

# Emerging Trends and Challenges in Grains

COIMBATORE, INDIA

03 MAY 2024



U.S. GRAINS  
COUNCIL

# Outline

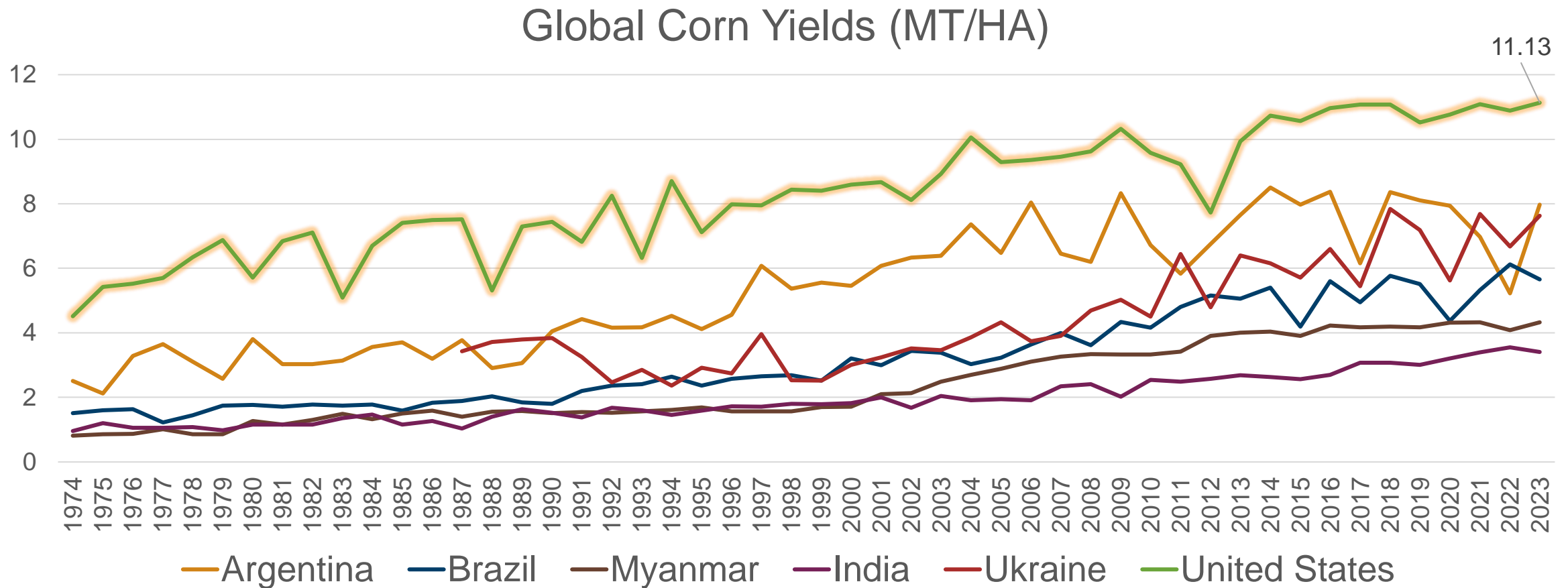
- Global Corn Supply and Demand
  - Historical
  - Current
  - Global perspective
- Freight Issues Discussed
- DDGS Supply and Demand
  - Brazilian ethanol industry
  - U.S. ethanol industry history
  - State of the industry



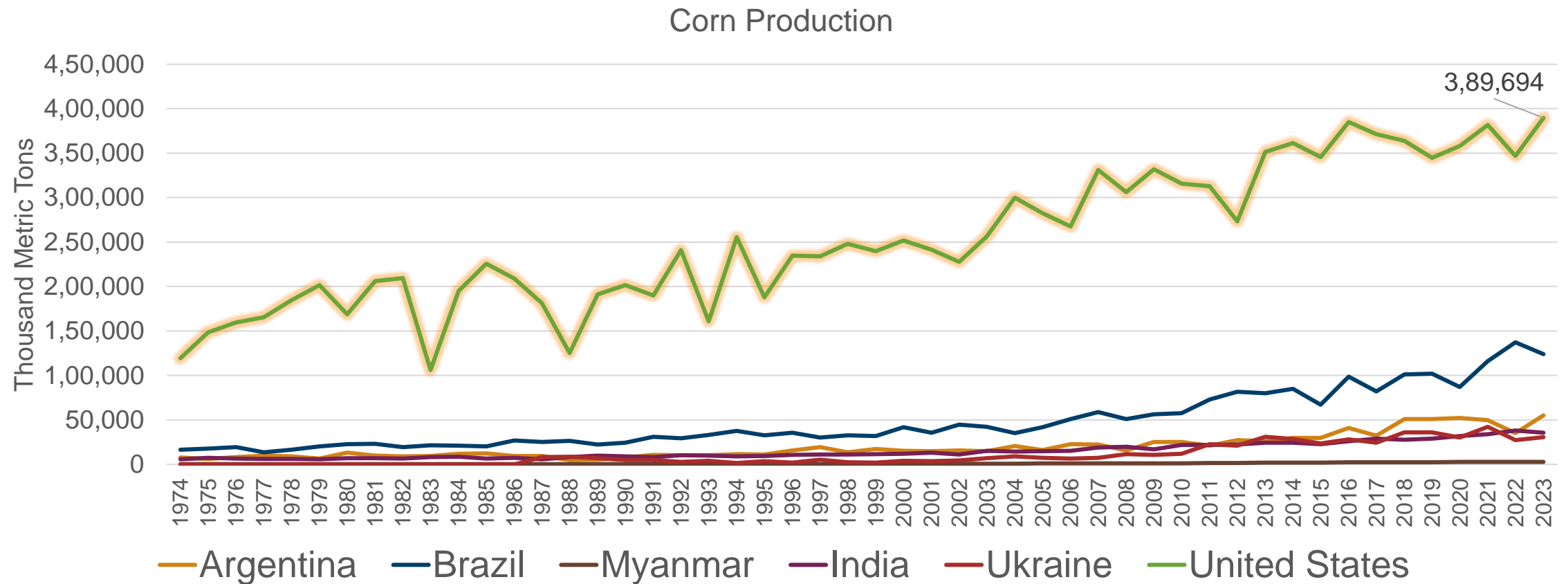
# Corn Supply and Demand



# Corn Yields Among Major Exporters

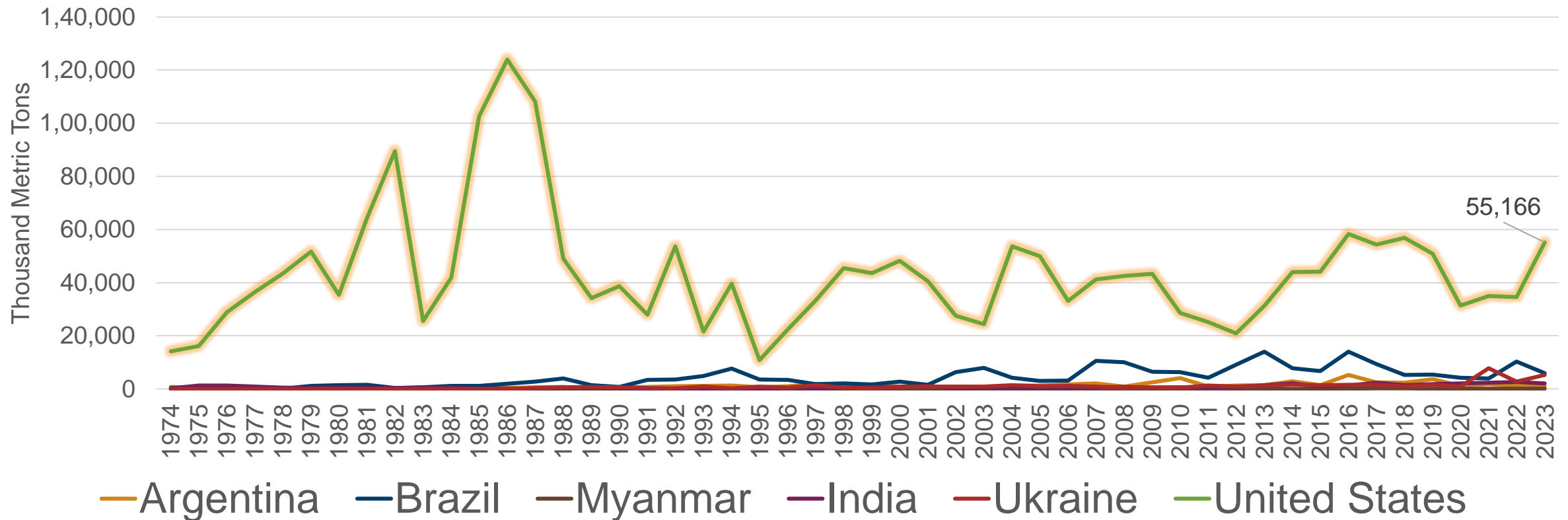


# Corn Production Among Major Exporters



# Corn Ending Stocks Among Major Exporters

Corn Ending Stocks



Source: USDA

# U.S. Corn Balance Sheet

CORN	2021/22	2022/23 Est.	2023/24 Proj. (WASDE)	2024/2025 Proj. Feb (Ag Outlook Forum)
	<i>Million Hectares</i>			
Area Planted	37.6	35.7	38.3	36.8
Area Harvested	34.4	31.8	35.0	33.6
	<i>MT/HA</i>			
Yield per Harvested Acre	11.09	10.88	11.13	11.36
	<i>Million Metric Tons</i>			
Beginning Stocks	31.37	34.98	34.55	55.17
Production	381.48	346.75	389.71	382.04
Imports	0.61	0.99	0.64	0.64
Supply, Total	413.46	382.70	424.89	437.84
Feed and Residual	144.05	139.38	144.15	146.06
Food, Seed & Industrial 2/ Ethanol & by-products 3/	171.64	166.58	172.22	172.86
Domestic, Total	315.66	305.96	316.37	318.91
Exports	62.79	42.19	53.34	54.61
Use, Total	378.48	348.15	369.72	373.53
Ending Stocks	34.98	34.55	55.17	64.32

- Production at ~390 MMT for last year
  - Next year projected at ~382 MMT
- Current crop projected to have ~55 MMT of ending stocks
  - Next year projected to have ~64 MMT of ending stocks
- Exports projected to be higher in 2024/2025 at ~55 MMT

Source: USDA

# Global Corn Balance Sheet

2023/24 Proj.		Beginning Stocks	Production	Imports	Domestic Feed	Domestic Total 2/	Exports	Ending Stocks
World 3/	Mar	301.62	1,230.24	189.48	761.62	1,212.24	202.27	319.63
	Apr	302.19	1,227.86	187.47	758.95	1,211.77	200.59	318.28
World Less China	Mar	95.58	941.40	166.48	536.62	906.24	202.25	107.76
	Apr	96.15	939.02	164.47	533.95	905.77	200.57	106.42
United States	Mar	34.55	389.69	0.64	144.15	316.37	53.34	55.17
	Apr	34.55	389.69	0.64	144.79	317.64	53.34	53.90
Total Foreign	Mar	267.07	840.55	188.85	617.46	895.86	148.92	264.46
	Apr	267.64	838.17	186.83	614.17	894.13	147.24	264.38
Major Exporters 4/	Mar	18.64	241.60	1.29	95.30	121.70	126.70	13.13
	Apr	19.04	239.10	1.39	93.70	120.40	126.10	13.03
Argentina	Mar	1.11	56.00	0.02	9.80	14.10	42.00	1.03
	Apr	1.17	55.00	0.02	8.80	13.10	42.00	1.09
Brazil	Mar	11.47	124.00	1.20	64.50	78.50	52.00	6.17
	Apr	11.54	124.00	1.20	64.50	78.50	52.00	6.24
Russia	Mar	0.91	16.60	0.05	10.10	11.20	5.30	1.06
	Apr	0.91	16.60	0.05	9.90	11.00	5.60	0.96
South Africa	Mar	2.35	15.50	0.00	6.90	12.90	2.90	2.05
	Apr	2.62	14.00	0.10	6.50	12.80	2.00	1.92
Ukraine	Mar	2.80	29.50	0.02	4.00	5.00	24.50	2.82
	Apr	2.80	29.50	0.02	4.00	5.00	24.50	2.82
Major Importers 5/	Mar	19.98	122.24	100.95	164.00	220.35	4.86	17.96
	Apr	20.06	122.64	100.05	163.70	220.25	4.81	17.69
Egypt	Mar	1.51	7.20	8.50	13.30	15.80	0.00	1.41
	Apr	1.51	7.20	8.50	13.30	15.80	0.00	1.41
European Union 6/	Mar	7.23	60.10	22.00	57.00	77.90	4.20	7.23
	Apr	7.31	61.00	21.00	57.00	77.90	4.20	7.21
Japan	Mar	1.30	0.01	15.50	12.00	15.50	0.00	1.31
	Apr	1.30	0.01	15.50	12.00	15.50	0.00	1.31
Mexico	Mar	4.50	24.00	20.60	28.00	46.60	0.05	2.45
	Apr	4.50	23.30	21.10	28.00	46.60	0.05	2.25
Southeast Asia 7/	Mar	3.03	30.76	18.15	39.90	48.20	0.61	3.13
	Apr	3.03	30.96	17.75	39.60	48.10	0.56	3.08
South Korea	Mar	1.90	0.09	11.60	9.30	11.65	0.00	1.94
	Apr	1.90	0.09	11.60	9.30	11.65	0.00	1.94
Selected Other	Mar	1.63	15.08	3.20	10.50	16.00	1.80	2.10
	Apr	1.63	15.08	3.20	10.50	16.00	1.80	2.10
China	Mar	206.04	288.84	23.00	225.00	306.00	0.02	211.86
	Apr	206.04	288.84	23.00	225.00	306.00	0.02	211.86

Source: USDA

- Brazil corn acreage increasing year over year, but yield lower
  - CONAB: 120.5 MMT
    - 31 MMT exports – hard to believe
  - Domestic consumption growing by 4 – 5 MMT per year
    - Ethanol industry is booming
- Argentina in trouble
  - BAGE: 50.6 MMT
    - 8% s/u vs. 6% last year in a disaster year
    - 33.5 MMT exports – hard to believe
    - 2 MMT to ethanol
- U.S. will hold over half of the world's stocks outside of China



# Drastic Crash in CBOT Last 10 Months

Corn Futures (Jul 2024) · 1D · CBOT ● D O618'0 H635'0 L614'4 C634'4 +24'6 (+4.06%)

Vol 21.001K

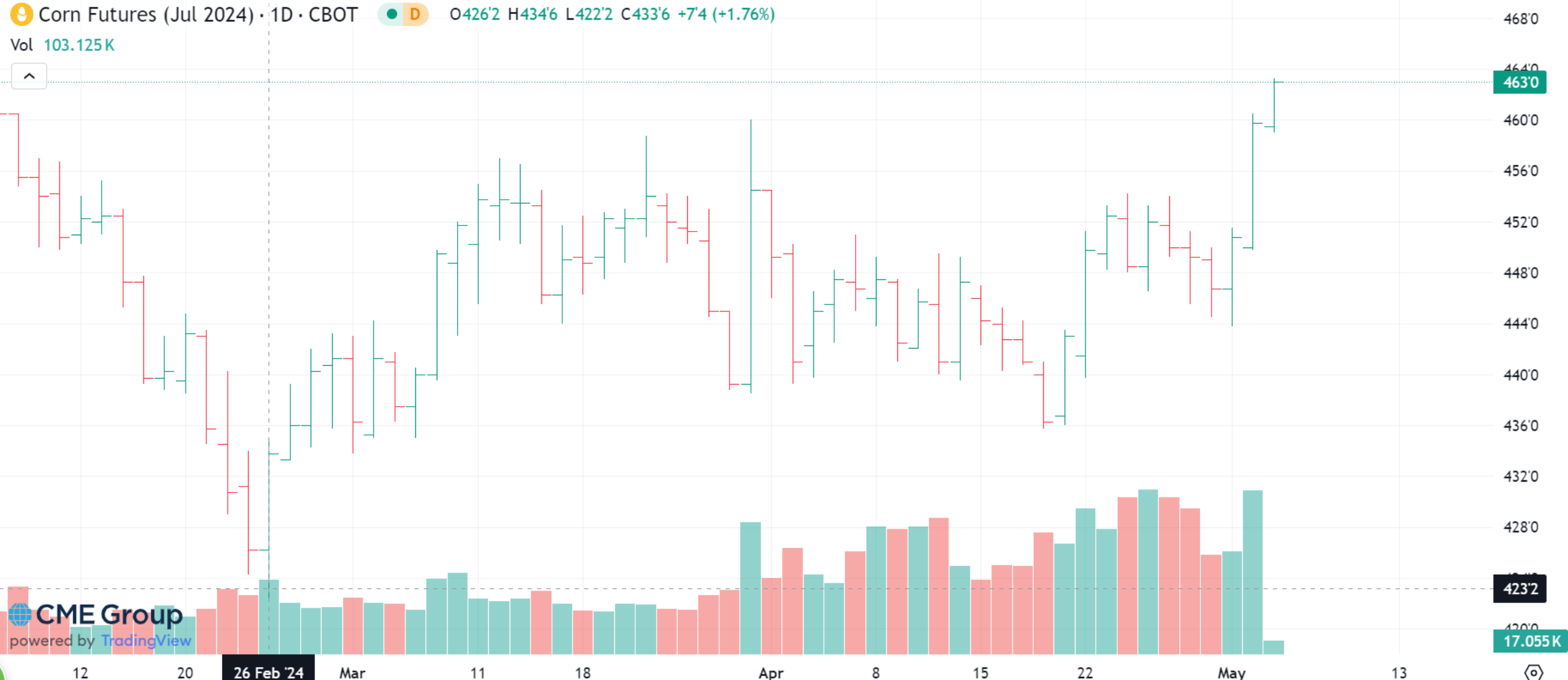


*Markets with free trade have been getting cheaper, while India has gotten more expensive. Free trade is always the way to go – huge challenge for India*

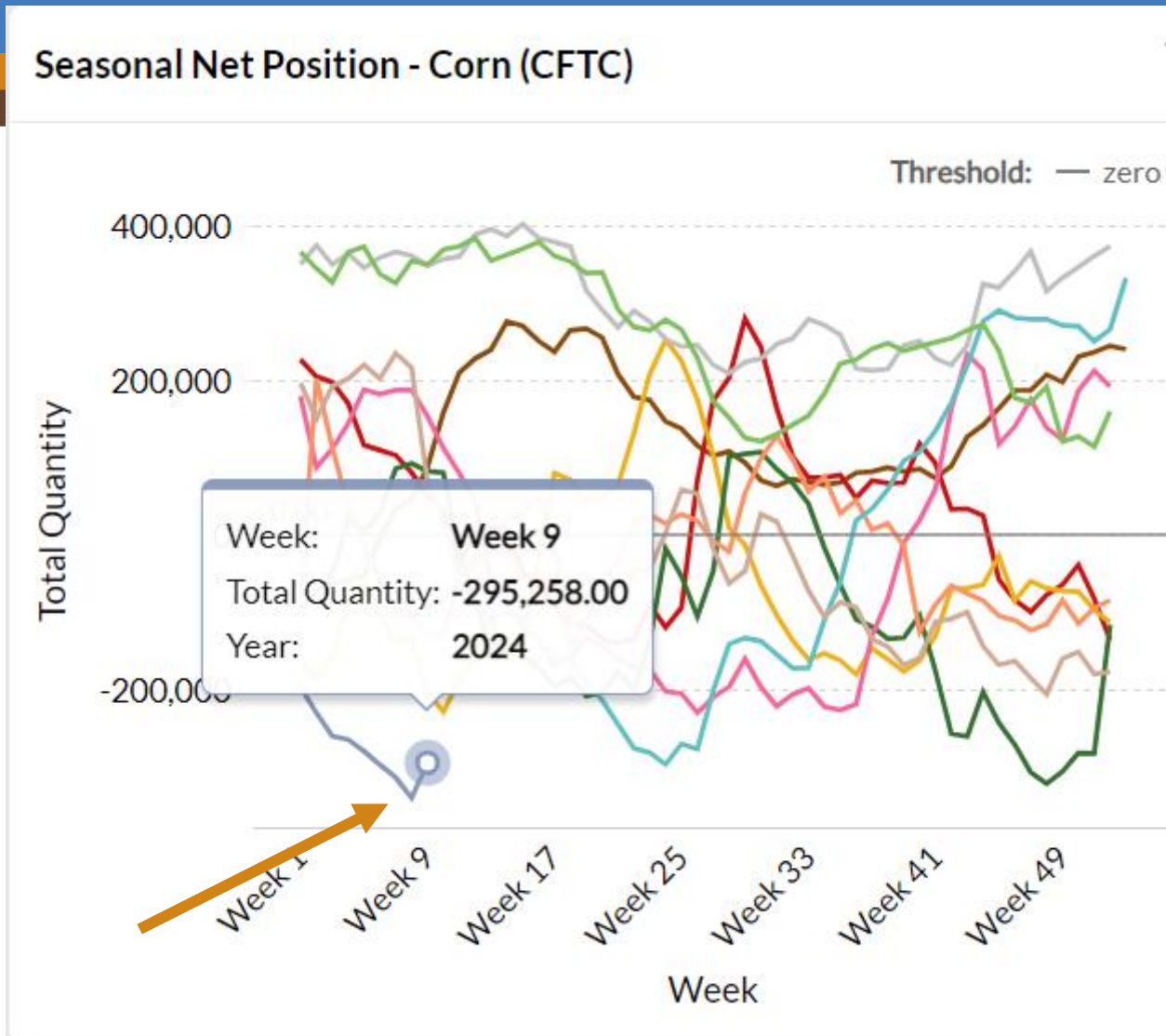
# Chicago Corn Futures Up Slightly In Last Month

Corn Futures (Jul 2024) • 1D • CBOT ● D O426'2 H434'6 L422'2 C433'6 +7'4 (+1.76%)

Vol 103.125 K

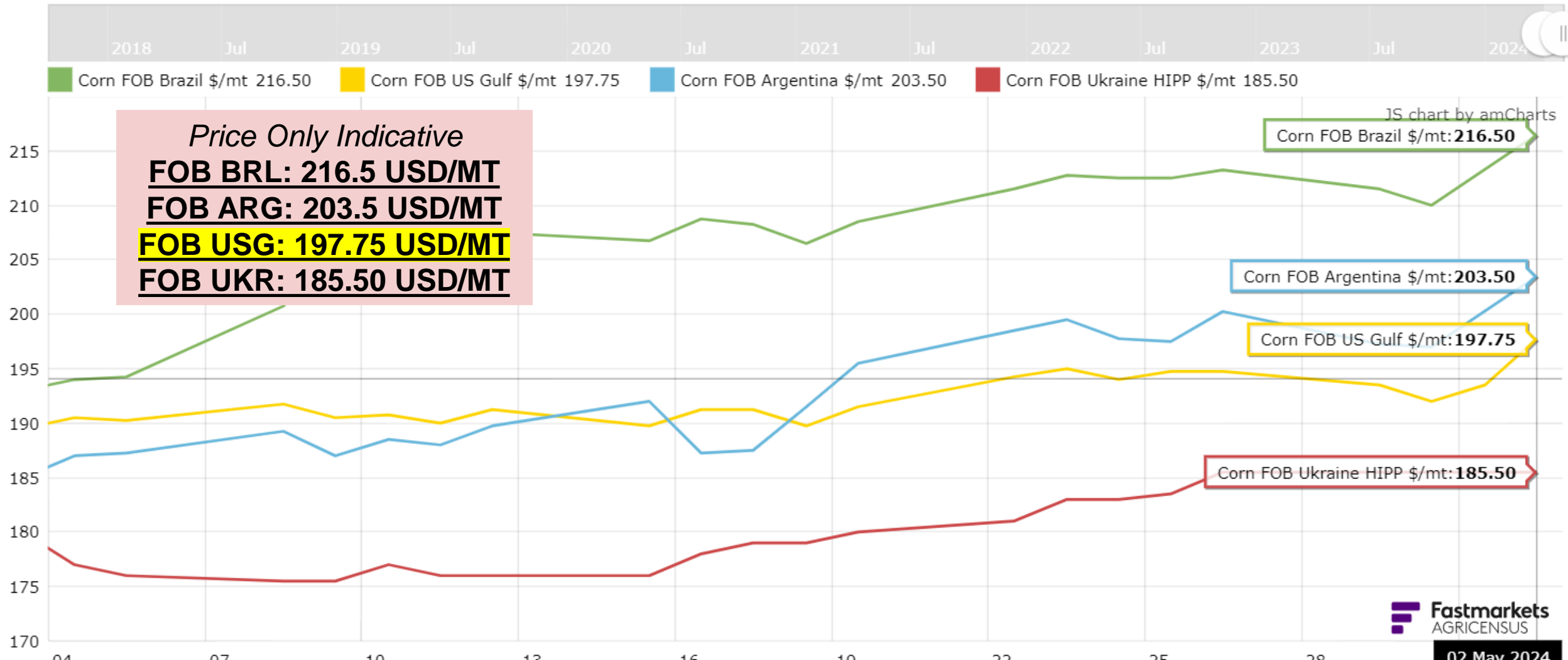


# Funds Seasonally Record Short, But Decreased Shorts Last Week



Source: CFTC

# U.S. Corn Priced Cheapest Accessible Corn Today



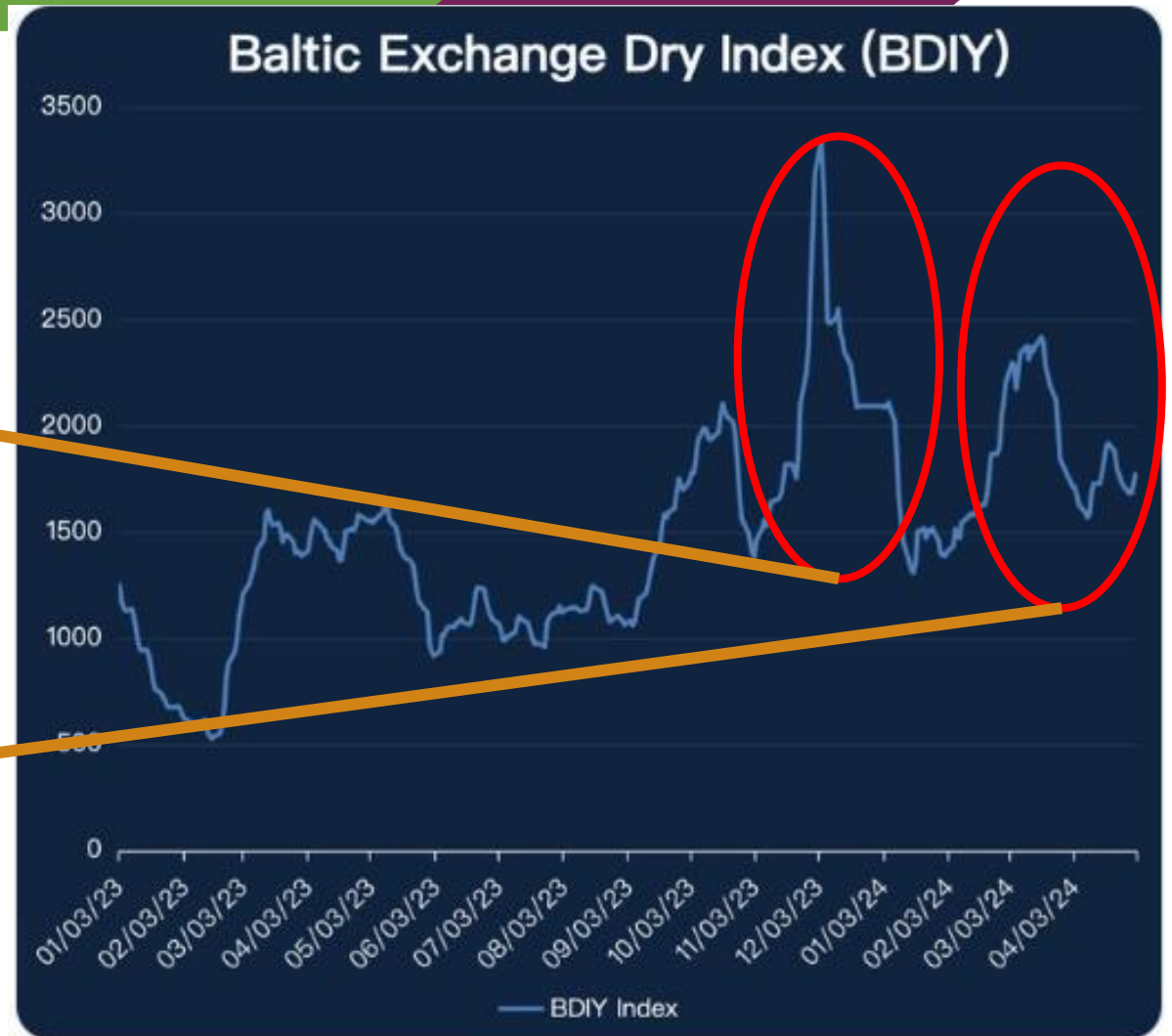
# Freight Challenges



# Baltic Dry Index

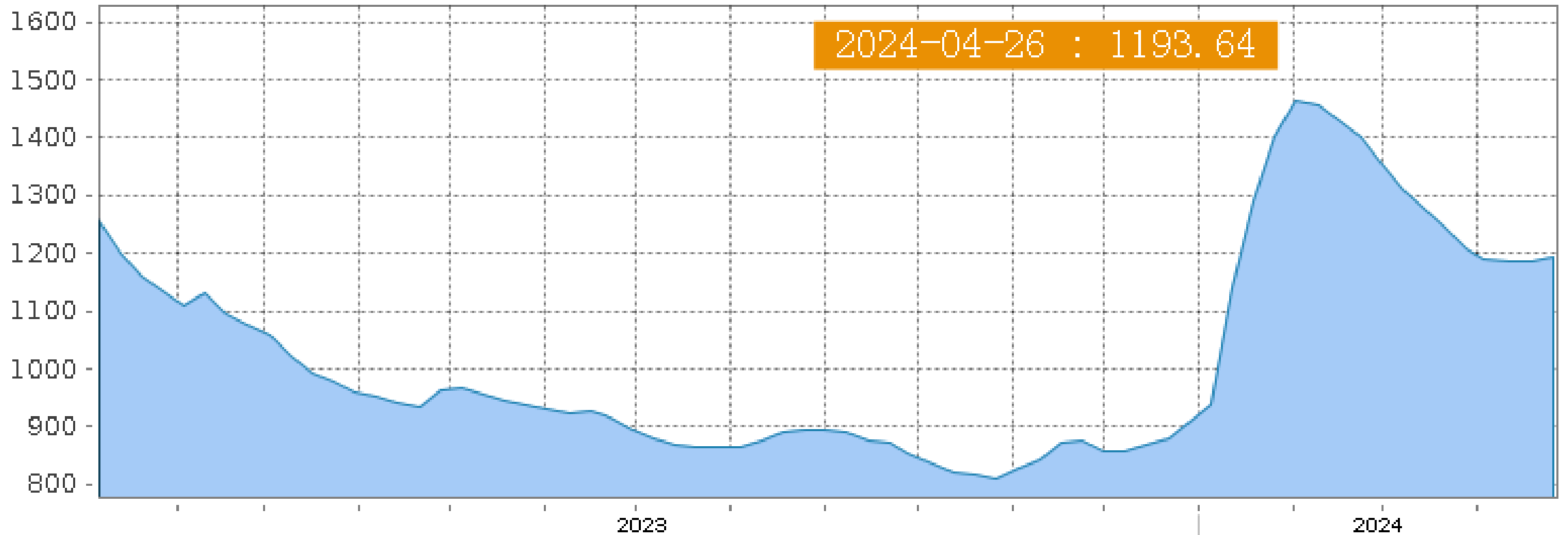
Red Sea Crisis  
Mid-October 2023

Panama Canal Drought  
Early January 2024



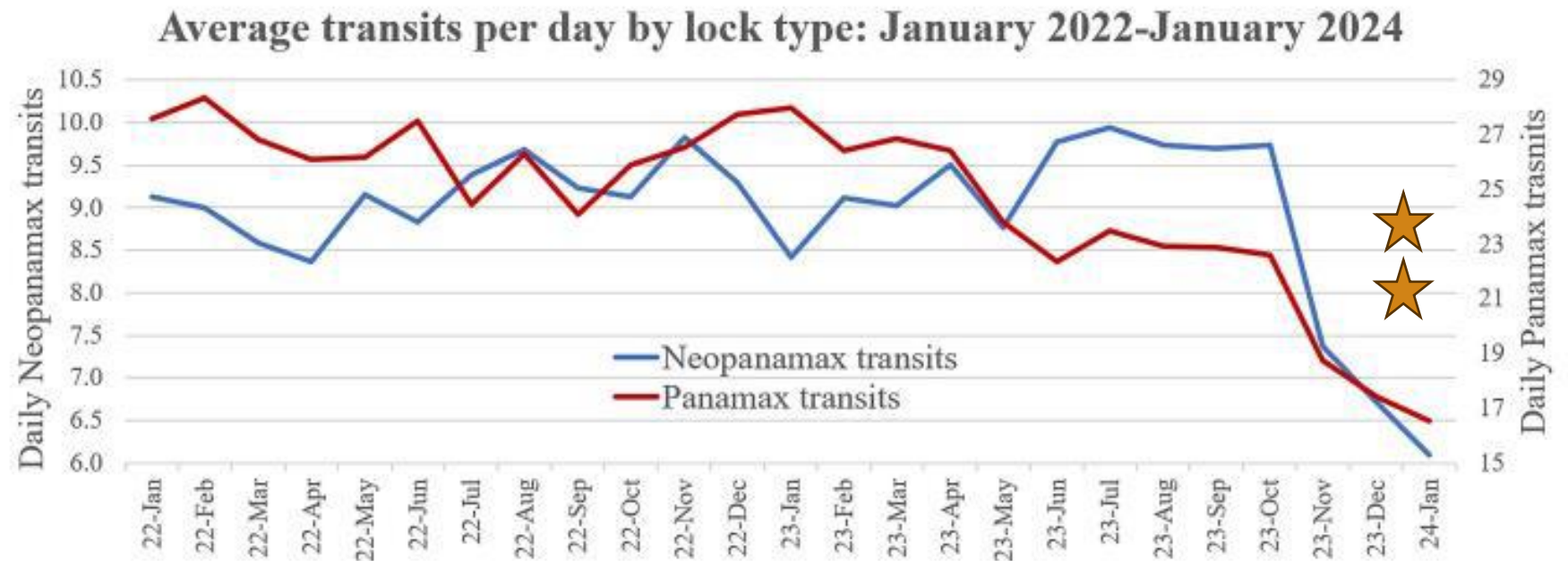
# China Containerized Freight Index

## China Containerized Freight Index



# Panama Canal

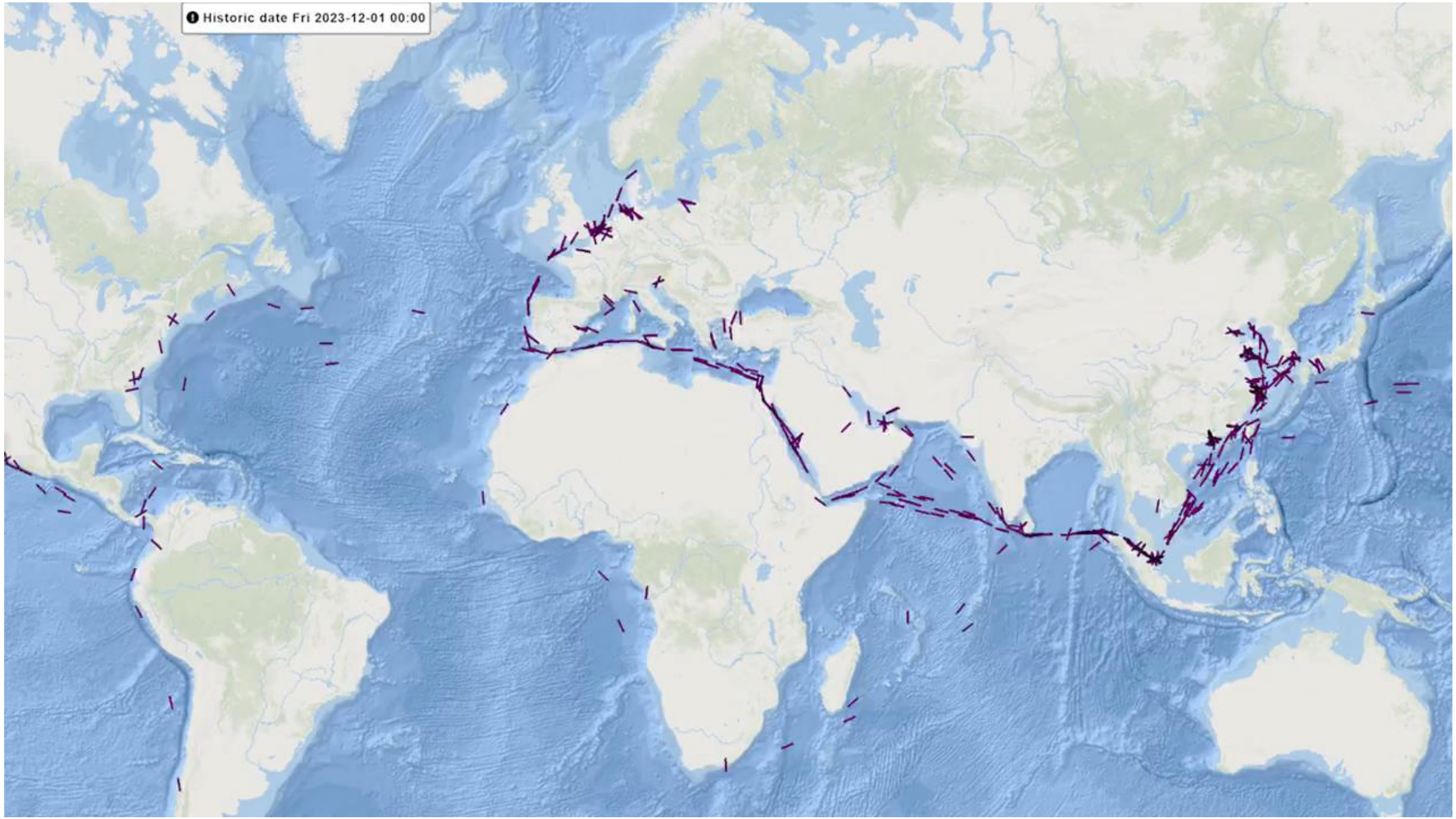
- Panama Canal is getting better, but has little sign of getting back to normal
- Current
  - 17 Panamax
  - 7 Neopanamax
- May 16 – 31
  - 24 Panamax
  - 7 Neopanamax
- June 1
  - 24 Panamax
  - 8 Neopanamax



(Chart: Inside Shipping based on data from ACP)



Historic date Fri 2023-12-01 00:00



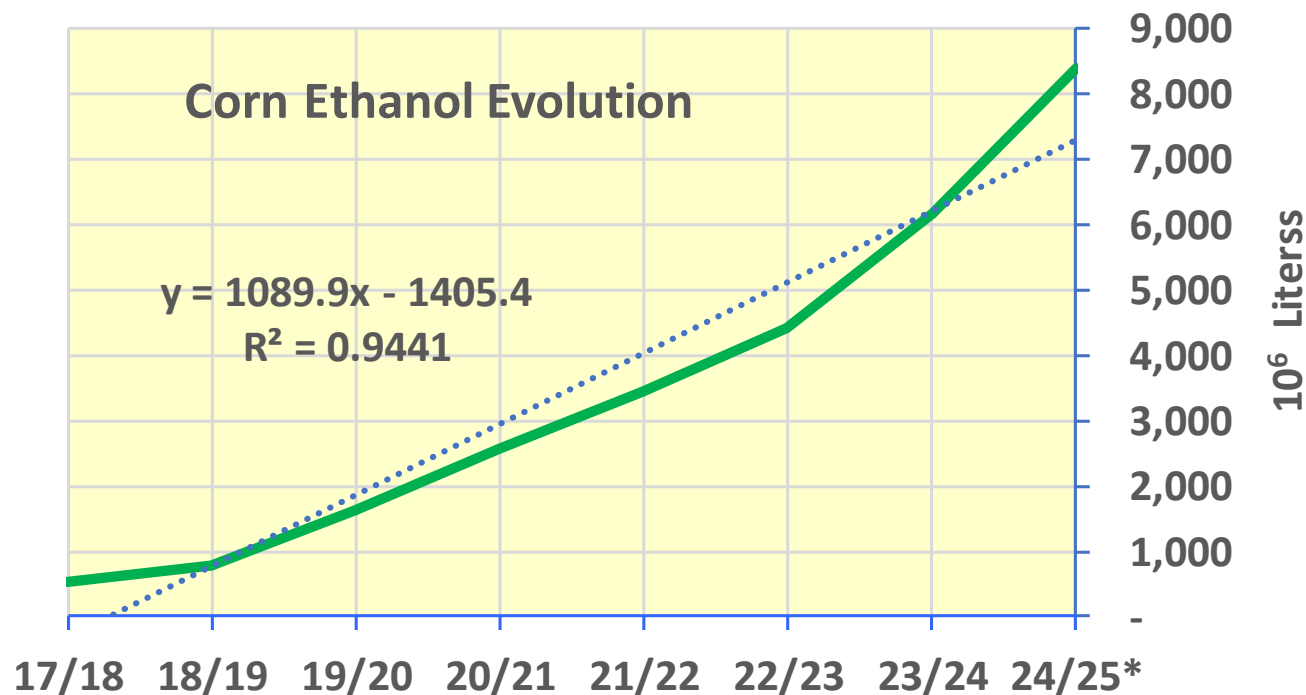
# DDGS



# Brazil Corn Ethanol Production

Corn Ethanol Production Evolution			
Crop	10 <sup>6</sup> ltrs	% Δ	% Δ Accum.
17/18	522	-	
18/19	791	51.7%	51.7%
19/20	1,624	105.2%	211.4%
20/21	2,560	57.6%	390.8%
21/22	3,463	35.3%	564.0%
22/23	4,432	28.0%	749.7%
23/24	6,187	39.6%	1086.2%
24/25*	8,414	36.0%	1513.2%

Source: Unica adapted by USGC-BR



## Ethanol Production from Corn in the Central-Southern Region

Full Crop Year 2023/2024 (in 1,000 liters)

Fortnight*	Fortnightly (23/24)			Accumulated (23/24)			Last Crop 22/23	Change 23-24/22-23	Total Sugarcane Ethanol Produced-C.S.			% of Ethanol from Corn	DDGS produced (MT)	Estimated volume of corn (MT)
	Ethanol Anhydrous (a)	Hydrous Ethanol (b)	Total (a) + (b)	Ethanol Anhydrous (a)	Hydrous Ethanol (b)	Total (a) + (b)			22/23 Crop	23/24 Crop	Change 23-24/22-23			
Apr 16**	90,356	145,985	236,341	90,356	145,985	236,341	164,447	43.7%	394,383	778,557	97.4%	30.36%	199,516	549,630
May 01	70,503	125,404	195,907	160,859	271,389	432,248	280,991	53.8%	1,495,450	1,756,463	17.5%	24.61%	364,898	1,005,228
May 16	114,221	145,598	259,819	275,080	416,988	692,067	439,590	57.4%	3,152,732	3,681,664	16.8%	18.80%	584,233	1,609,458
Jun 01	77,321	133,322	210,643	352,401	550,309	902,710	596,378	51.4%	5,188,929	5,765,770	11.1%	15.66%	762,055	2,099,326
Jun 16	100,773	124,389	225,162	453,174	674,698	1,127,872	772,923	45.9%	7,014,250	7,686,152	9.6%	14.67%	952,134	2,622,958
Jul 01	93,598	131,567	225,165	546,772	806,269	1,353,037	961,762	40.7%	9,044,865	9,603,289	6.2%	14.09%	1,142,215	3,146,598
Jul 16	143,519	125,171	268,690	690,291	931,436	1,621,727	1,134,253	43.0%	11,270,254	11,978,432	6.3%	13.54%	1,369,039	3,771,458
Aug 01	119,226	129,040	248,266	809,517	1,060,476	1,869,993	1,325,762	41.1%	13,691,150	14,442,883	5.5%	12.95%	1,578,622	4,348,821
Aug 16	127,078	154,943	282,021	936,595	1,215,419	2,152,014	1,491,438	44.3%	15,703,502	16,790,241	6.9%	12.82%	1,816,700	5,004,684
Sep 01	74,742	162,524	237,266	1,011,337	1,377,943	2,389,280	1,688,882	41.5%	17,958,693	19,096,652	6.3%	12.51%	2,016,997	5,556,465
Sep 16	141,586	140,669	282,255	1,152,923	1,518,611	2,671,535	1,901,212	40.5%	20,084,084	21,207,971	5.6%	12.60%	2,255,273	6,212,872
Oct 01	91,127	147,675	238,802	1,244,050	1,666,285	2,910,337	2,073,895	40.3%	21,512,210	23,428,668	8.9%	12.42%	2,456,866	6,768,226
Oct 16	98,466	151,324	249,790	1,342,516	1,817,611	3,160,127	2,248,636	40.5%	22,897,685	25,185,502	10.0%	12.55%	2,667,735	7,349,133
Nov 01	93,019	175,597	268,616	1,435,535	1,993,208	3,428,743	2,466,461	39.0%	24,503,391	26,977,523	10.1%	12.71%	2,894,497	7,973,821
Nov 16	110,223	169,572	279,795	1,545,758	2,162,780	3,708,538	2,655,249	39.7%	25,772,133	28,605,583	11.0%	12.96%	3,130,696	8,624,507
Dec 01	71,238	186,514	257,752	1,616,996	2,349,294	3,966,290	2,852,057	39.1%	26,662,876	29,853,284	12.0%	13.29%	3,348,287	9,223,930
Dec 16	65,864	215,223	281,087	1,682,860	2,564,511	4,247,377	3,051,389	39.2%	27,140,324	30,916,892	13.9%	13.74%	3,585,576	9,877,621
Jan 01***	88,030	191,358	279,388	1,770,890	2,755,875	4,526,765	3,254,356	39.1%	27,465,014	31,443,004	14.5%	14.40%	3,821,432	10,527,360
Jan 16	107,599	173,101	280,700	1,878,489	2,928,976	4,807,465	3,441,367	39.7%	27,673,264	31,791,719	14.9%	15.12%	4,058,395	11,180,151
Feb 01	110,467	169,634	280,101	1,988,956	3,098,610	5,087,566	3,642,015	39.7%	27,886,577	32,105,105	15.1%	15.85%	4,294,852	11,831,549
Feb 16	84,480	159,994	244,474	2,073,436	3,258,604	5,332,040	3,844,680	38.7%	28,094,184	32,375,101	15.2%	16.47%	4,501,234	12,400,093
Mar 01	98,834	194,103	292,937	2,172,270	3,452,707	5,624,977	3,994,494	40.8%	28,248,883	32,703,930	15.8%	17.20%	4,748,527	13,081,342
Mar 16	75,306	183,737	259,043	2,247,576	3,636,444	5,884,020	4,233,083	39.0%	28,534,707	33,064,883	15.9%	17.80%	4,967,208	13,683,767
Apr 01	58,324	244,326	302,650	2,305,900	3,880,776	6,186,670	4,432,112	39.6%	28,911,738	33,593,124	16.2%	18.42%	5,222,700	14,387,605

Source: UNICA adapted by USGC-BR

\* 15 days (date shown is the last day of the period)

2023\*\*

2024

## U.S. ETHANOL PRODUCTION CAPACITY BY STATE

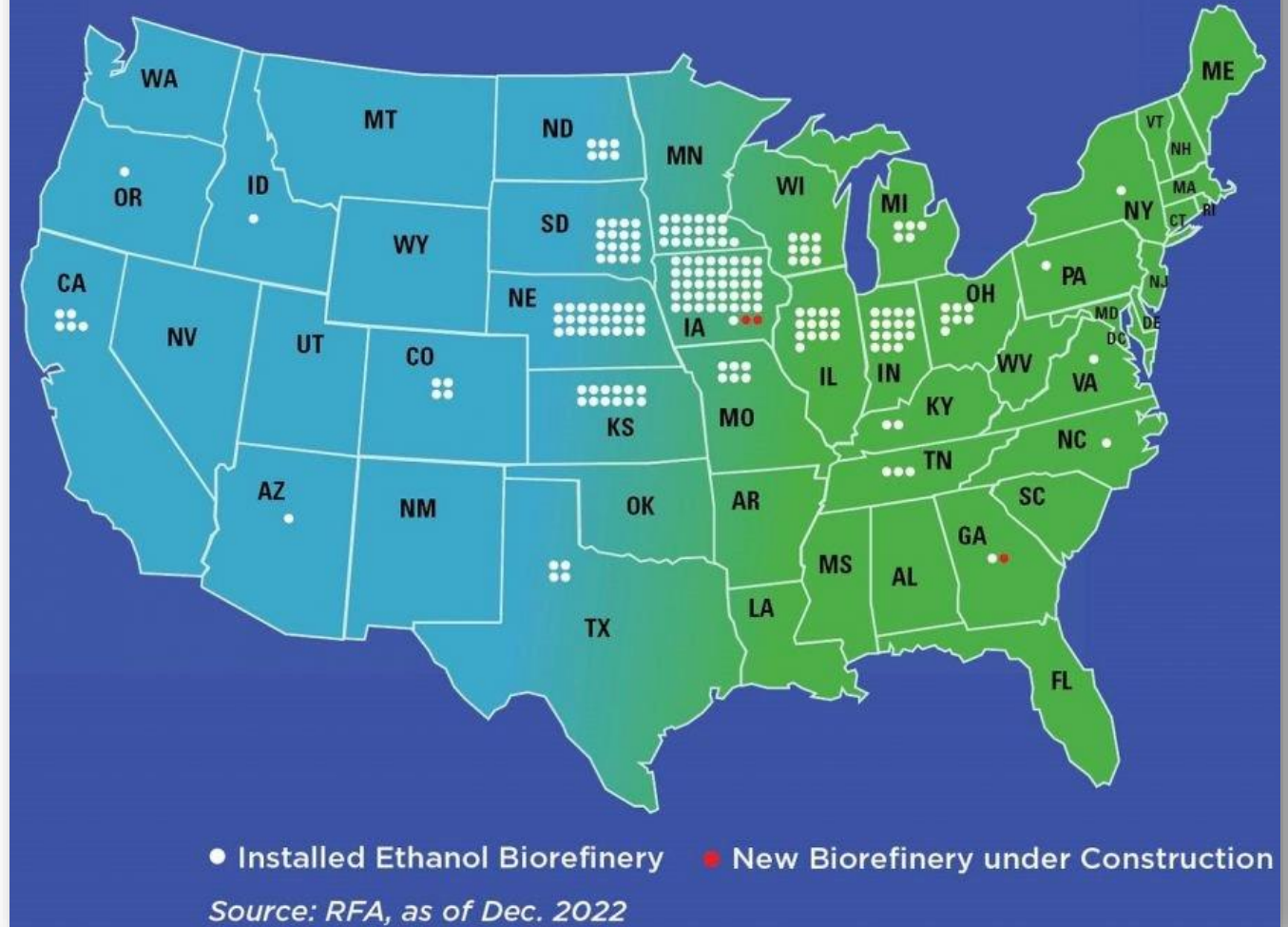
(Million Gallons per Year)

	Existing Production Capacity	Capacity Under Constr./Expansion	Installed Ethanol Biorefineries	Biorefineries Under Constr./Expansion
Iowa	4,759	80	41	2
Nebraska	2,280	-	24	-
Illinois	1,856	-	13	-
South Dakota	1,442	-	16	-
Indiana	1,423	-	15	-
Minnesota	1,414	-	19	-
Ohio	732	25	7	1
Kansas	602	-	12	-
Wisconsin	596	-	9	-
North Dakota	555	-	6	-
Texas	420	-	4	-
Michigan	382	-	5	-
Missouri	316	-	6	-
Tennessee	232	-	3	-
California	227	-	5	-
Colorado	143	-	4	-
Georgia	120	9	1	1
Pennsylvania	120	-	1	-
Idaho	60	-	1	-
New York	60	-	1	-
North Carolina	60	-	1	-
Arizona	55	-	1	-
Kentucky	50	-	2	-
Oregon	40	-	1	-
Virginia	2	-	1	-
<b>TOTAL U.S.</b>	<b>17,946</b>	<b>114</b>	<b>199</b>	<b>4</b>

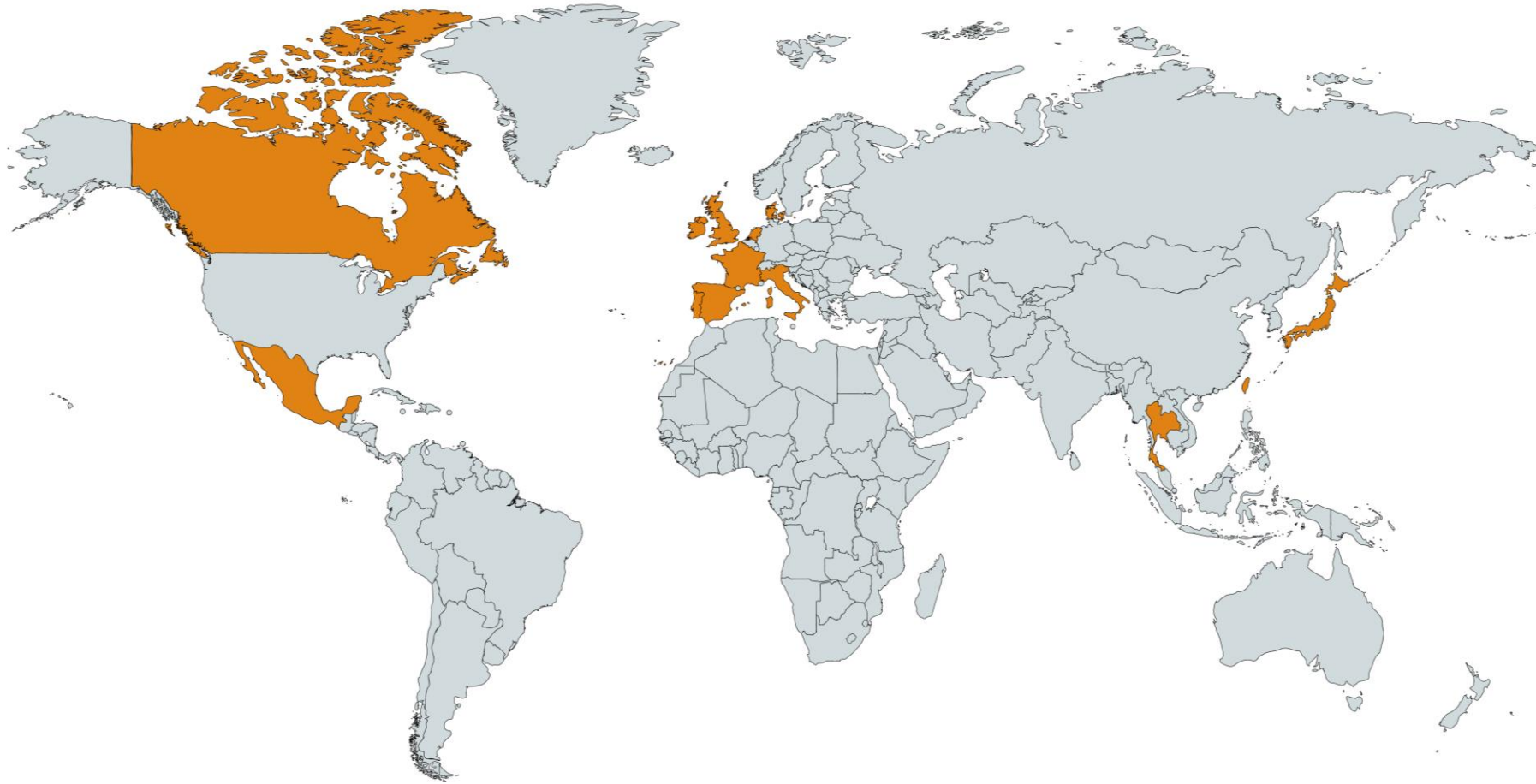
Source: RFA, as of Dec. 2022

# DDGS – A Co-Product of Ethanol

## U.S. FUEL ETHANOL BIOREFINERIES BY STATE

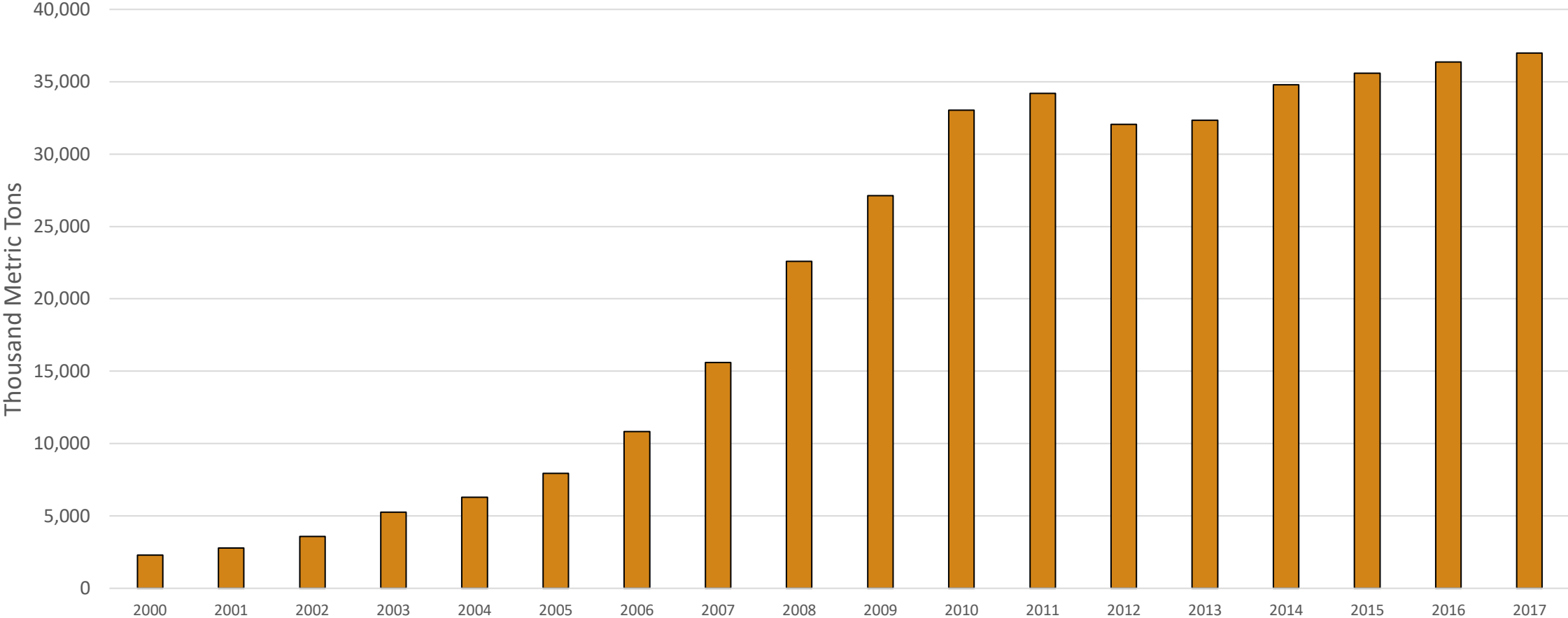


# U.S. DDGS Exports in 1999



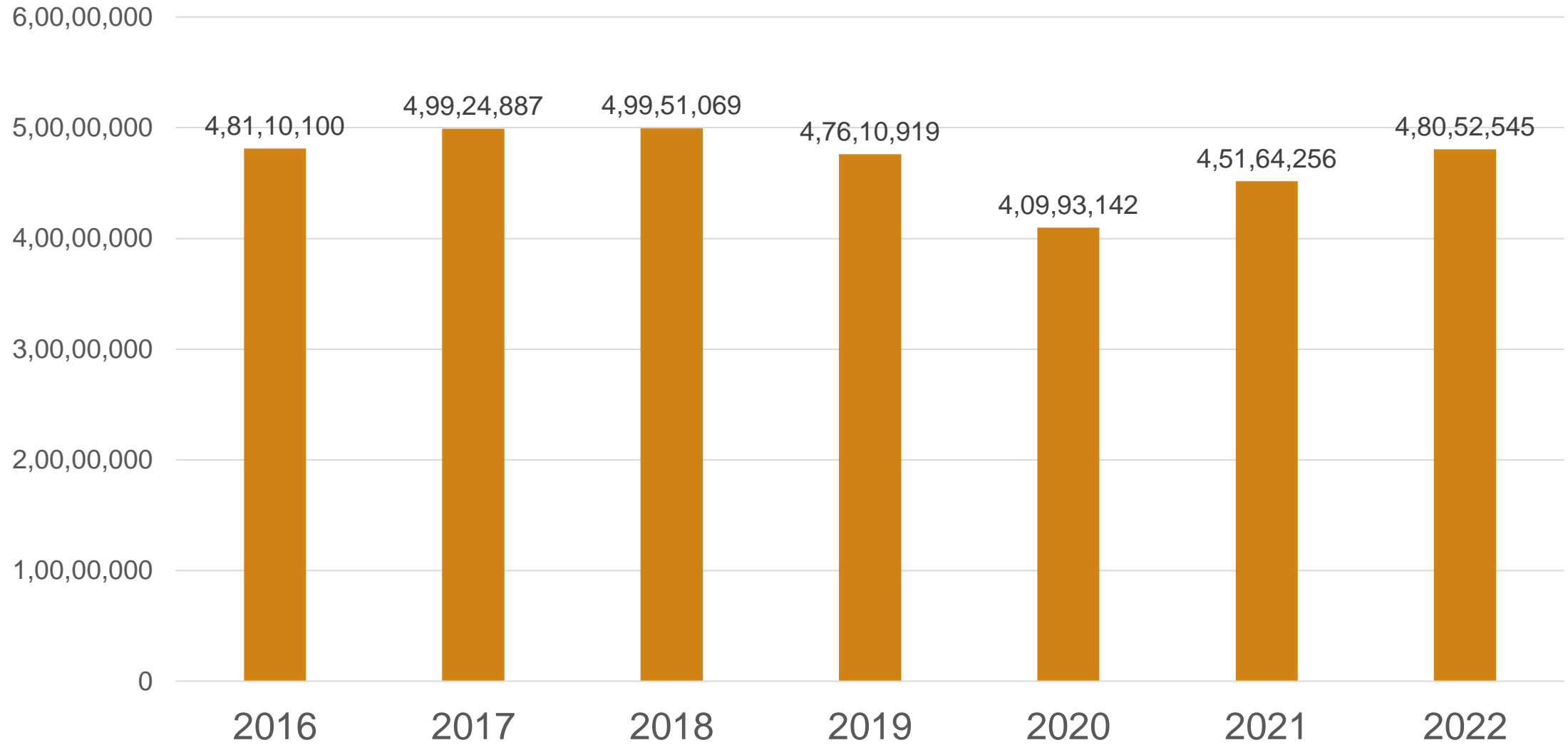
# Industry Sees Immense Growth

Historic U.S. Distillers Grains Production



Source: USDA NASS

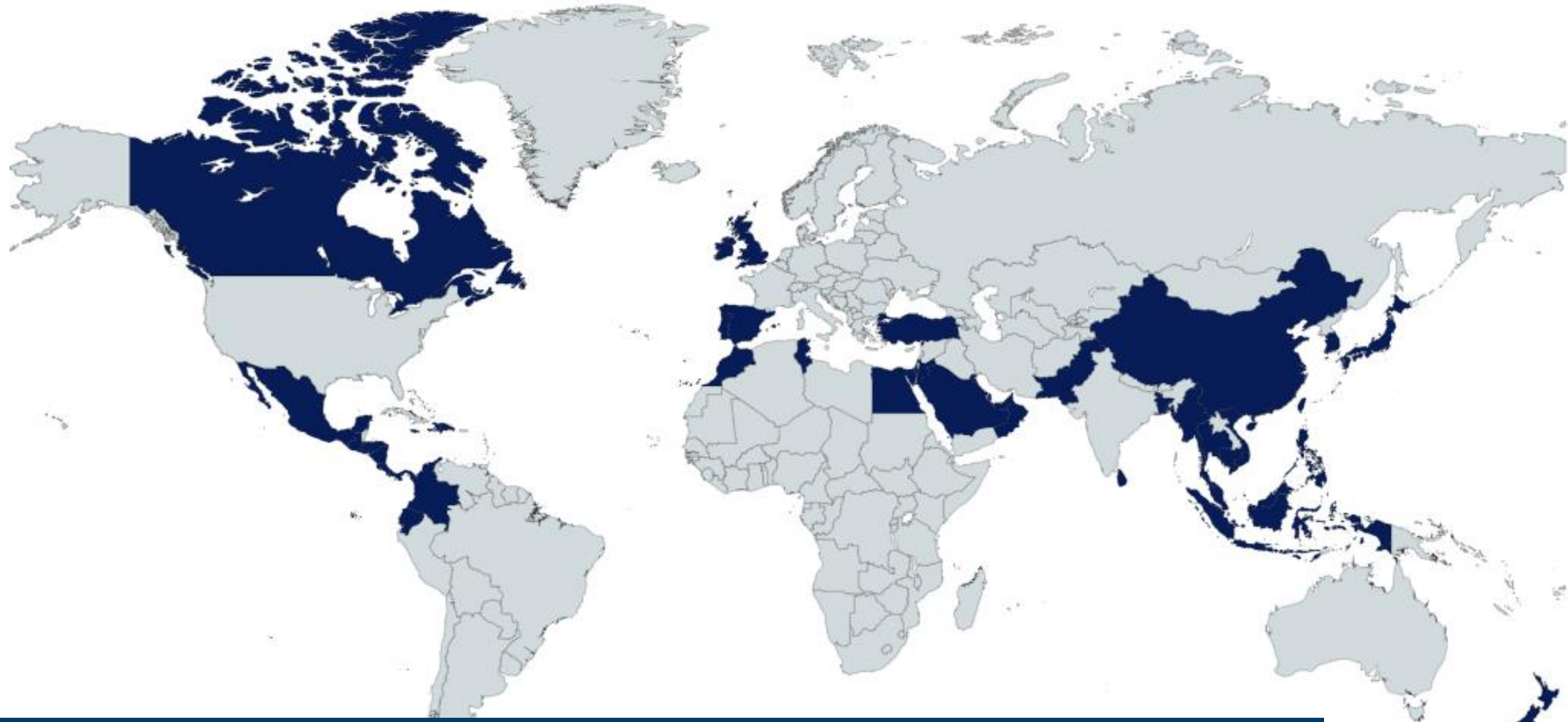
# U.S. Distillers' Grains Production (MT)



Source: USDA NASS



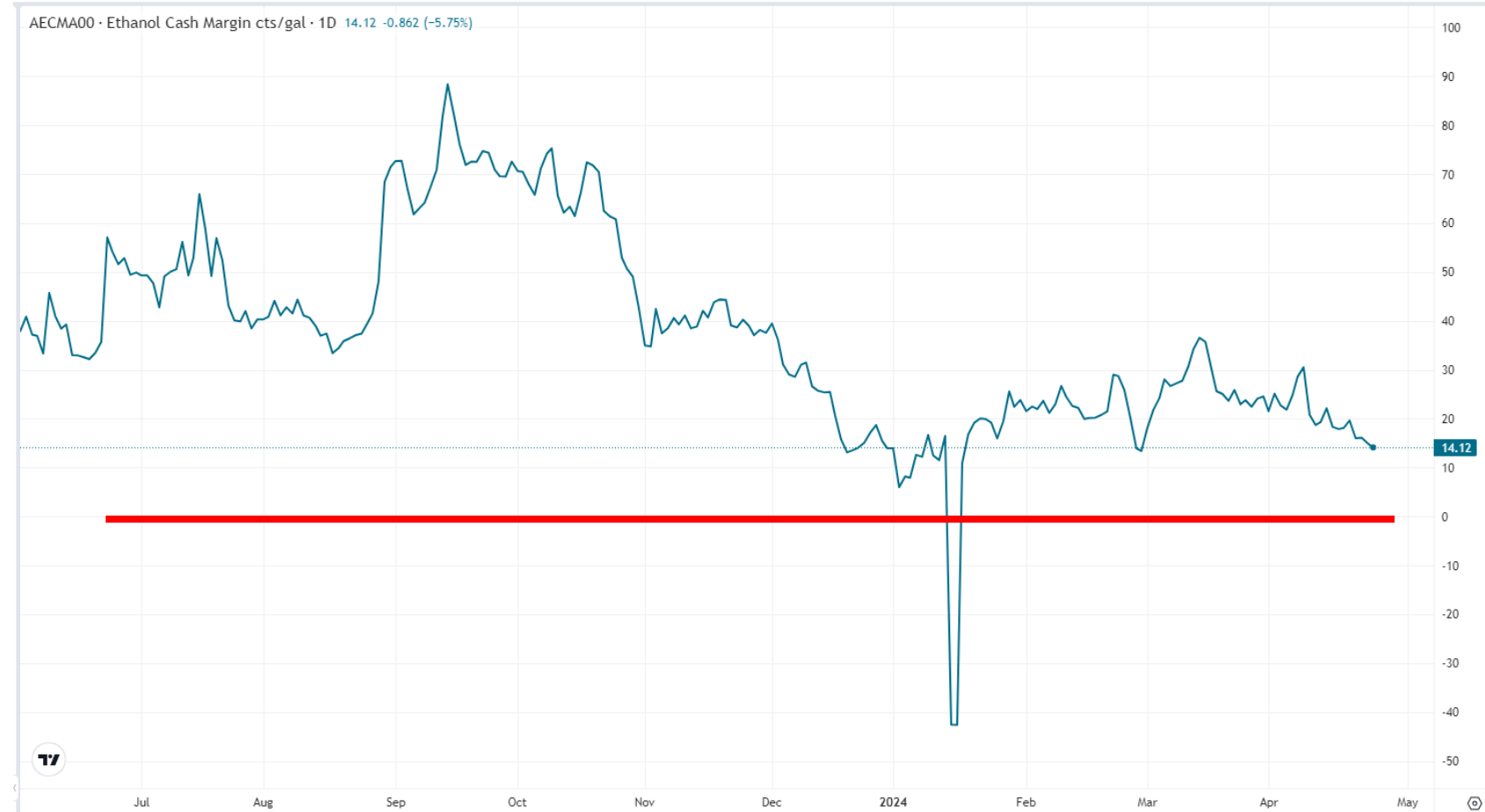
# U.S. DDGS Exports in 2023



The U.S. exports anywhere from 10.5 to 12 MMT of DDGS in any given year.  
In 2023, the U.S. shipped DDGS to over 40 countries around the world.

# U.S. Ethanol Cash Margins Remain Positive

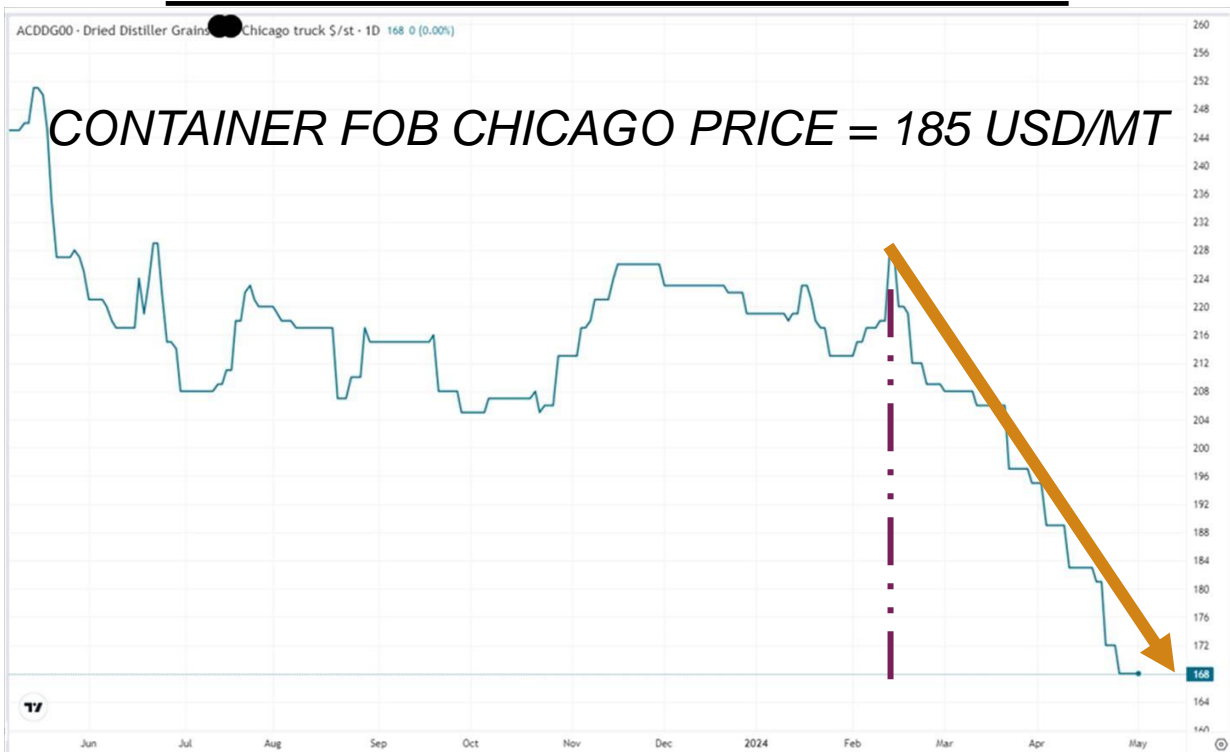
- U.S. ethanol plants will run as hard as they can when they are making money, and they have been well in the money for the past year.
- U.S. ethanol plants are running hard and making lots of DDGS!
- **Bottom line: Current DDGS availability is very good!**



Source: S&P Global Platts

# DDGS Prices Plummeting

## U.S. PRICE FOB CHICAGO CONTAINER



Mid-Feb 2024

## U.S. PRICE CIF NOLA BULK



Mid-Feb 2024

# Global SBM/DDGS Spread Rising

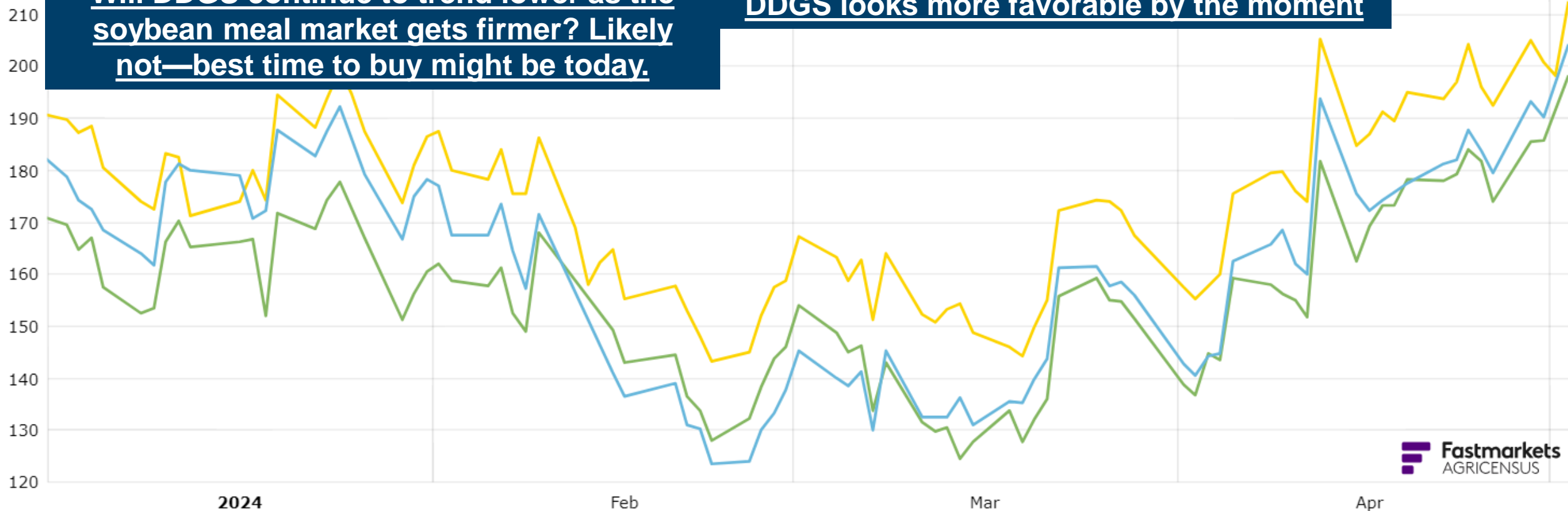
SPREAD Soymeal FOB Paranagua SMP - DDGS FOB US Gulf \$/mt 198.25  
SPREAD Soymeal FOB Argentina - DDGS FOB US Gulf \$/mt 204.25

SPREAD Soymeal FOB US Gulf Hipro - DDGS FOB US Gulf \$/mt 212.50

Will DDGS continue to trend lower as the soybean meal market gets firmer? Likely not—best time to buy might be today.

Spreads trending in the right direction, and DDGS looks more favorable by the moment

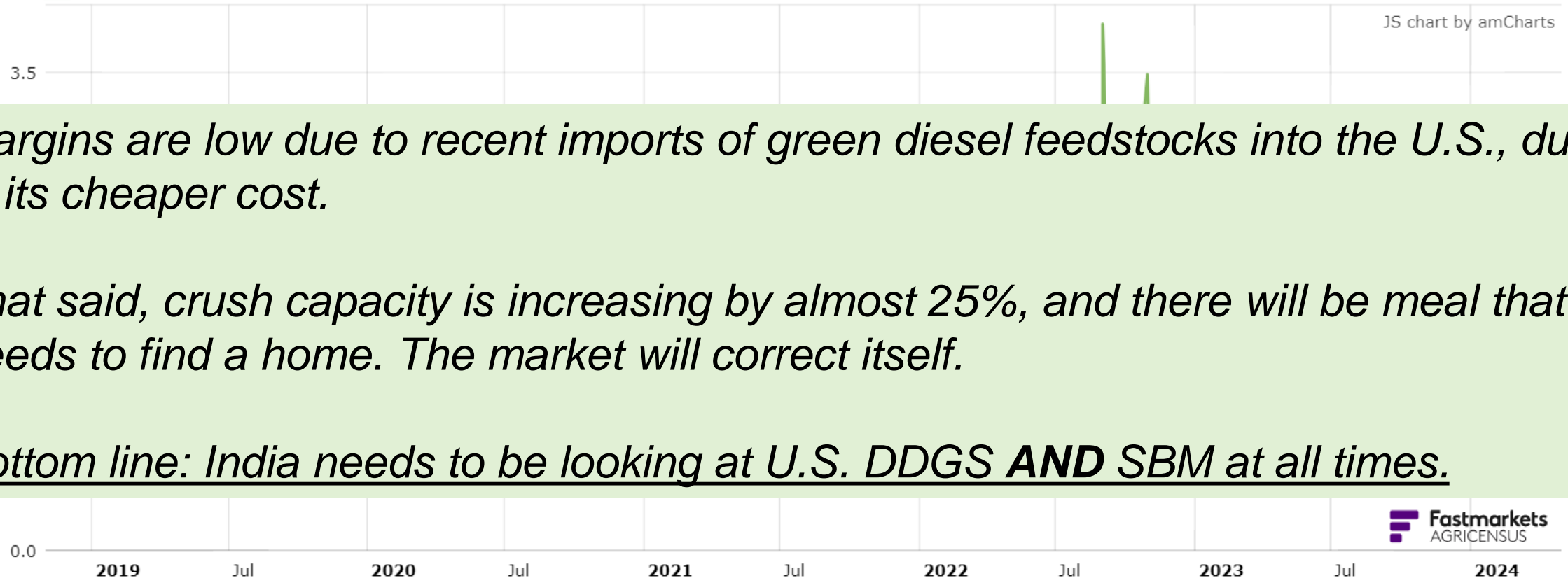
JS chart by amCharts



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# Soy Crush Margin Low, But For How Long?

Crush Margin US Soy M1 \$/bu 0.76



*Margins are low due to recent imports of green diesel feedstocks into the U.S., due to its cheaper cost.*

*That said, crush capacity is increasing by almost 25%, and there will be meal that needs to find a home. The market will correct itself.*

*Bottom line: India needs to be looking at U.S. DDGS **AND** SBM at all times.*

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# THANK YOU!

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