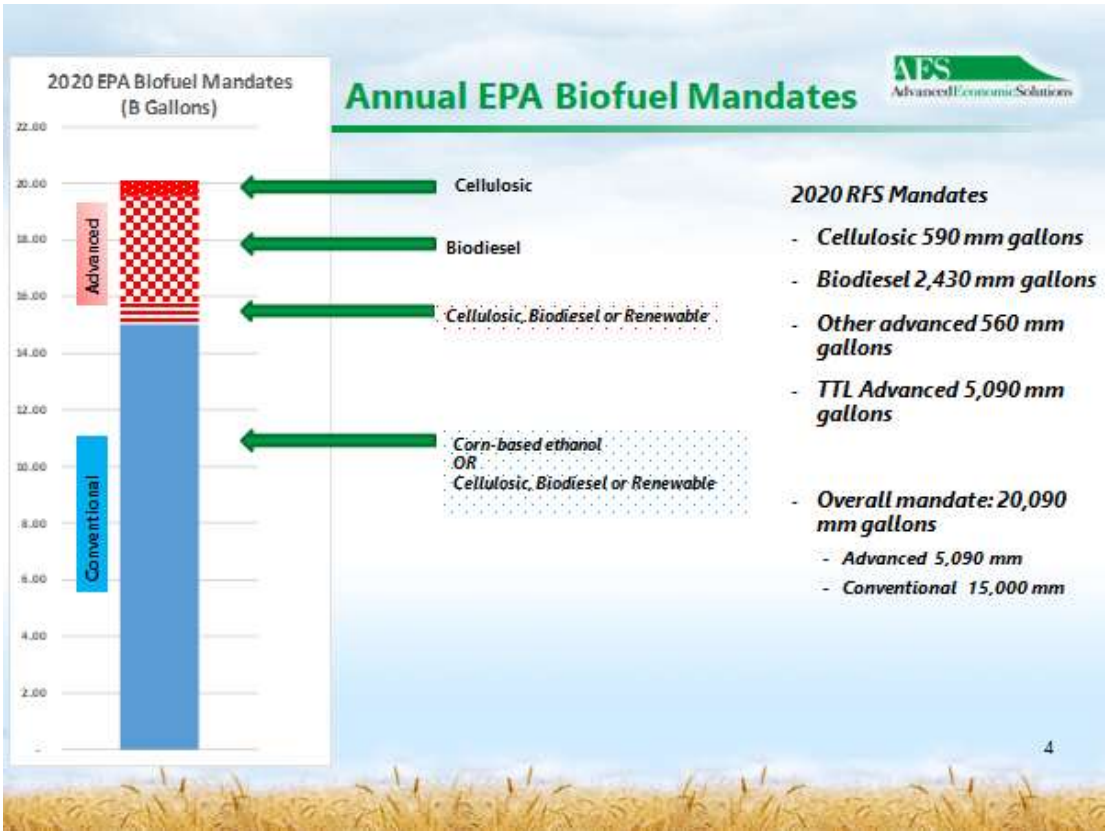
Appendix

What is Renewable Diesel:

Renewable diesel is a biomass-based diesel fuel that is chemically the same as petroleum diesel fuel. It may be used in existing petroleum pipelines, storage tanks, and diesel engines. It can be produced from a variety of biomass materials but is almost exclusively produced using fats and oils. It qualifies as an advanced biofuel under the Renewable Fuel Standard (RFS) program.

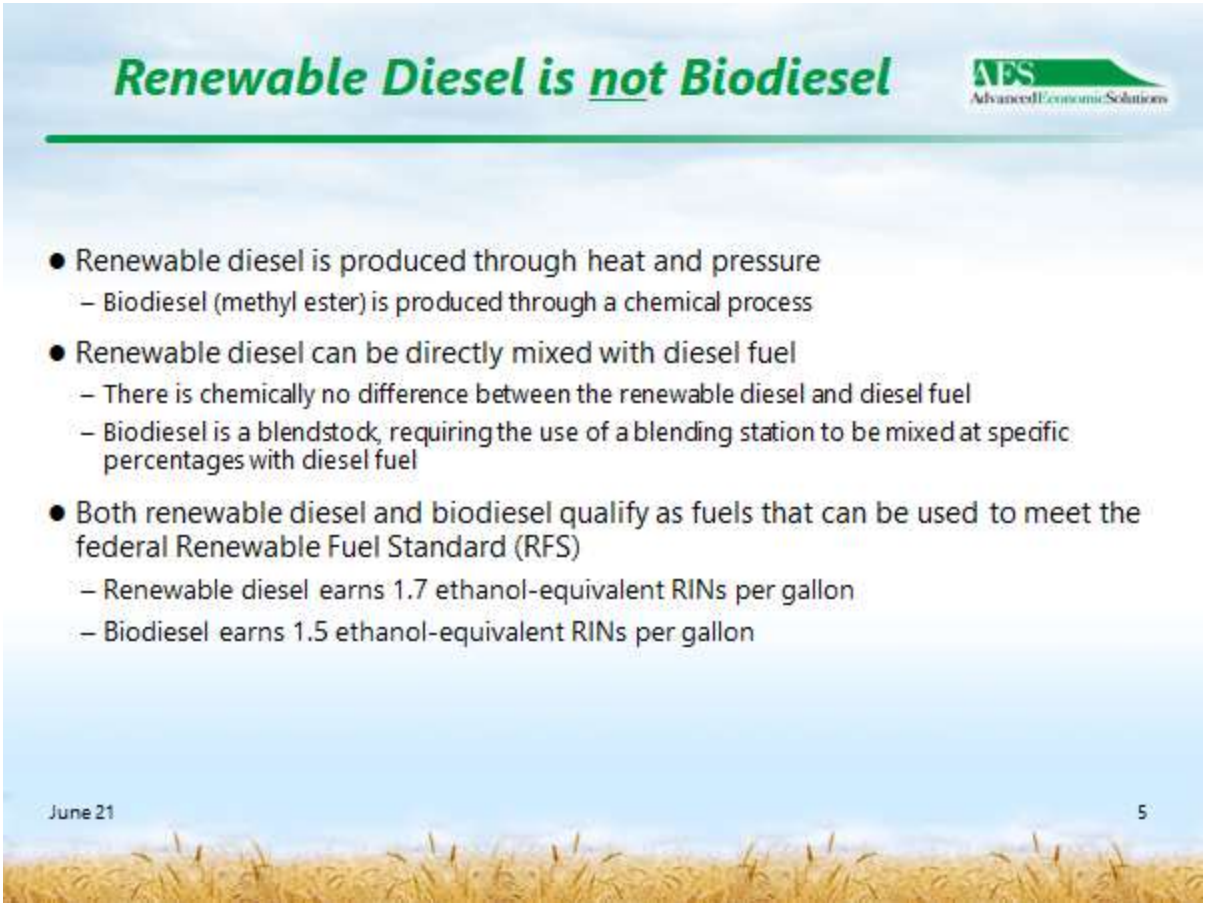
Renewable diesel is produced through various thermochemical processes such as hydrotreating, gasification, and pyrolysis. This differs from biodiesel (methyl ester), which is produced through a chemical process involving the introduction of a catalyst (methanol). Because renewable diesel is chemically the same as petroleum diesel, it may be used in its pure form (called R100) or mixed/blended with petroleum diesel[12].

2020 EPA Renewable Volume Obligations

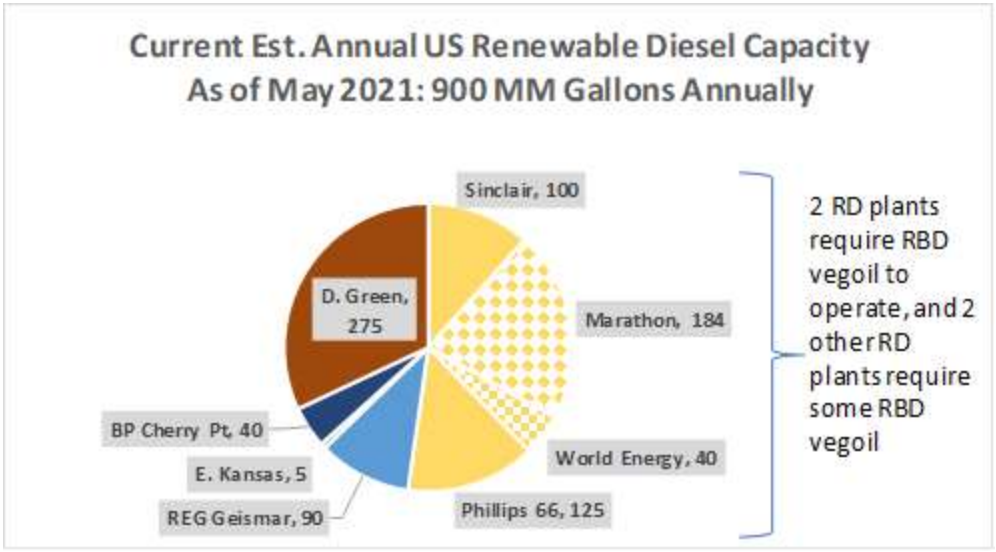


Renewable Diesel vs. Biodiesel

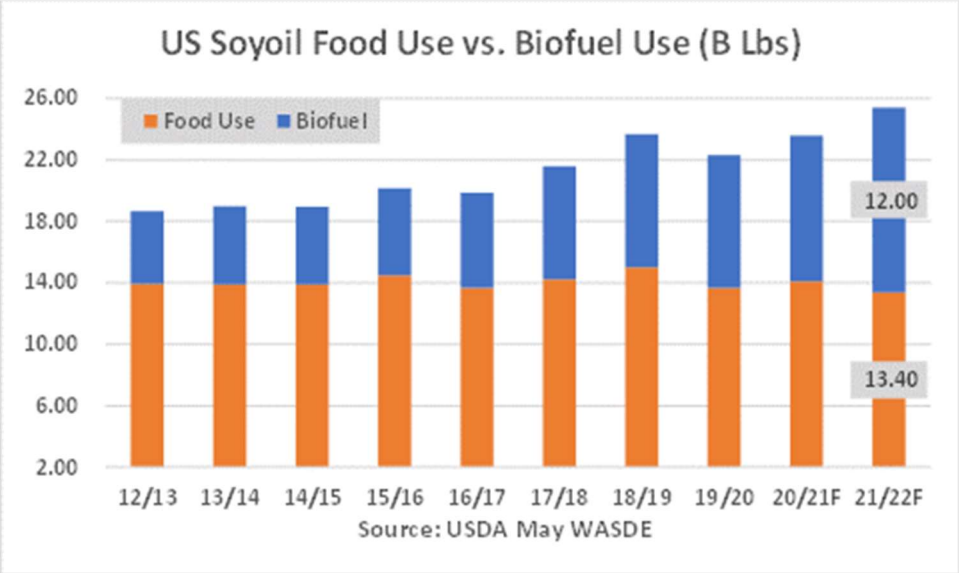
[12] https://www.eia.gov/energyexplained/biofuels/biodiesel-in-depth.php



Current US Renewable Diesel Plants and Capacity



US Soyoil Usage: Food vs. Biofuel


US Soyoil Food Use vs. Biofuel Use (B Lbs)
26.00
22.00
18.00
14.00
10.00
6.00
2.00
Food Use
Biofuel
12.00
13.40
12/13
13/14
14/15
15/16
16/17
17/18
18/19
19/20
20/21F
21/22F
Source: USDA May WASDE