



Impacts of Renewable Diesel on Pet Food Ingredients

September 28, 2021

Key Questions

- What is Renewable Diesel?
- Why is production of Renewable Diesel growing quickly?
- What will Renewable Diesel growth do to Fat and Oil supply and prices?
- What can we do about it?

Bio Diesel

- Created using transesterification process that introduces oxygen into the fuel. Issues with:
 - Separates at various temperatures
 - Separation during storage
 - Algae growth
- Must be blended at a 7-20% blend with Petroleum based Diesel depending upon weather
- Does not reduce emissions
- Arguable engine performance
- Flat growth other the last several years
- Minimal profitability expected in this area

Renewable Diesel

- Created using a hydrotreating process, renewable diesel is a pure hydrocarbon diesel fuel with a similar chemical composition to fossil diesel, which is what allows the fuel to be used as a drop-in replacement.
- No blending required and no equipment modifications to trucks
- Burns cleaner than Petroleum
- Excellent engine performance
- Feedstock demand for renewable diesel production is predicted to nearly triple in 2022 from about 625 million pounds per month to 1.75 billion.

What Burns Cleaner?

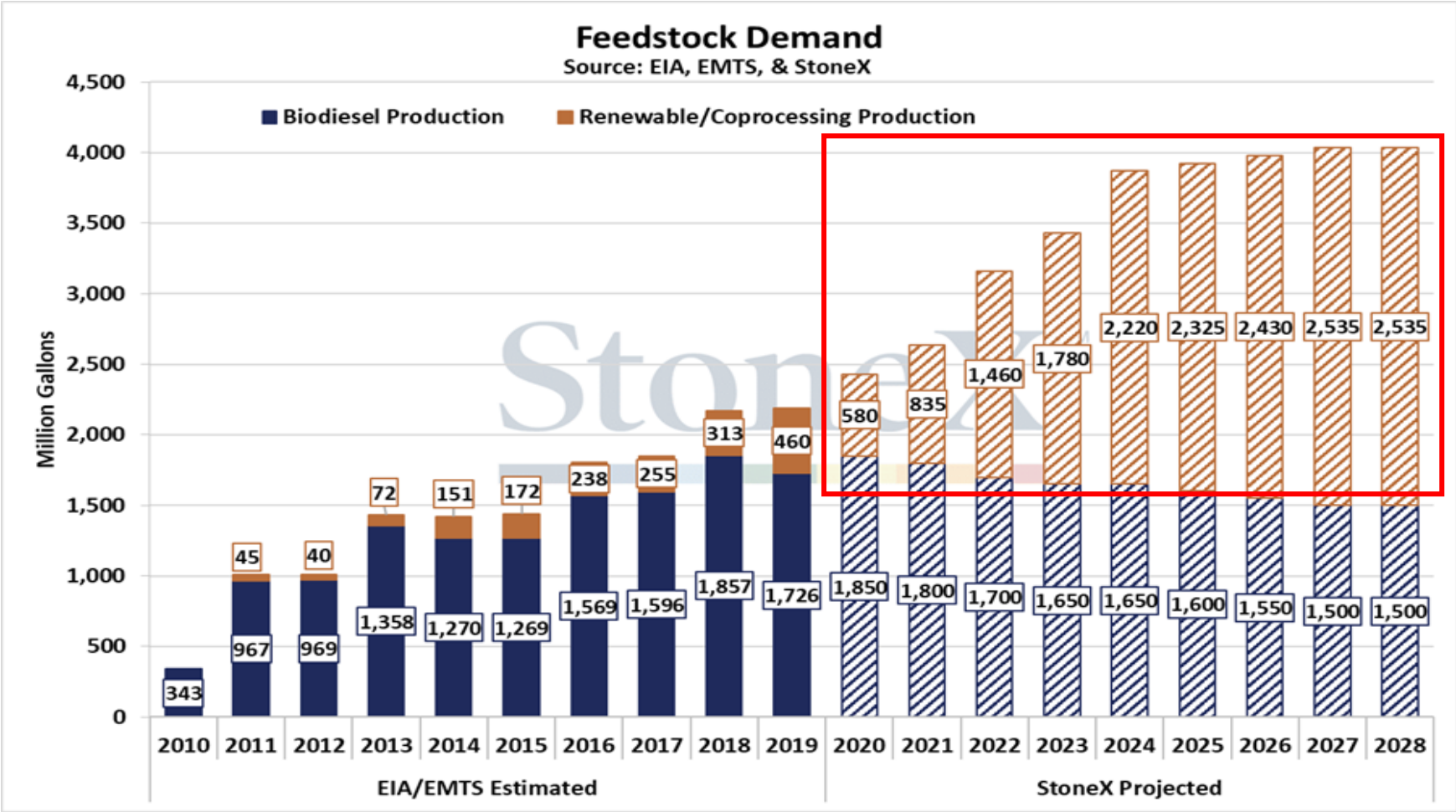
Renewable Diesel



Petroleum Diesel

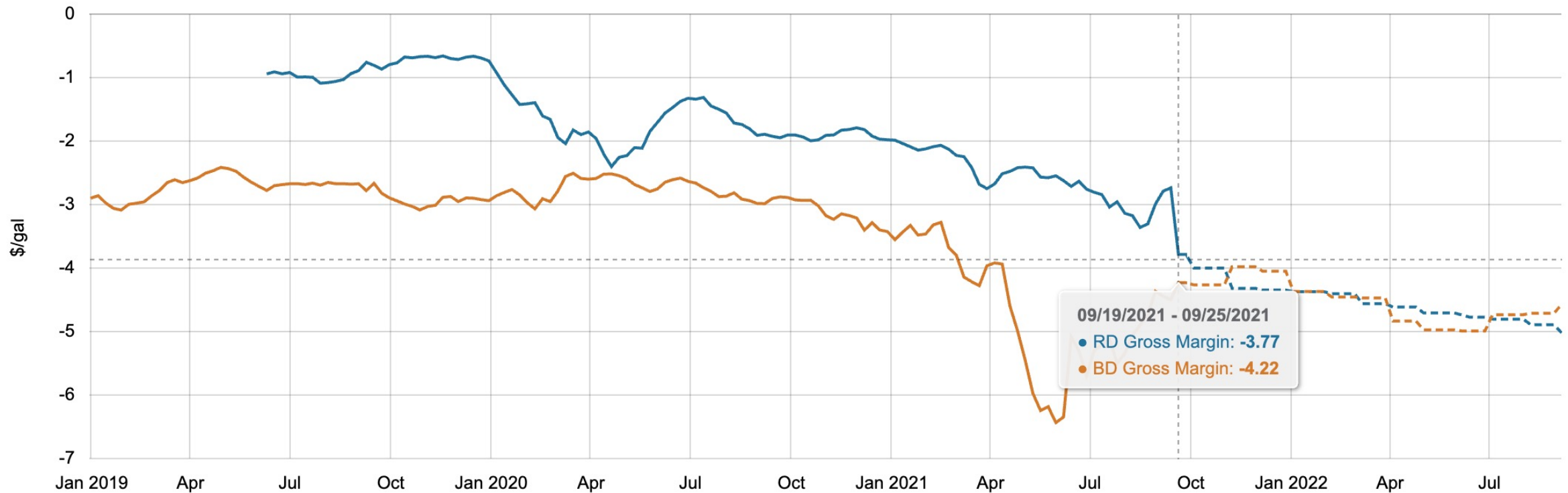
Image credit: Capitol Corridor https://www.capitolcorridor.org/blogs/get_on_board/ccipa-tests-renewable-diesel/

Fat and Oils Bio Diesel and Renewable Diesel Demand Forecast



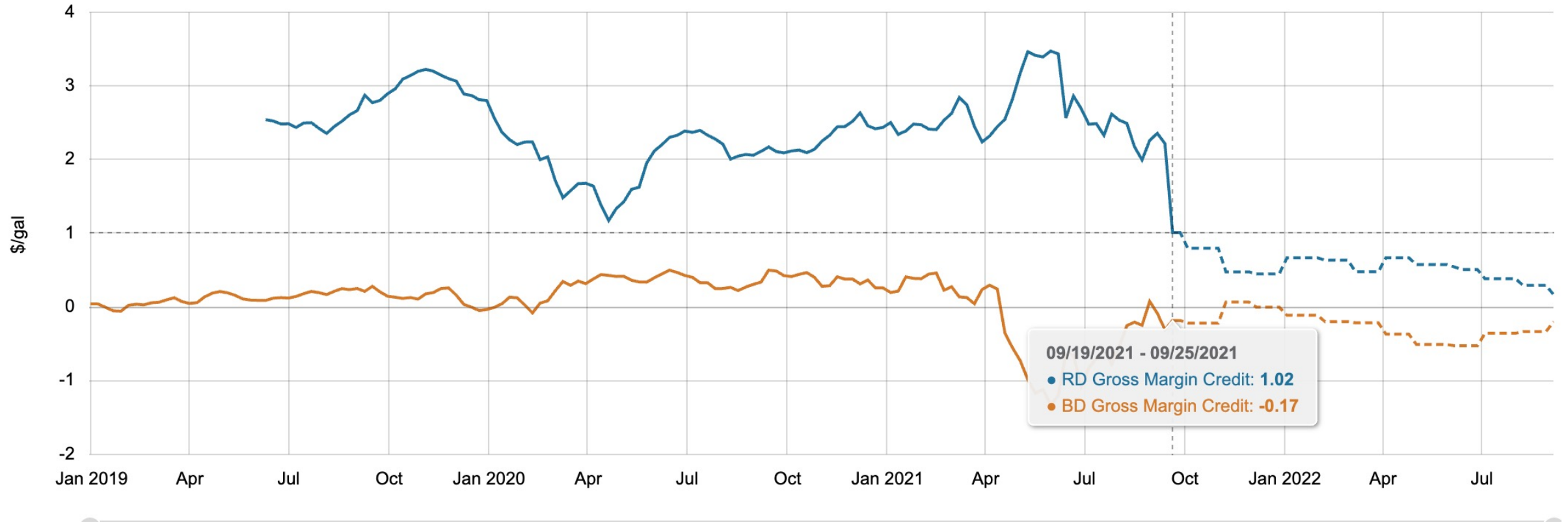
Renewable Diesel and Bio Diesel Profitability

Source: ICE / The Jacobsen



Renewable Diesel and Bio Diesel Profitability with Tax Credits (RINs and LCSF)

Source: ICE / The Jacobsen



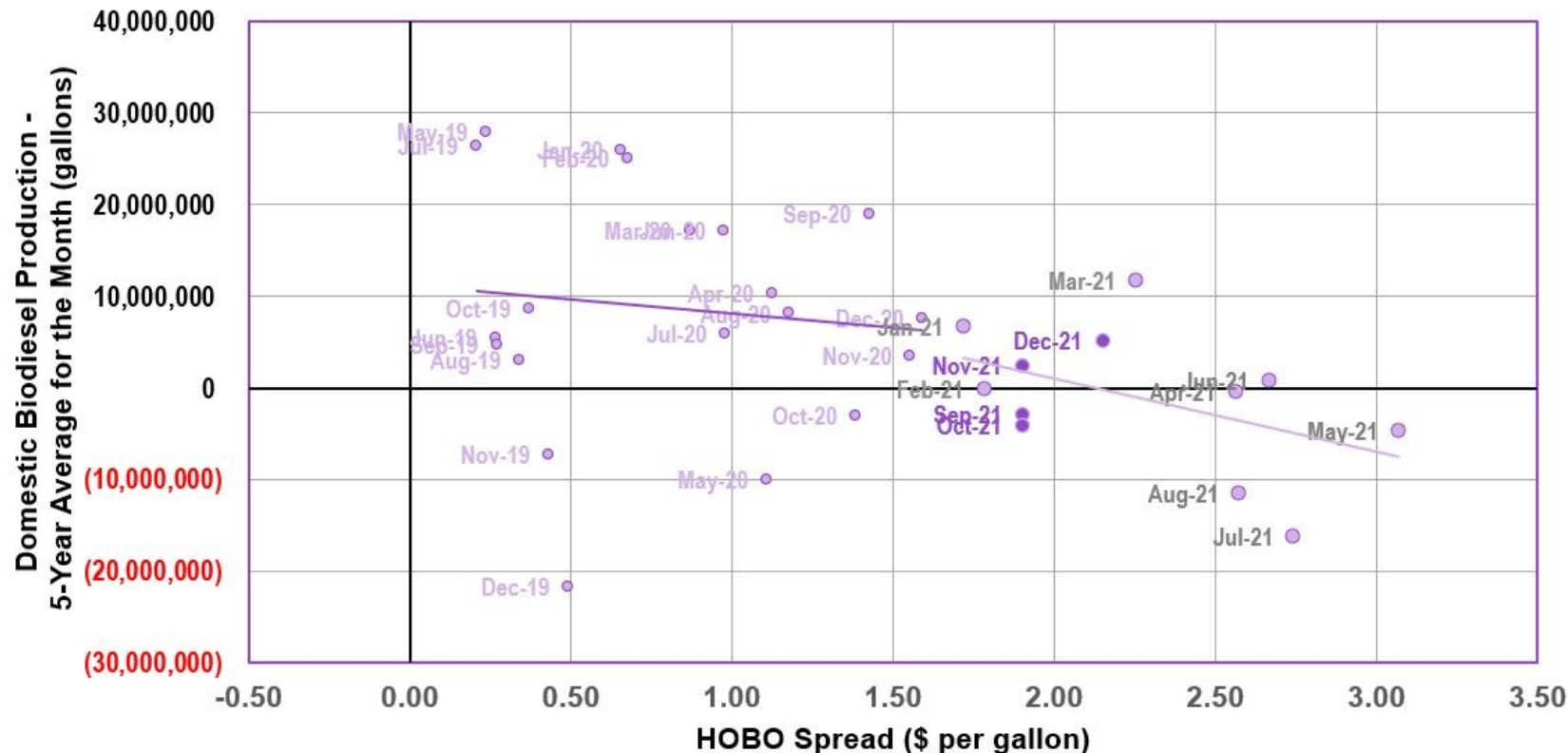
LCSF credits are possibly expanding into Washington, Oregon, New York and Canada

HOBO Spread



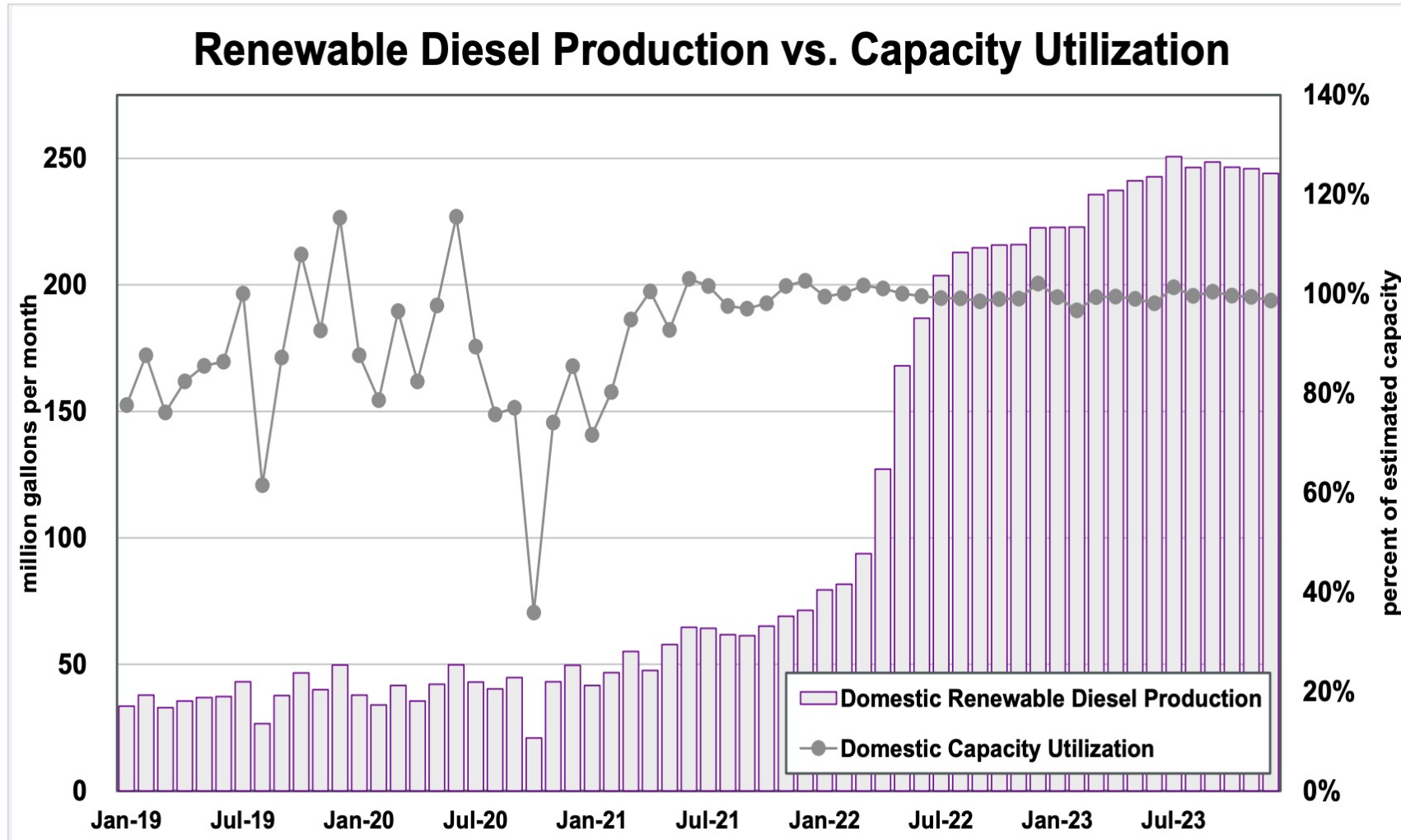
HOBO Spread and Bio Diesel Production

Monthly Average HOBO Spread vs. Excess Domestic Biodiesel Production



- Why is BD production still high at this HOBO spread?
- Because of production mandates tied to RINs.

Capacity Expansion and Renewable Diesel



Source: Tore Alden, The Jacobsen

Fats and Oils Feedstock Balance Sheet

Total Feedstocks

(million pounds)

Source: The Jacobsen

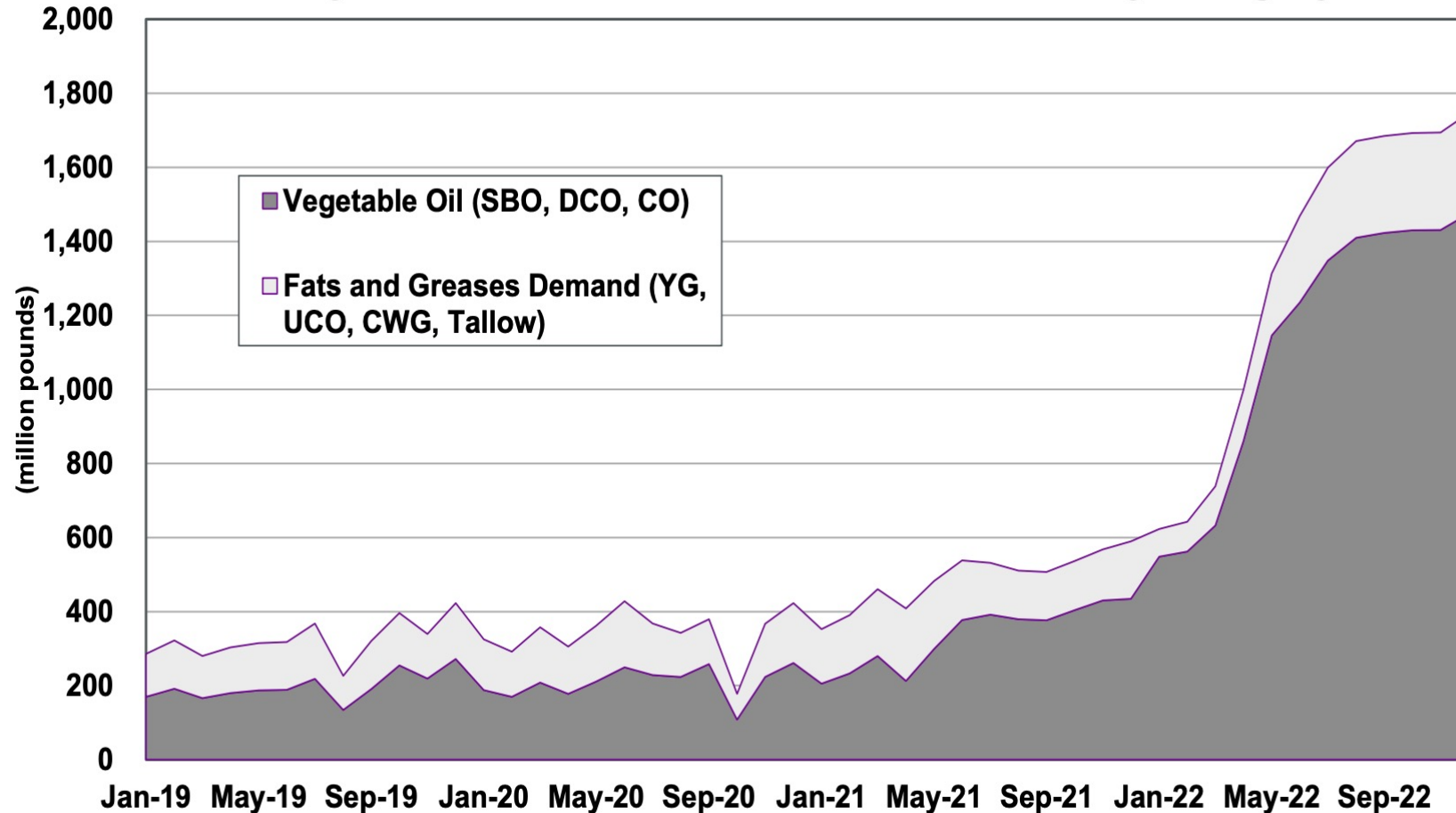
	2019	2020	2021	2022
Beginning Stocks (January 1)	2,492.8	2,612.9	2,609.0	3,991.3
Production	40,697.2	41,354.6	41,559.5	43,320.9
Imports	4,868.5	4,748.3	5,060.4	6,728.6
Total Supply	48,058.6	48,715.8	49,228.9	54,040.9
Domestic Usage	41,159.0	40,519.7	41,841.8	47,385.5
Biomass-Based Diesel Production	16,907.9	17,834.7	18,713.5	28,735.7
Biodiesel Production	12,744.9	13,317.7	12,374.8	12,433.7
Renewable Diesel Production	3,897.5	4,126.2	5,874.5	15,871.6
Co-Processing Use	265.4	390.8	464.2	430.5
Non-Biodiesel Use	24,251.1	22,685.0	23,128.3	18,649.8
Exports	4,286.8	5,587.1	3,395.8	2,819.5
Total Use	45,445.7	46,106.8	45,237.6	50,205.0
Ending Stocks (December 31)	2,613.0	2,609.0	3,991.0	3,836.0

13.8%

33.5%

Fat and Oils Feedstock Impacts

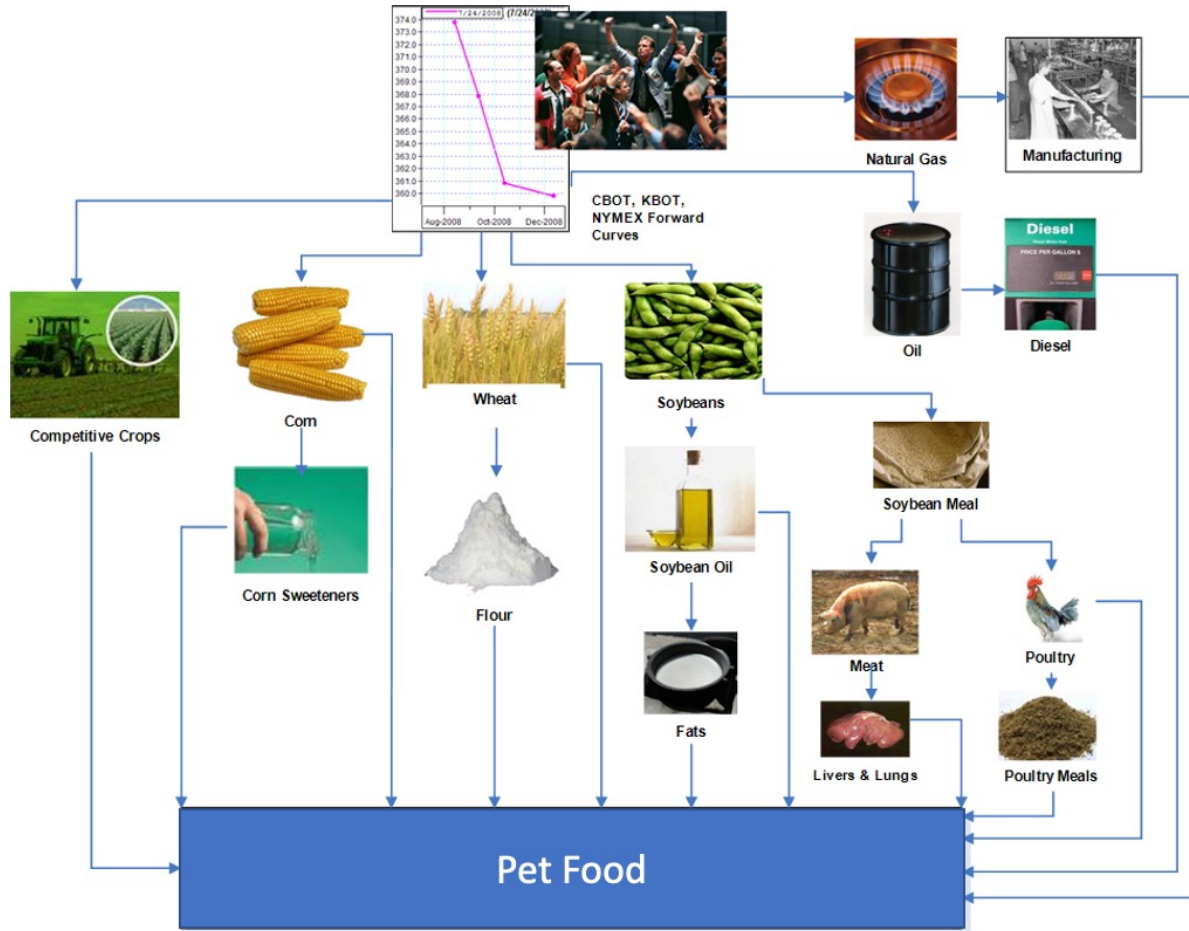
Monthly Renewable Diesel Feedstock Demand by Category



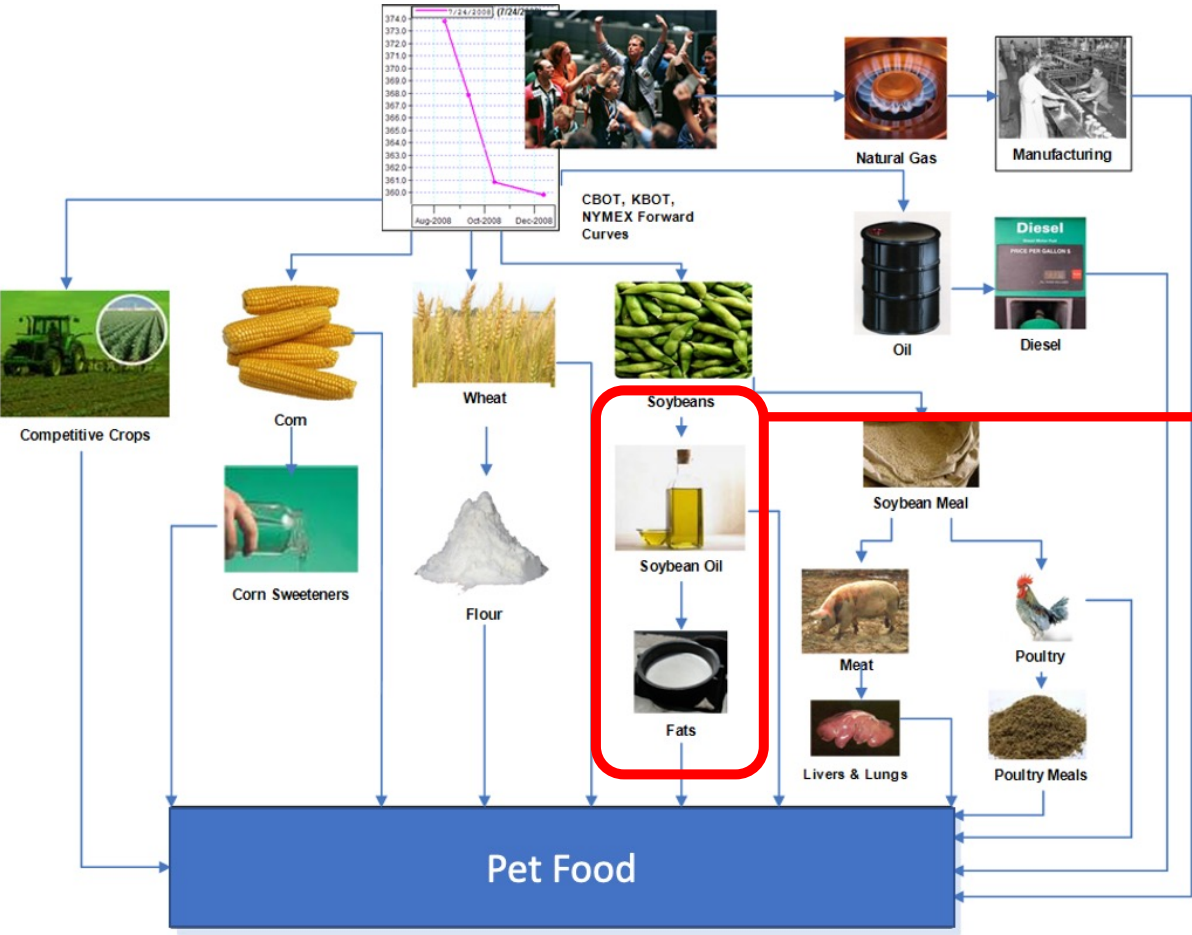
- Feedstock demand for renewable diesel production is predicted to nearly triple in 2022 from about 625 million pounds per month to 1.75 billion.
- Despite the record high HOBO spread, the expansion of production capacity has resulted in record domestic renewable diesel production in June and July.

Source: Tore Alden, The Jacobsen

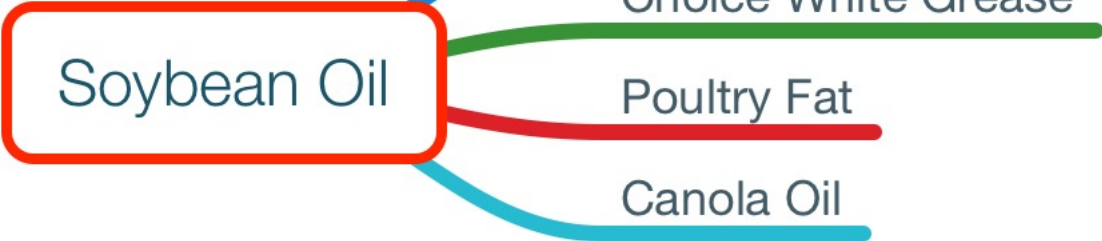
Pet Food Ingredients Relative Value Connection



Pet Food Ingredients Relative Value Connection

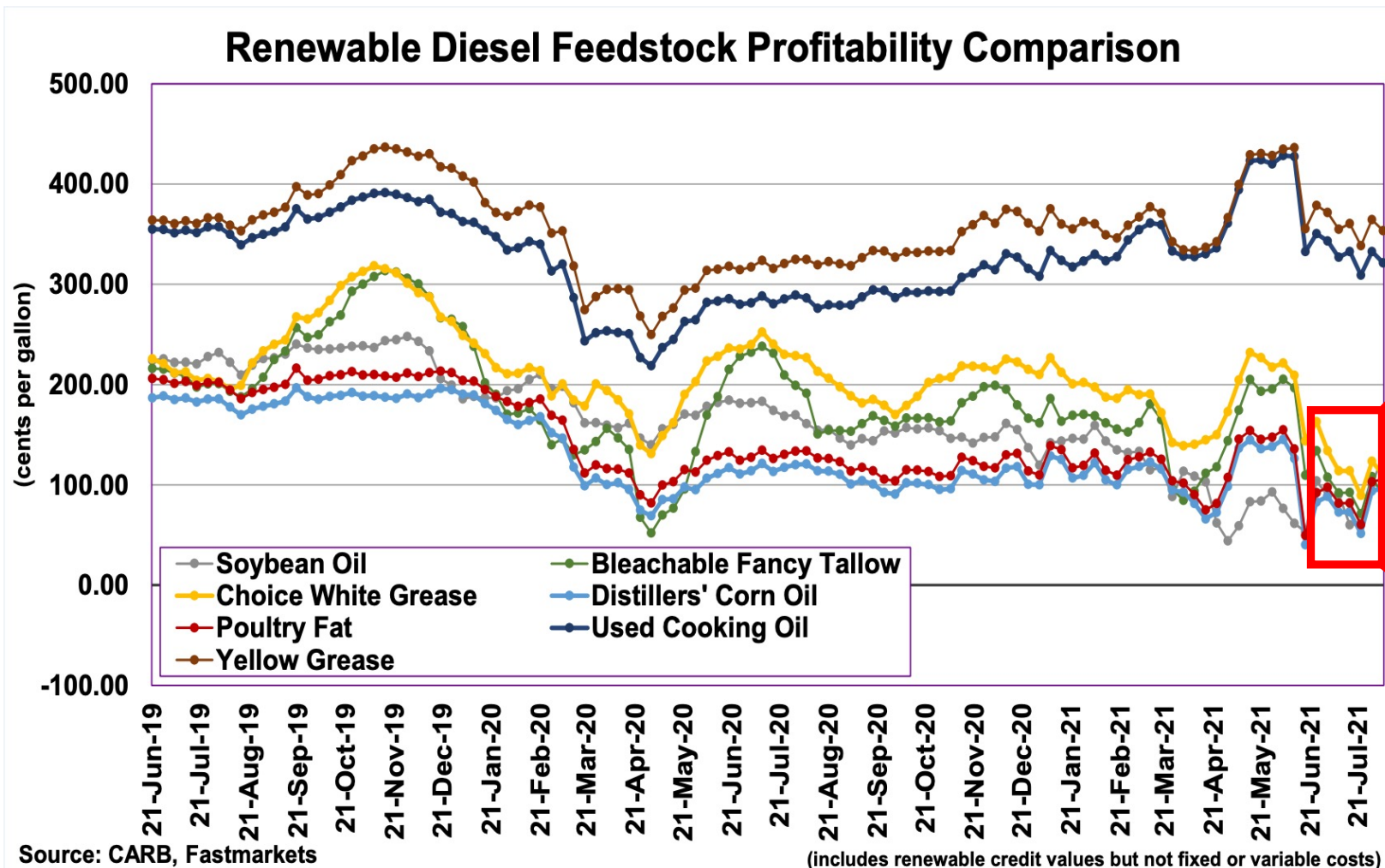


Renewable Diesel Feedstocks



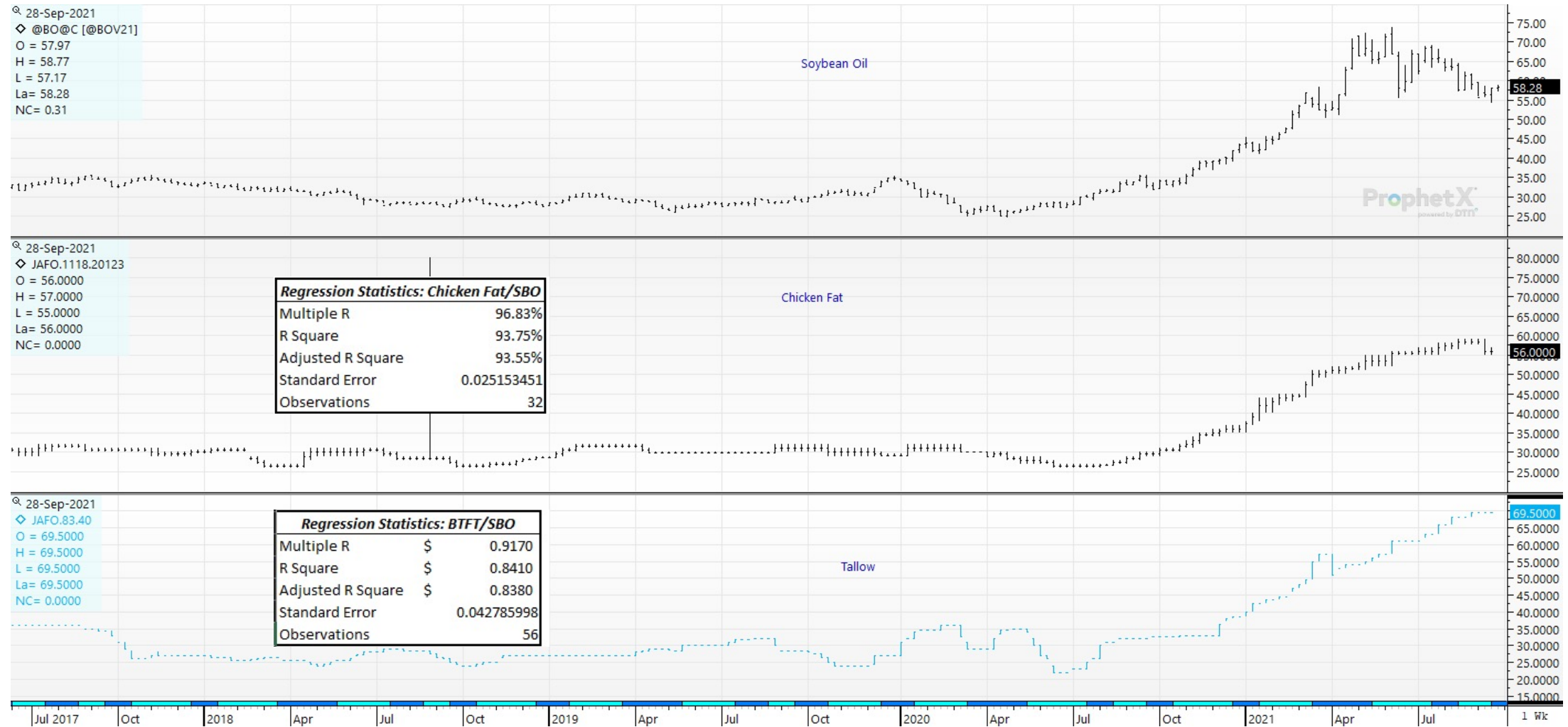
HOBO Spread

Renewable Diesel
Feedstock Profitability
converging on new fats
and oils spreads next fall



Source: Tore Alden, The Jacobsen

Oil and Fat Relationship (Credits and Yields)



Summary

- Renewable Diesel is superior to Bio Diesel in almost every way
- Renewable Diesel is expected to grow exponentially and pull petfood fat and oil feedstocks from our industry
- Prices and assurance of supply are at risk
- We need to work together to protect our consumers and pets

What can we do?

- Push to ease mandates
- Ask for a focus on Cellulosic Renewable Diesel Production Feedstocks versus Fat and Oil Feedstocks
- Lobby to remove the SBO import tariff