# MARTINSON AG
## RISK MANAGEMENT

Bio Fuels Wave 2023

# Hype or Reality

- Last few years a lot of talk of biofuel demand
  - Especially renewable diesel fuel
  - Sustainable aviation fuel

- Is it just talk, or will it be reality?

- If reality, future for veg oil production looks outstanding, which will also help support other grains

MARTINSON AG
RISK MANAGEMENT

# What is it?

Renewable diesel is a biofuel made by hydrotreating bio-based oil, fats, and grease.

This is the same method/technology used by petroleum refineries and is complex and expensive/capital intense.

Renewable diesel meets the diesel spec/is a drop-in fuel.

# What is it not.

**It is NOT biodiesel.**

**Biodiesel is a biofuel made by transesterification of vegetable oil, animal fat, or grease.**

**Biodiesel is not a drop-in fuel.**

# Why is there a market for Renewable Diesel?

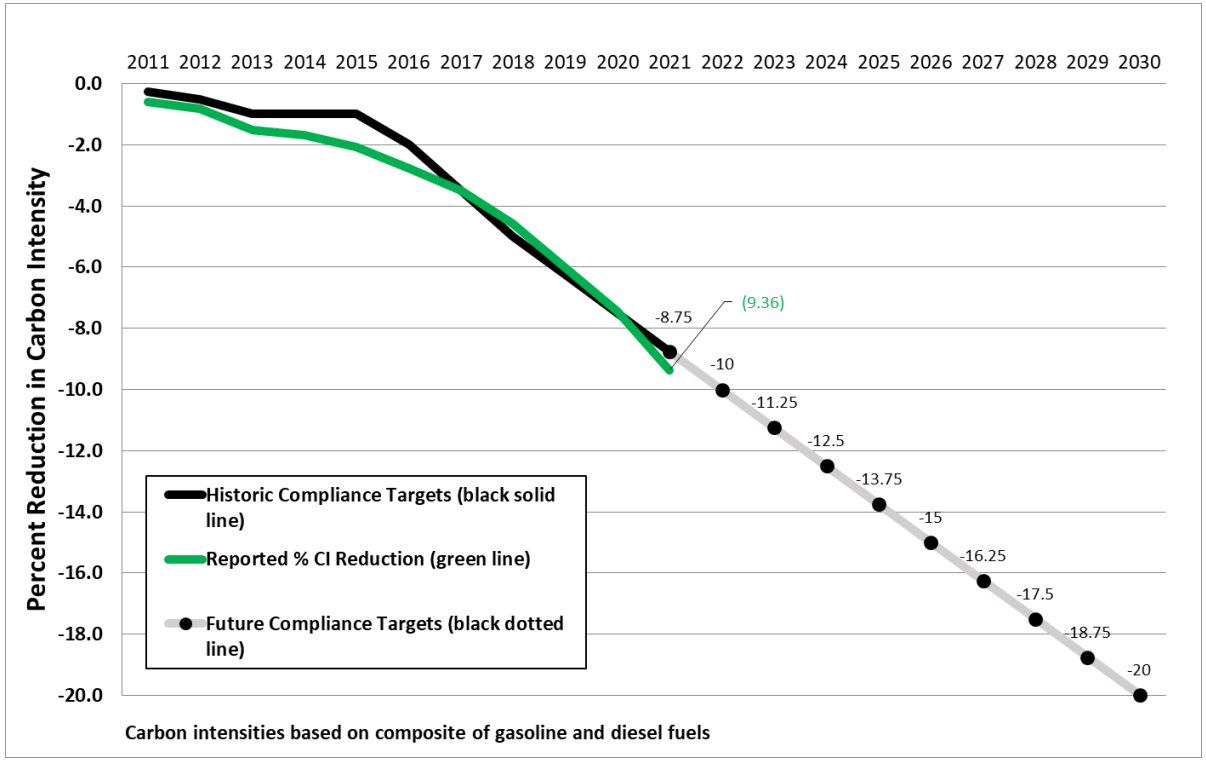
California's low-carbon fuel standard, which incentivizes low-carbon fuels, has created a market with significant premiums for renewable diesel.

Other States with Biofuel Mandates or Incentives:

MO/FL/CT/OR/MS/AR/NE/MT/TN/NM/IA/IL/MN

# Tightening mandate

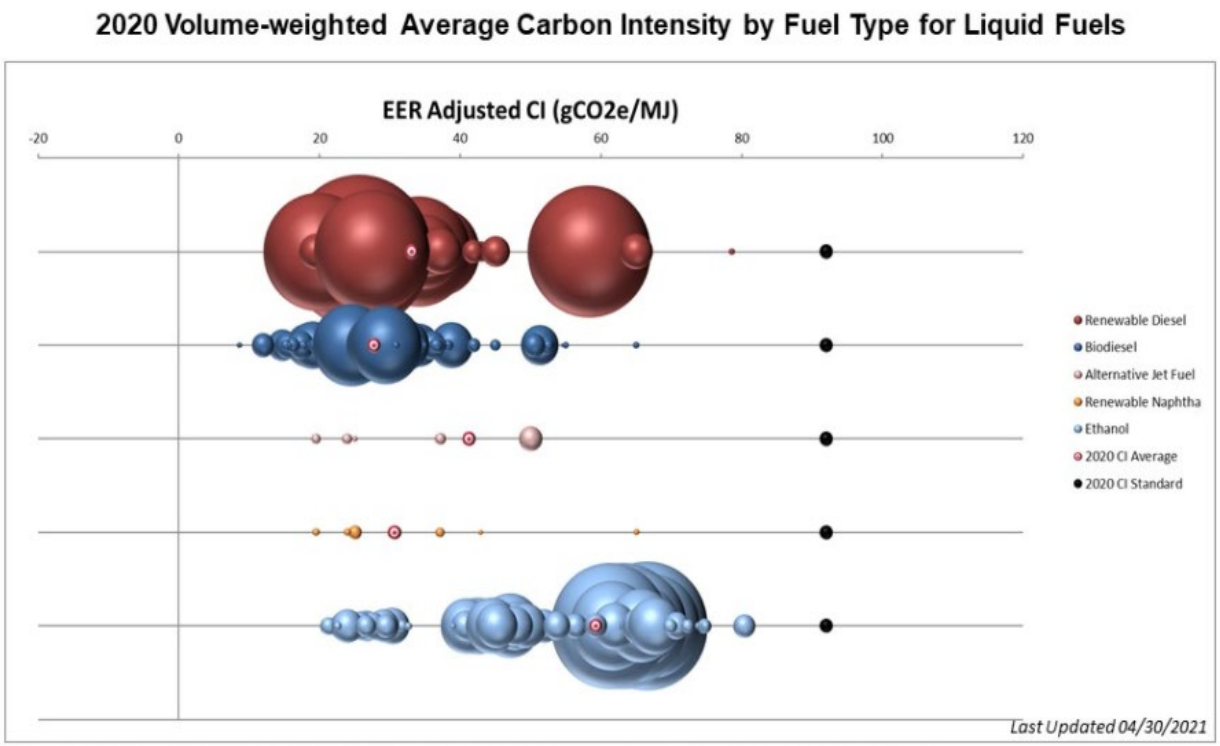
## The LCFS requires an ever smaller carbon footprint for fuel used in California.




Source: California Air Resources Board

# Why is there a market for Renewable Diesel?

Renewable Diesel has an extremely small carbon footprint, as little as one-fifth that as petroleum-based diesel.



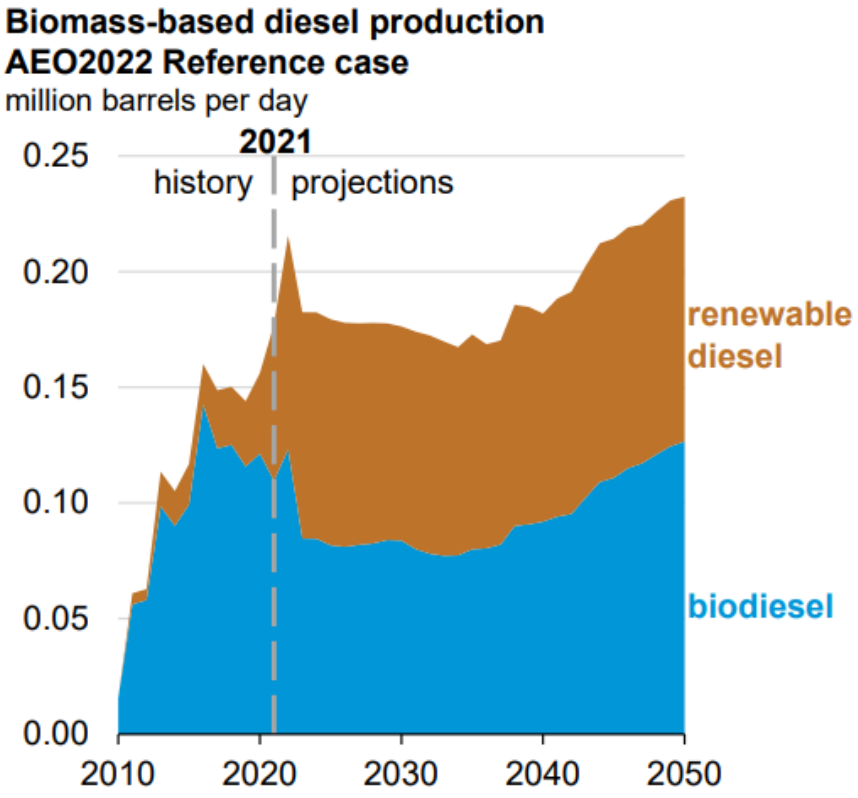

Source: California Air Resources Board

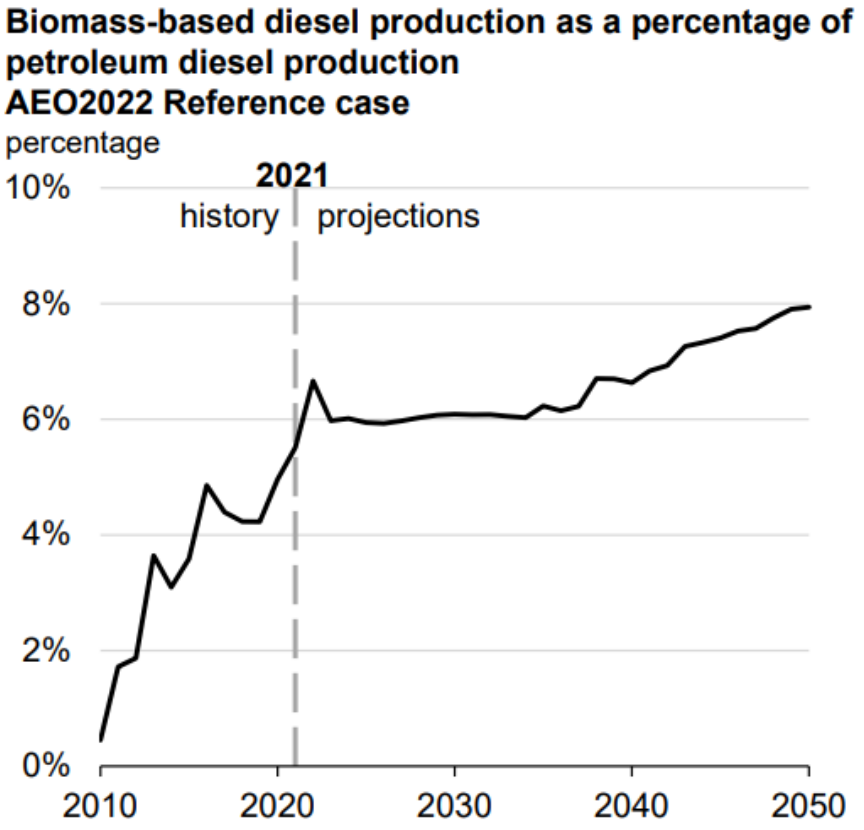
# Why

- US biofuels well positioned to play major role in reducing greenhouse gas (ethanol, renewable diesel, sustainable aviation fuel)
- Renewable Diesel Fuel:
  - Less carbon intensive:
    - Crude: 100
    - Diesel: 90
    - Gas: 90
    - Jet Fuel: 89
    - LP: 83
    - Renewable: 41
    - Biodiesel: 38

MARTINSON AG
RISK MANAGEMENT

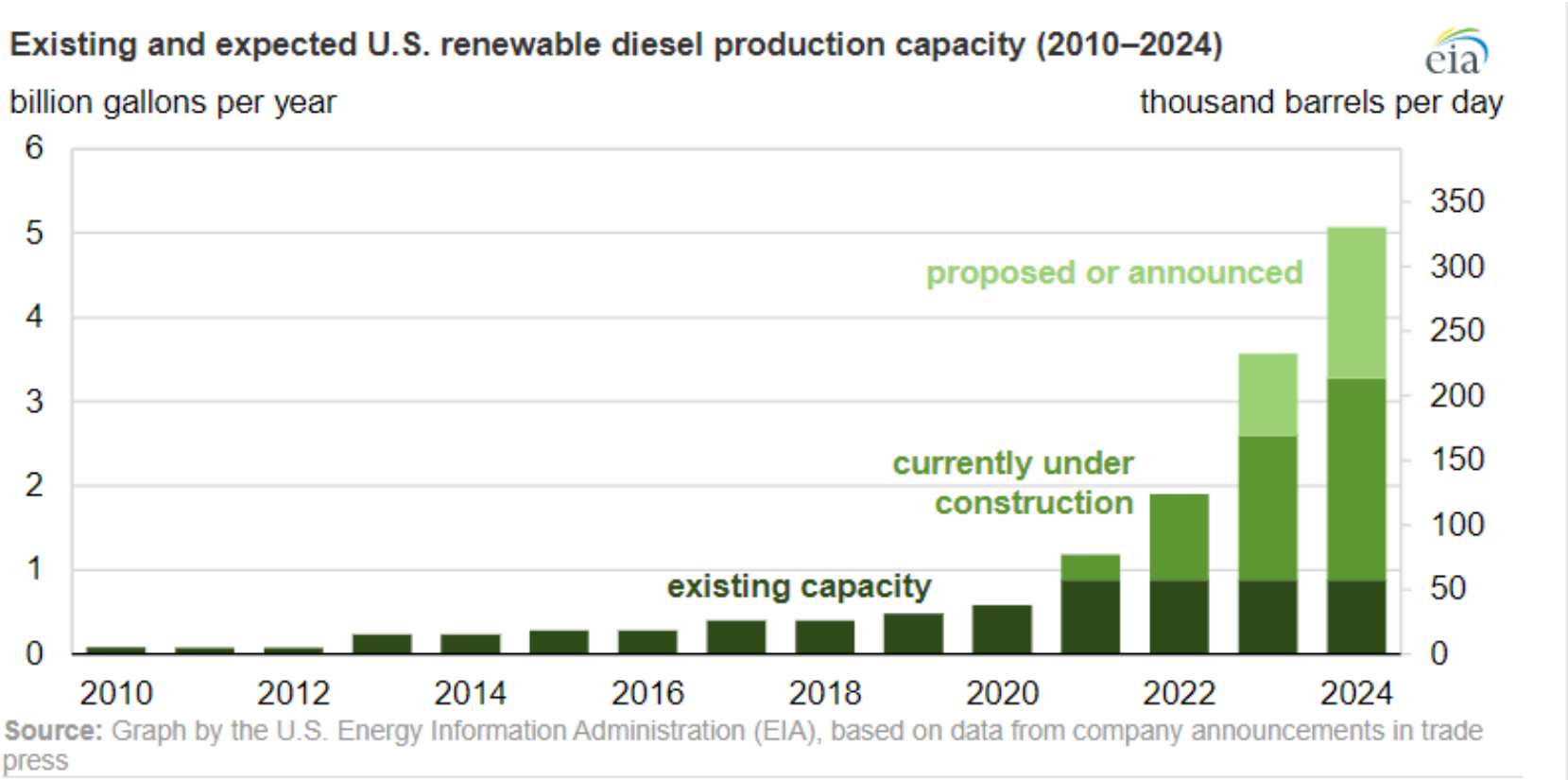
# U.S. biomass-based diesel production



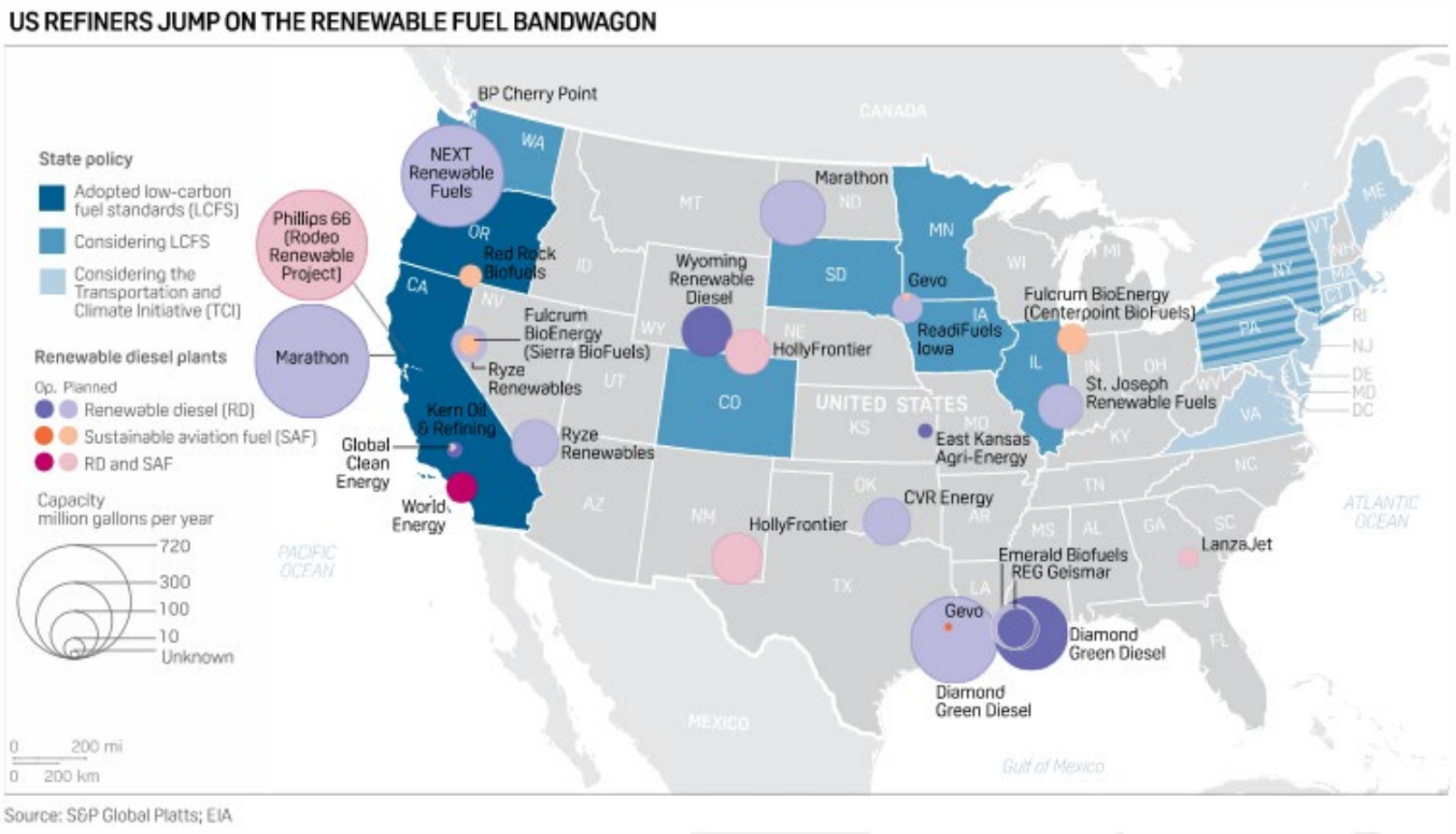




eia | Source: U.S. Energy Information Administration, *Annual Energy Outlook 2022* (AEO2022) www.eia.gov/aeo

# Renewable Diesel Expansion

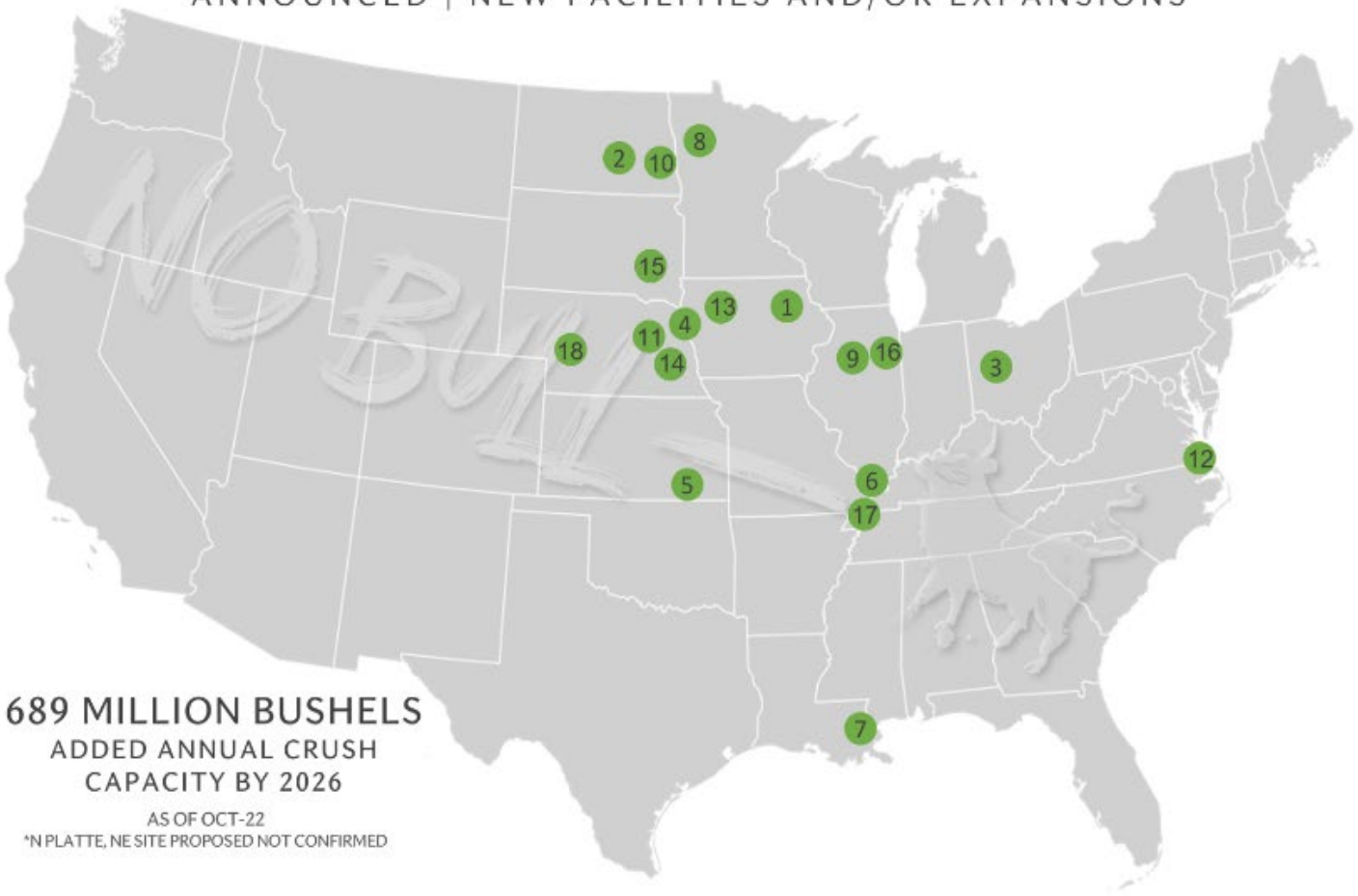


# Renewable Diesel Expansion



# U.S. SOYBEAN CRUSH CAPACITY EXPANSION

ANNOUNCED | NEW FACILITIES AND/OR EXPANSIONS




1 SHELL ROCK
2 ADM
3 Cargill
4 AGP
5 BARTLETT
6 BUNGE
7 BUNGE
8 Epitome Energy
9 MARQUIS
10 NDSP
11 Norfolk Crush LLC
12 AgriBusiness
13
14 AGP
15 SOYBEAN
16
17 Cargill
18 TBD*

**689 MILLION BUSHELS**

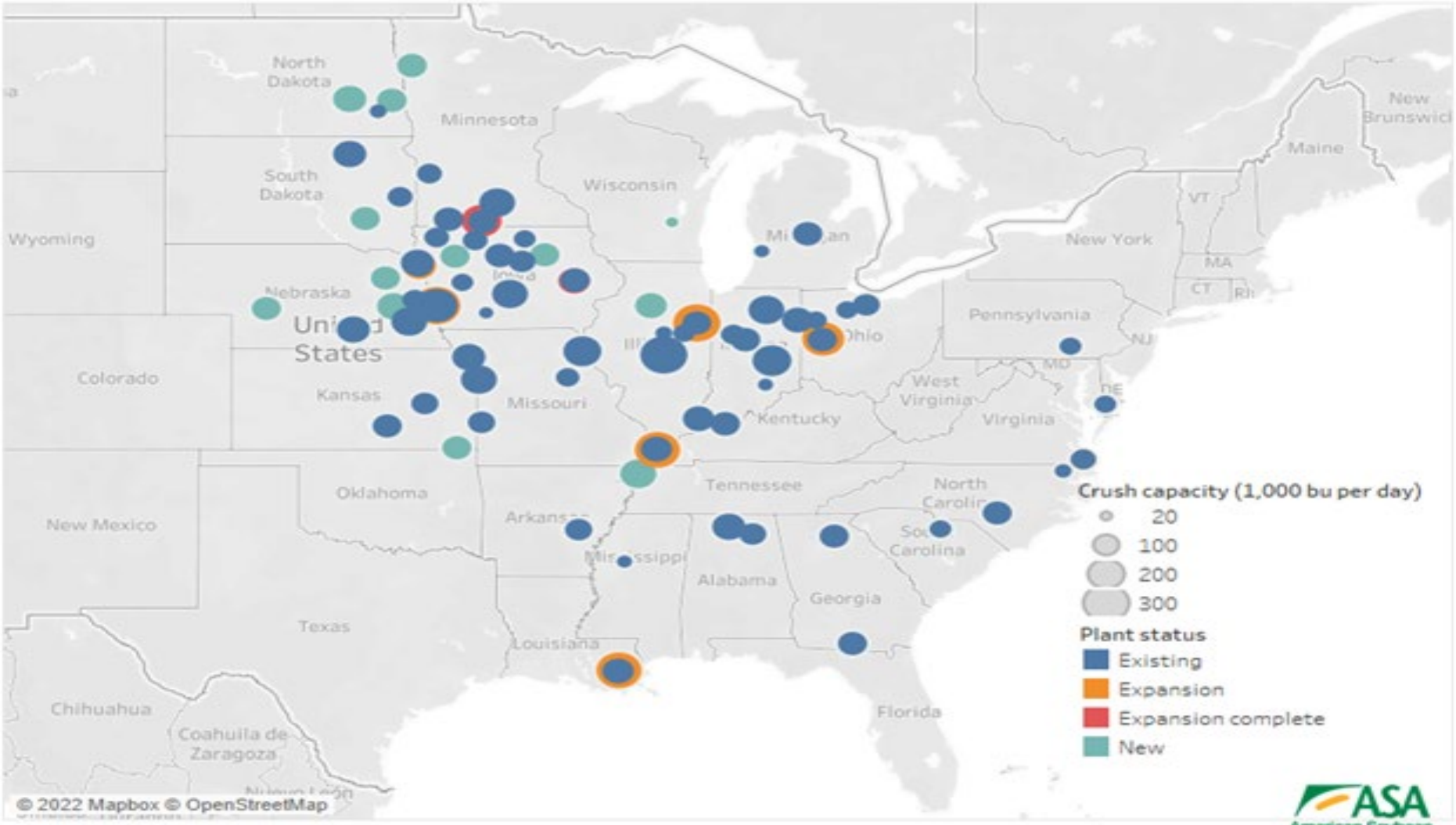
ADDED ANNUAL CRUSH CAPACITY BY 2026

AS OF OCT-22

*N PLATTE, NE SITE PROPOSED NOT CONFIRMED

MARTINSON AG RISK MANAGEMENT

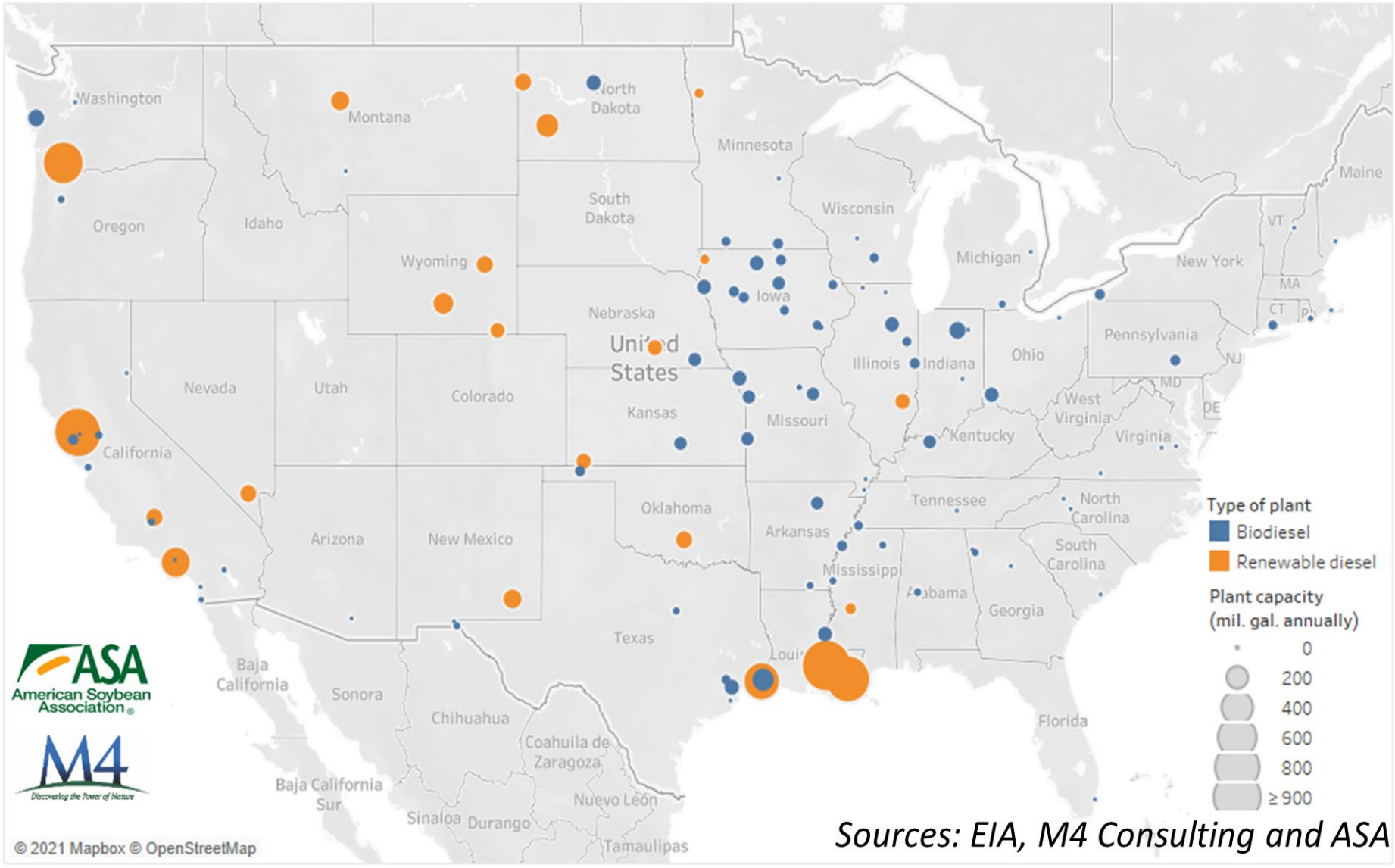
# U.S. Soybean Crush Plants




Source: Gordon Denny and American Soybean Association

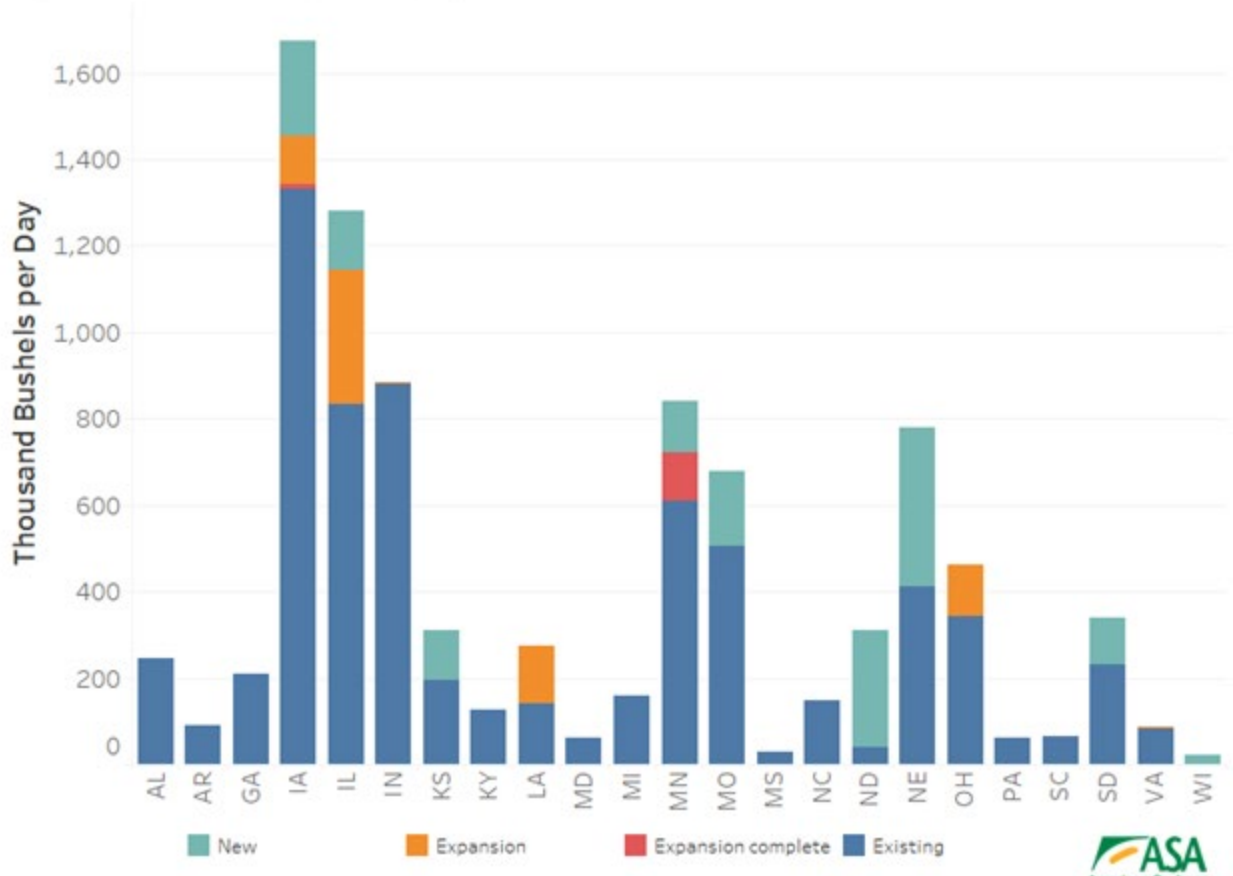
ASA American Soybean Association

MARTINSON AG RISK MANAGEMENT




*Sources: EIA, M4 Consulting and ASA*

## Soybean Crush Capacity by State

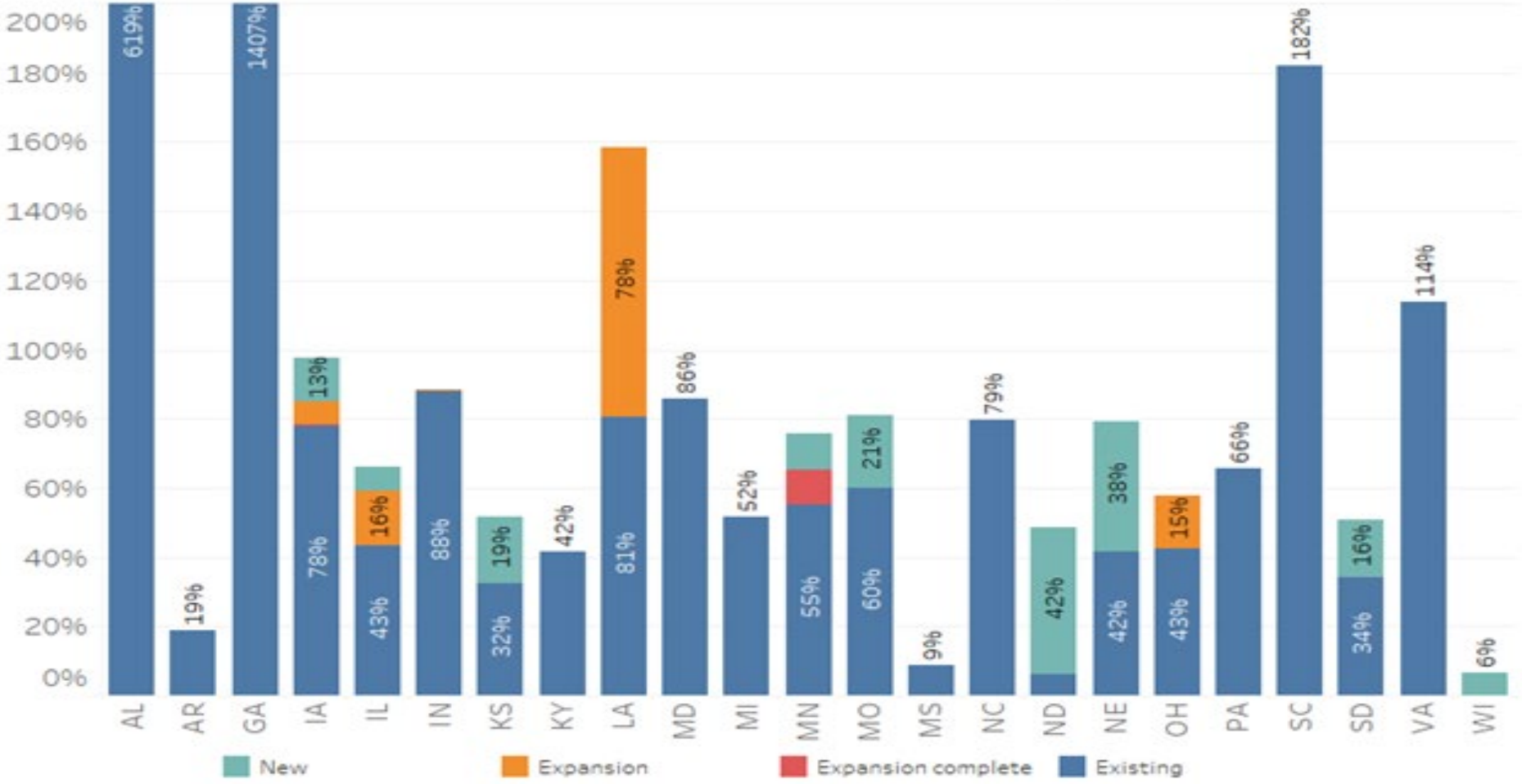



Source: Gordon Denny and American Soybean Association

ASA American Soybean Association

MARTINSON AG RISK MANAGEMENT

# Soybean Crush Capacity Relative to Production by State



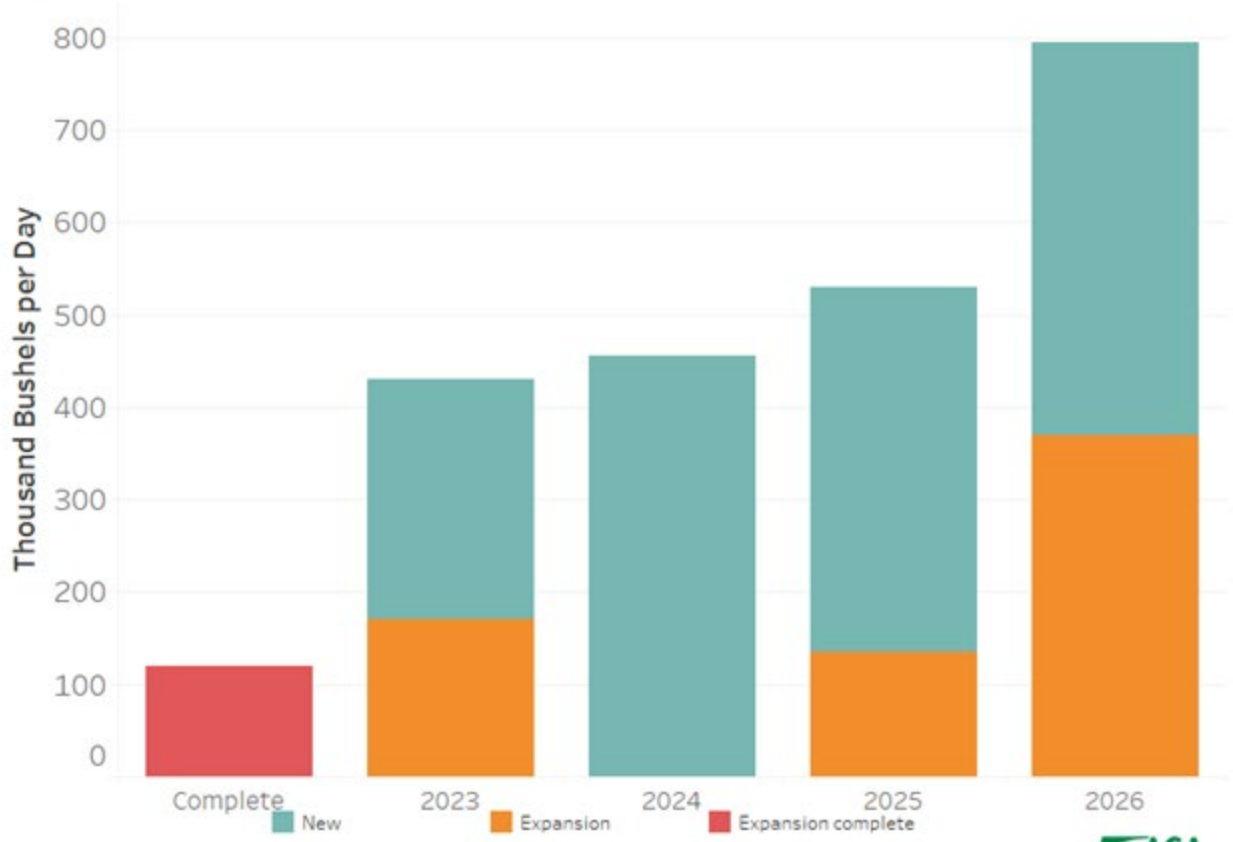

Source: Gordon Denny, American Soybean Association, and USDA NASS

*Note: Capacity assumes 350 days of operation at 92% per year. Soybean production is for the 2017 to 2021 crops. Y axis truncates at 200%. Both Alabama and Georgia exceed that level.*

ASA American Soybean Association

MARTINSON AG RISK MANAGEMENT

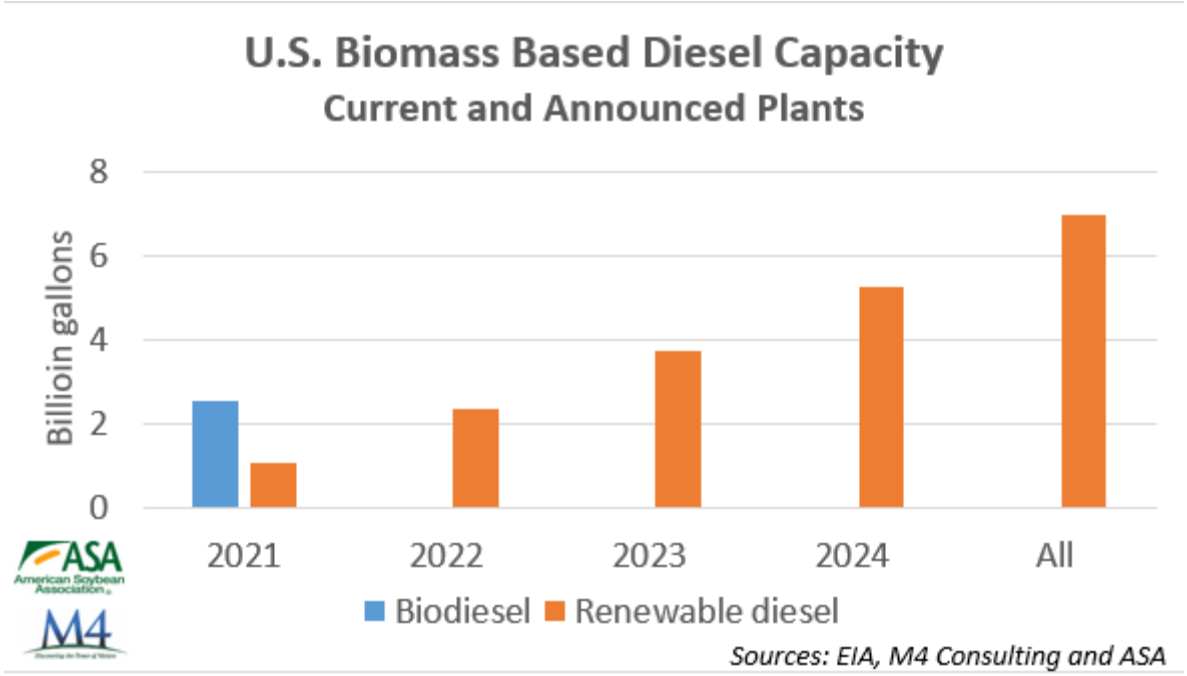
## Soybean Crush Expansion by Year




Source: Gordon Denny and American Soybean Association

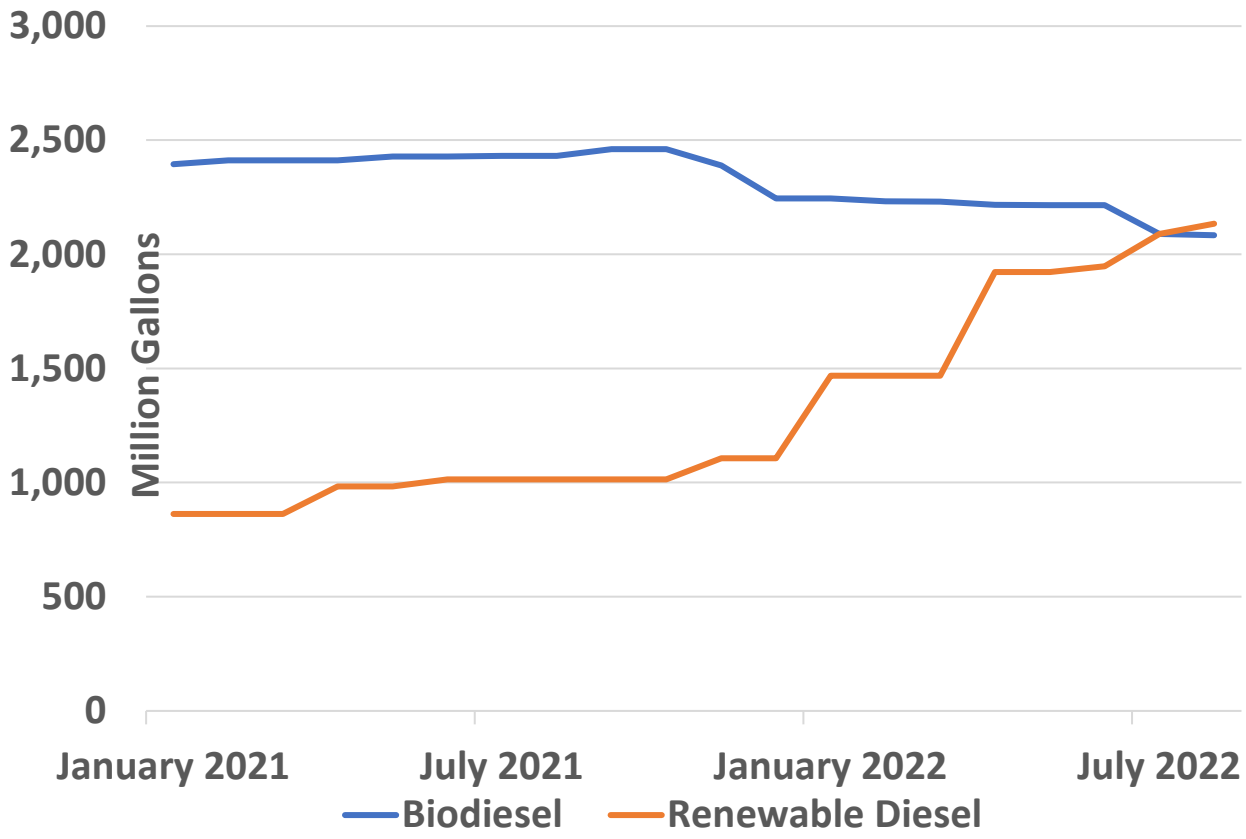
ASA American Soybean Association

MARTINSON AG RISK MANAGEMENT




MARTINSON AG
RISK MANAGEMENT

# US production capacity




Source: Energy Information Administration

# Another Reason: Production Incentives in Inflation Reduction Act

- Provides tax credits and funding to develop
- Renewable Energy In General:
  - $9.7 billion Rural Electric for renewable energy
  - $1 billion for loans for renewable energy projects
  - $2 billion for funding for renewable energy
- Biofuels In General:
  - $500 million for blender pumps
  - Extension of $1/gallon tax credit for biomass diesel
  - Tax credit for new renewable projects and carbon capture
  - Tax credit for sustainable fuel

MARTINSON AG
RISK MANAGEMENT

# Sustainable Aviation Fuel

There is growing interest in sustainable aviation fuel (bio-based jet fuel) as part of larger efforts to decarbonize the economy.

This is coming from airlines themselves and from customers, including corporate and environmentally conscious customers.

There are a few different pathways to produce sustainable aviation fuel.

Long-term use of bio-based feedstocks (vegetable oil and sugar).

# Oilseed Production

| 2022 | Soybeans | | | Canola | |
|---|---|---|---|---|---|
| | ND | MN | US | ND | MN |
| Planted | 5.7 | 7.45 | 87.5 | 1.8 | 70,000 |
| Harvested | 5.65 | 7.38 | 86.6 | 1.78 | 68,000 |
| Yield | 36.0 | 50.0 | 50.2 | 1920 | 1880 |
| Production | 203 | 369 | 4.346 | 3.42 B LBS | 127.8 M LBS |
| Crush | | | 2.245 | | |
| Exports | | | 2.045 | | |
| Stocks | | | 220 | | |

MARTINSON AG
RISK MANAGEMENT

# Marathon Dickinson

Second largest renewable diesel plant in the country.

(12,000 bbls per day/

180 million gallons per year)

Will be powered with wind…

# ADM Spiritwood

$350 million soybean crush plant

Crushing 150,000 bushel per day or 53 MB per year (600 million pounds refined soybean oil enough to make 75 million gallons renewable diesel)

Will send vegetable oil to Marathon Dickinson (12,000 bbls/day) which is the second largest renewable diesel plant in the country?

Expects to receive soybeans in 2023.

MARTINSON AG
RISK MANAGEMENT

# ND Soybean Processors - Casselton

$400 million soybean crush plant

Crushing 120,000 bushel per day or 42.5 MB per year

Joint venture between Consolidated Grain and Barge (CGB) and MN Soybean Processors

Expects to receive soybeans in 2024.

MARTINSON AG
RISK MANAGEMENT

# ND's Two New Plants Will

Crush 270,000 bushel per day or 95.5 MB per year

ND Soybean Production:

- 5.7 million acres planted
- 5.65 million acres harvested
- 36.0 bus per acre
- 203 MB

MARTINSON AG
RISK MANAGEMENT

# Canada Too

- Announced Week of Thanksgiving
- Calgary, Alberta company proposed $600 million aviation fuel project
- Main source of feedstuff: canola oil
- Proposed by Reconciliation Energy Transition
- Decision expected by August 2023

MARTINSON AG
RISK MANAGEMENT

# Renewable Fuels Capacity

- 2021: 800,000 gallons
- 2022: 1.5 million gallons
- 2023: 2.0 million gallons
- 2024: 3.0 million gallons
- 2025: 4.5 million gallons
- 2026: 5.0 million gallons
- 2027-2030: 6.5 million gallons

MARTINSON AG
RISK MANAGEMENT

There isn’t enough vegetable oil to do this

California makes up 10% of the US transportation fuel market.

25 billion pounds of soybean oil (ave annual prod)
~ 3 billion gallons of bio-based diesel

US diesel market is about 45 billion gallons per year

Each bushel of soybeans produces 11 pounds of bean oil which in turn produces .12 gallons of diesel

MARTINSON AG
RISK MANAGEMENT

# Two Different Examples

- If plants on drawing board are realized, capacity would grow from 1 million gallons now to roughly 6.5 million gallons by 2030
- To accomplish would need to stop exporting soybeans (2 BB) and plant 17.9 million more acres
- Or import soybeans and plant more canola and sunflowers

MARTINSON AG
RISK MANAGEMENT

# Two Different Examples

- Crush 100% of US soybeans raised in US
  - Would produce 3 million gallons of diesel
  - CA diesel demand pre year is 4.5 million gallons
  - would be enough to get through 2024
  - To achieve 2025 goal of 4.5 million gallons, which need to add another 30 million acres of soybeans (corn: 90 million, Wheat: 45 million, Canola/Sunflower: 2.5 millon)

MARTINSON AG
RISK MANAGEMENT

# Added Bonus

- Renewable Diesel facilities would be able to repurpose bad canola or sunflower oil or potential production errors
- Will be dumping spot of substandard production
- Will result in less soybean oil going into human consumption market, allowing for canola oil to claim larger market share
- Unlikely canola share of biodiesel market will change from 10%

MARTINSON AG
RISK MANAGEMENT

How many more soybean crush plants are we going to build in the Northern Plains?

How many more acres of oilseeds are we going to grow in coming years?

MARTINSON AG
RISK MANAGEMENT

# Any Questions?

Martinson Ag Risk Management
1555 S 43rd St, Suite 105A
Fargo, ND 58103

Randy Martinson
randy@martinsonag.com
Cell: 701-446-7610

Office Phone: 701-205-4200

Website: www.martinsonag.com

find us on facebook

@MartinsonAg

follow us twitter

@Martinson_Ag