

2022 CROP MARKET OUTLOOK

Western Wisconsin Ag Lenders Conference Program

January 6, 2022

Contact Information:

John Kruse, PhD

Associate Research Professor

University of Missouri – Columbia

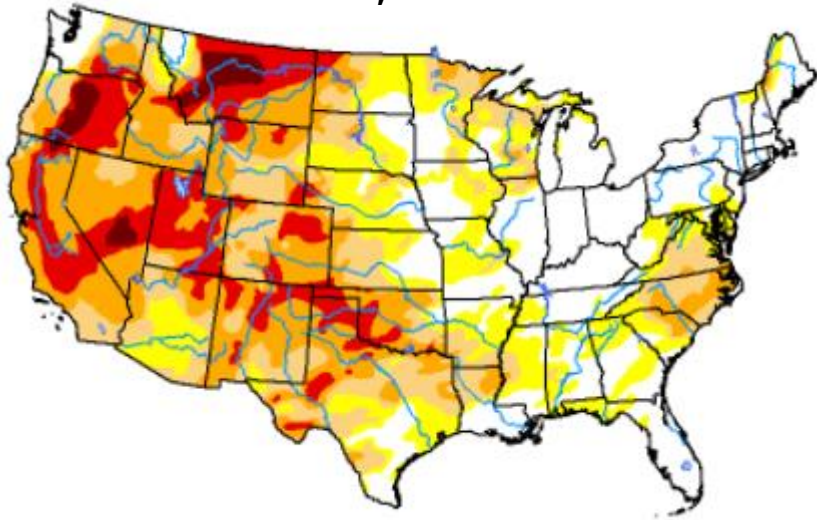
email: krusej@missouri.edu

Major Drivers

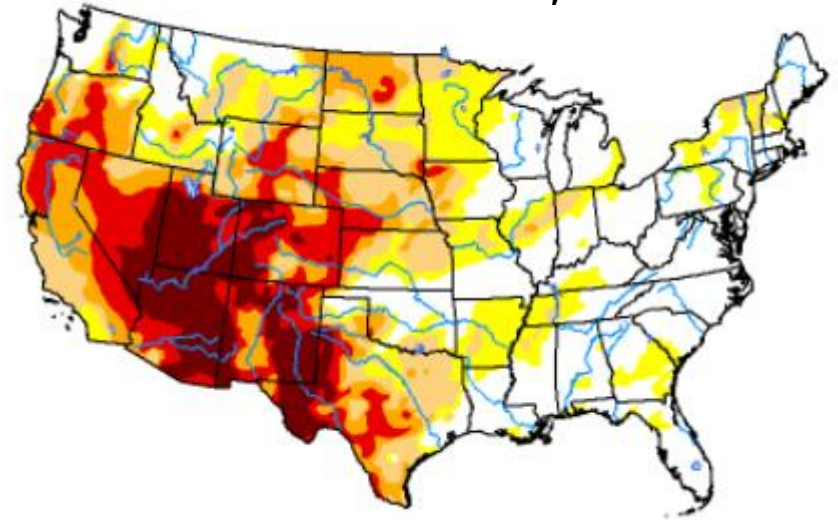
- Chinese imports
- Fertilizer and fuel prices
- Renewable diesel
- Supply chain disruption from COVID-19
- Global stock levels
- La Niña (2nd year in a row)
- Very high US farm income in 2021

US Drought Monitor

December 28, 2021



December 29, 2020



Drought Classification

None

D0 (Abnormally Dry)

D1 (Moderate Drought)

D2 (Severe Drought)

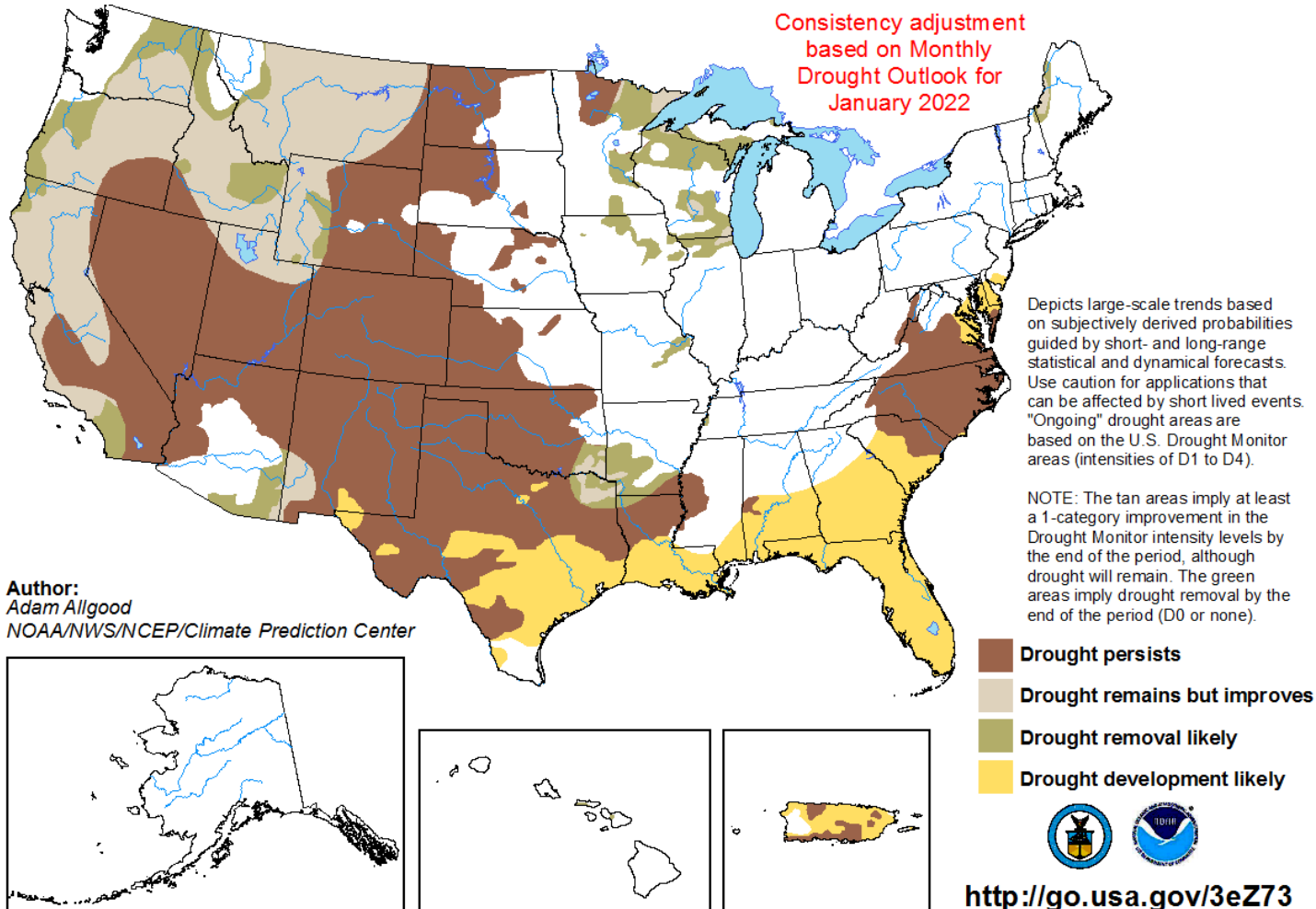
D3 (Extreme Drought)

D4 (Exceptional Drought)

No Data

U.S. Seasonal Drought Outlook

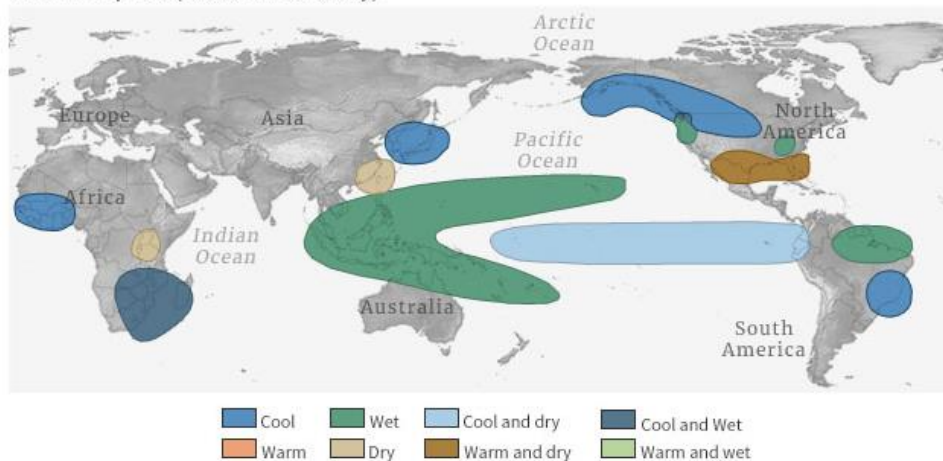
Valid for January 1 – March 31, 2022



Winter season implications of La Niña

- Drier-than-average conditions across the southern tier of the US, particularly the Gulf Coast
- Wetter-than-average conditions around the Great Lakes, Ohio Valley, and in the Pacific Northwest

La Niña impacts (December-February)

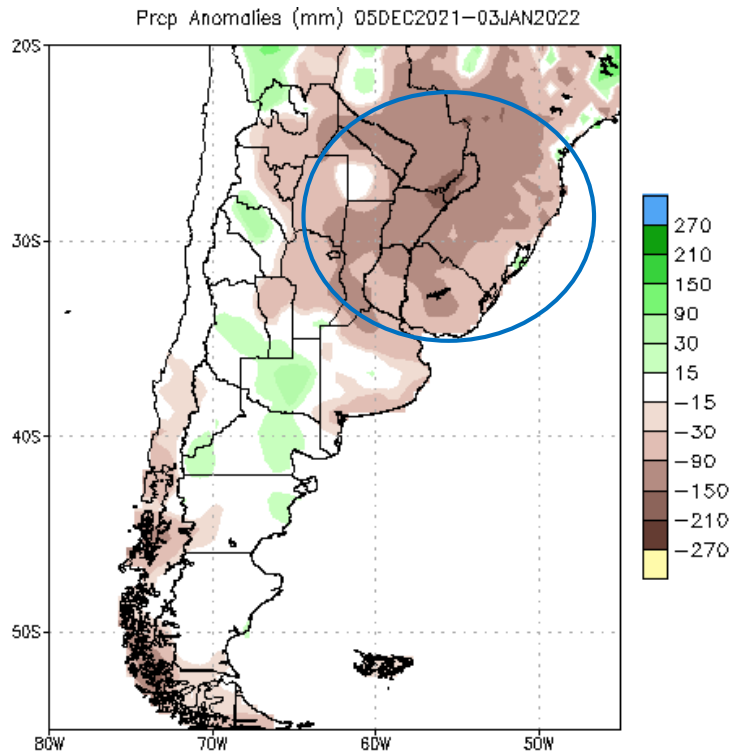


But what about the summer growing season in the US?

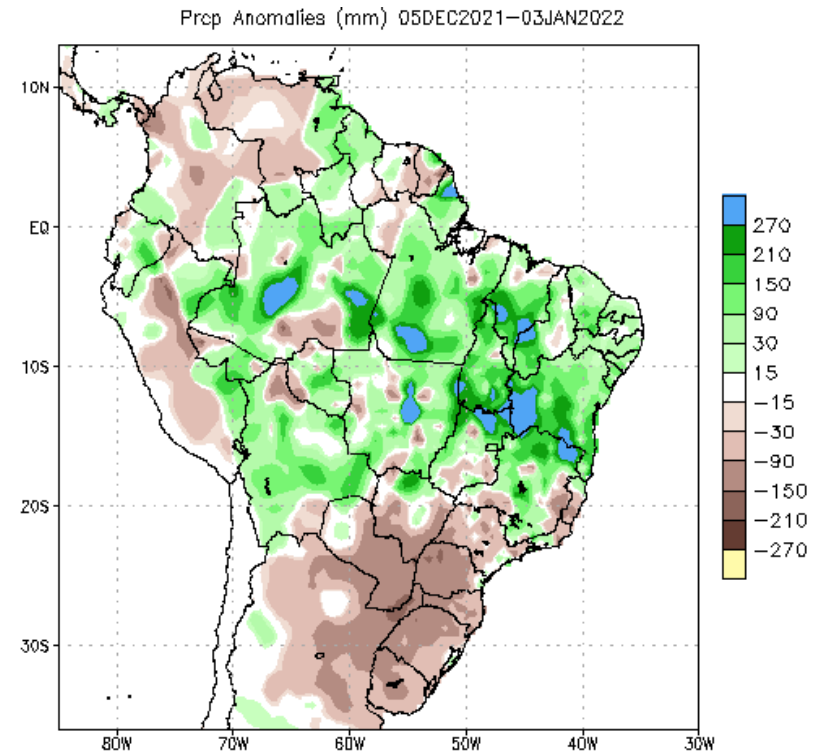
No significant correlation to wet or dry growing conditions.

Typical winter (December-February) temperature and precipitation impacts from La Niña. Map by climate.gov.

Argentina and Southern Brazil have been running on the dry side over Dec 2021

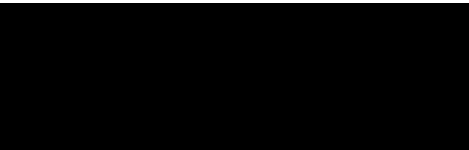


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)



Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)

CORN OUTLOOK



Proposed RFS Volume Obligations

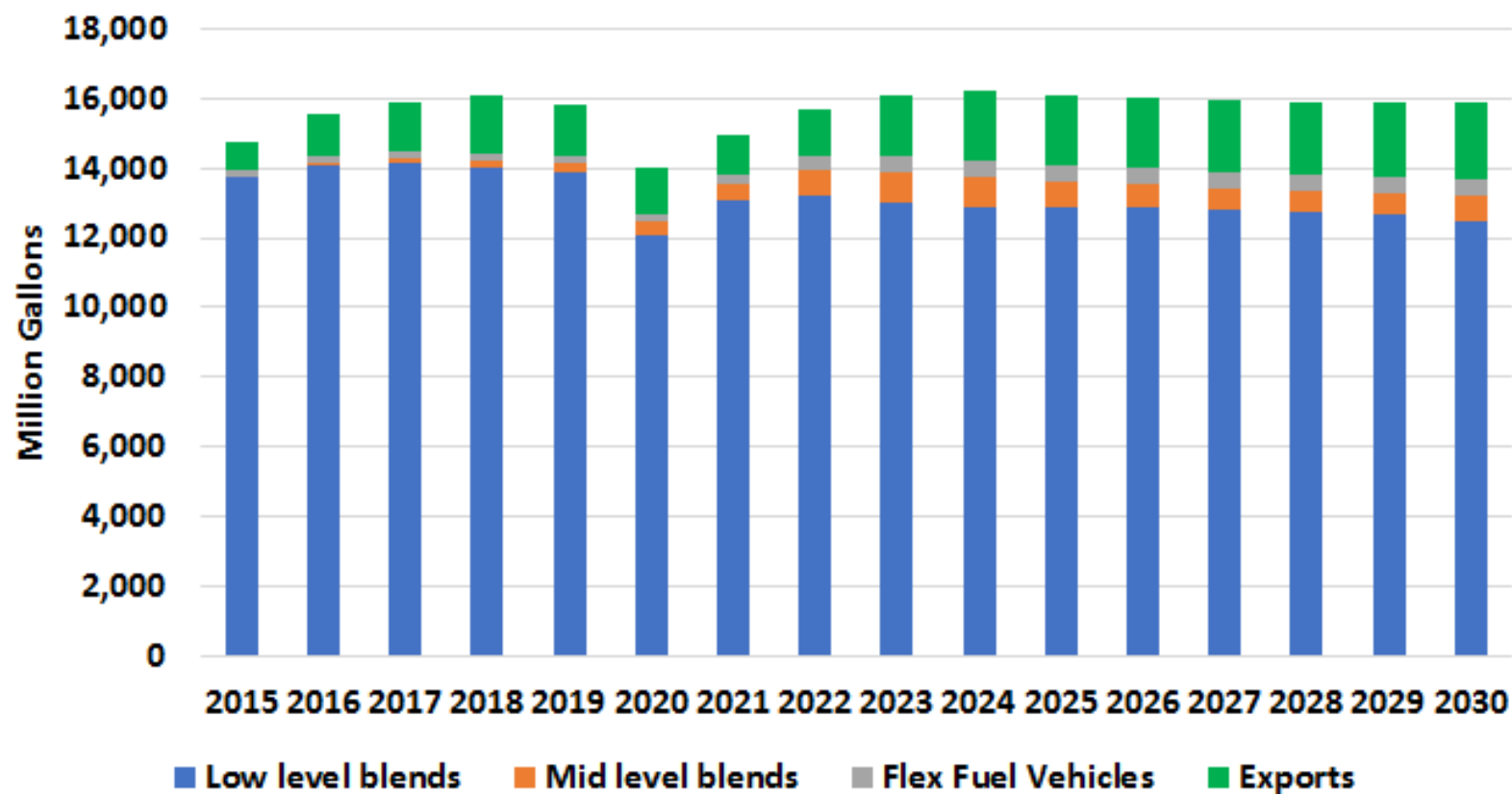
US RFS Volume Obligation Assumptions

Calendar Year		2020	2021	2022
Proposed Volume Obligations				
Overall RFS	Million Gallons	17,130	18,520	20,770
Conventional Gap (Implied Ethanol)	Million Gallons	12,500	13,320	15,000
Advanced	Million Gallons	4,630	5,200	5,770
Biodiesel	Million Gallons	2,430	2,430	2,760
Cellulosic	Million Gallons	510	620	770
Advanced Gap	Million Gallons	354	814	722
Supplemental Standard	Million Gallons	n/a	n/a	250
Small Refiner Exemptions	Million Gallons	uncertain	uncertain	uncertain
As Legislated				
Overall RFS	Million Gallons	30,000	33,000	36,000
Conventional Gap (Implied Ethanol)	Million Gallons	15,000	15,000	15,000
Advanced	Million Gallons	15,000	18,000	21,000
Biodiesel	Million Gallons	1,000	1,000	1,000
Cellulosic	Million Gallons	10,500	13,500	16,000
Advanced Gap	Million Gallons	3,000	3,000	3,500

FAPRI Baseline uses 14.8 billion gallons for the conventional gap.

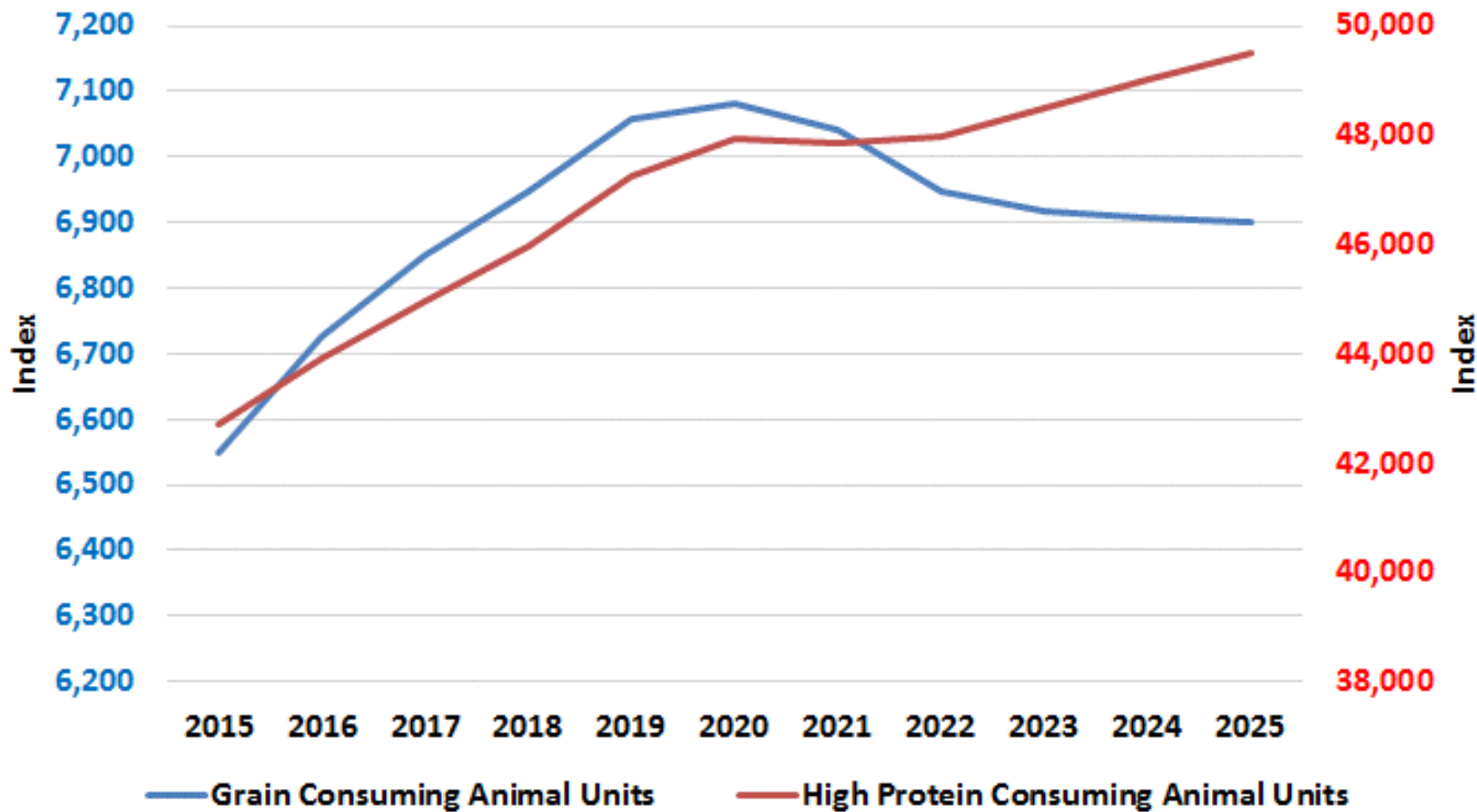
US Ethanol Domestic Consumption and Exports

FAPRI November 2021 Preliminary Baseline



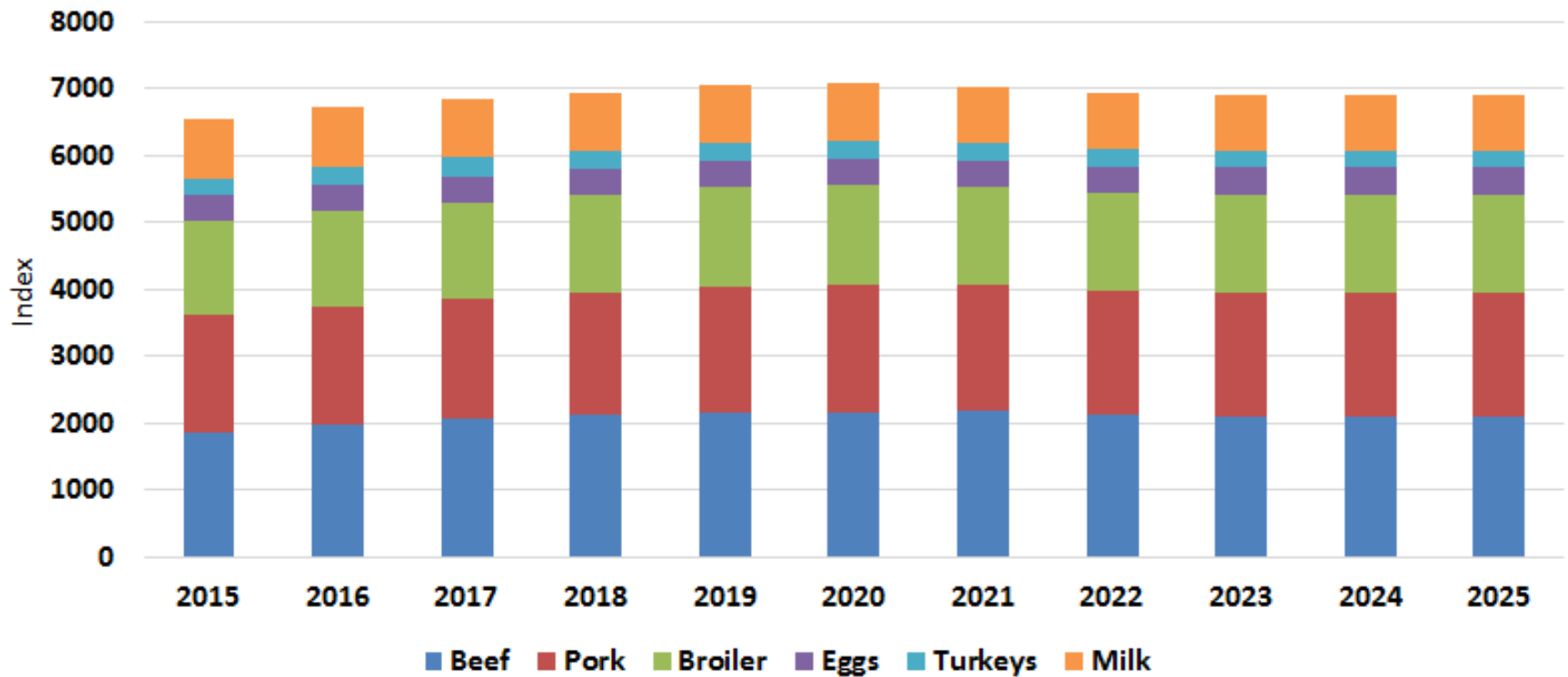
Grain and High Protein Consuming Animal Units

FAPRI/AMAP Nov 2021 Preliminary Baseline



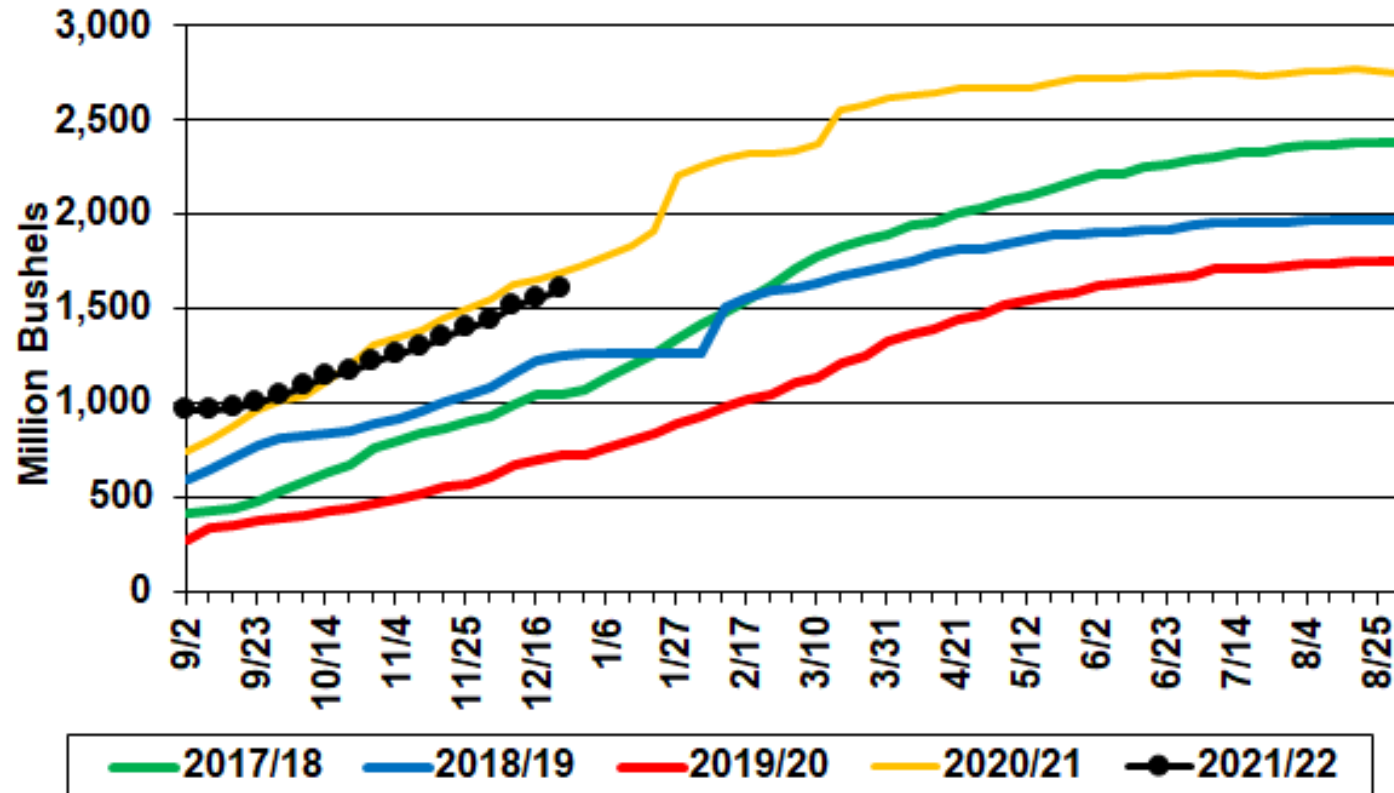
GCAU by Livestock Species

FAPRI/AMAP Nov 2021 Preliminary Baseline



Accumulated Corn Exports and Outstanding Sales to All Countries

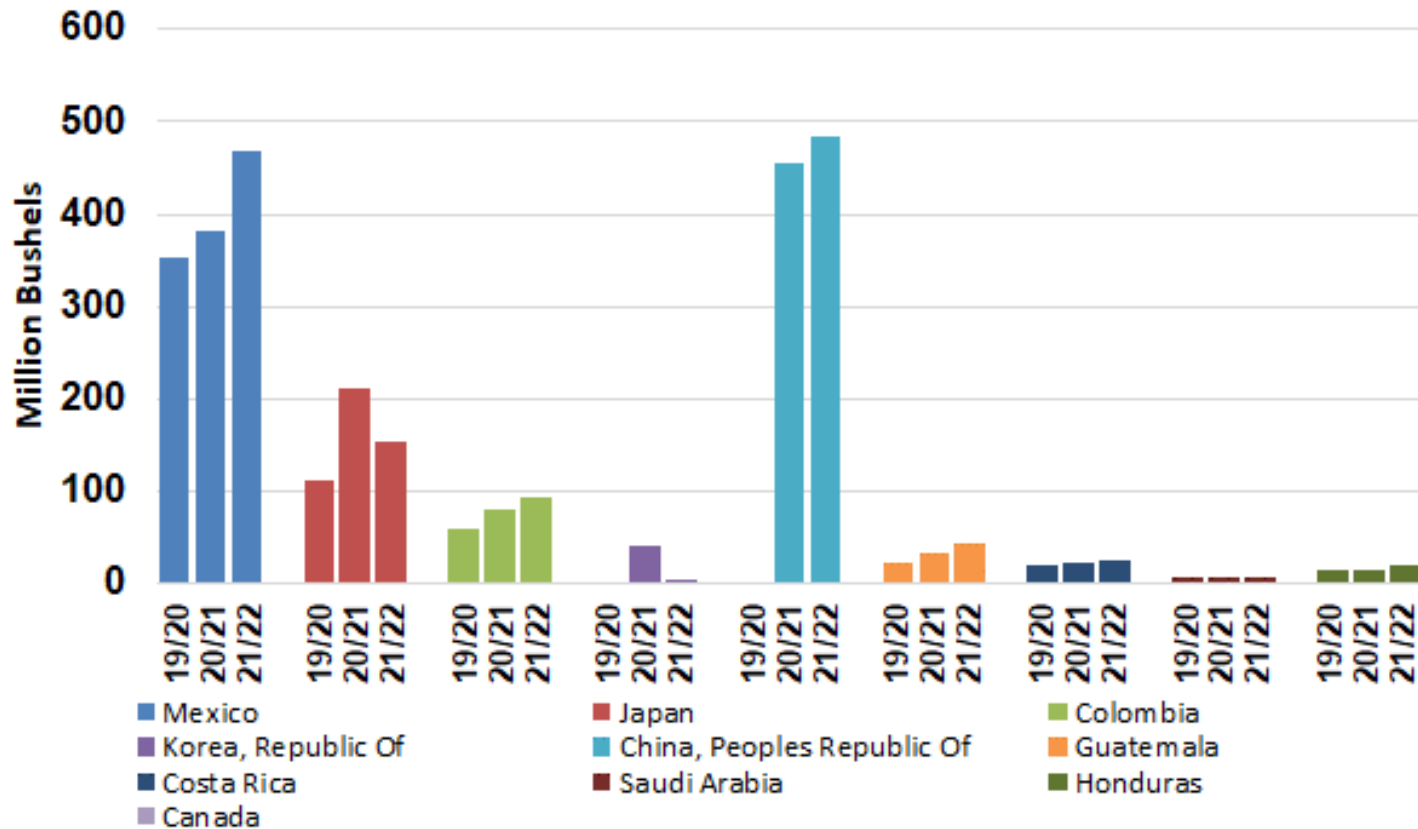
(Sep 1, 2021 to Dec 23, 2021)



Source: USDA-FAS, US Export Sales

Accumulated Corn Exports and Outstanding Sales

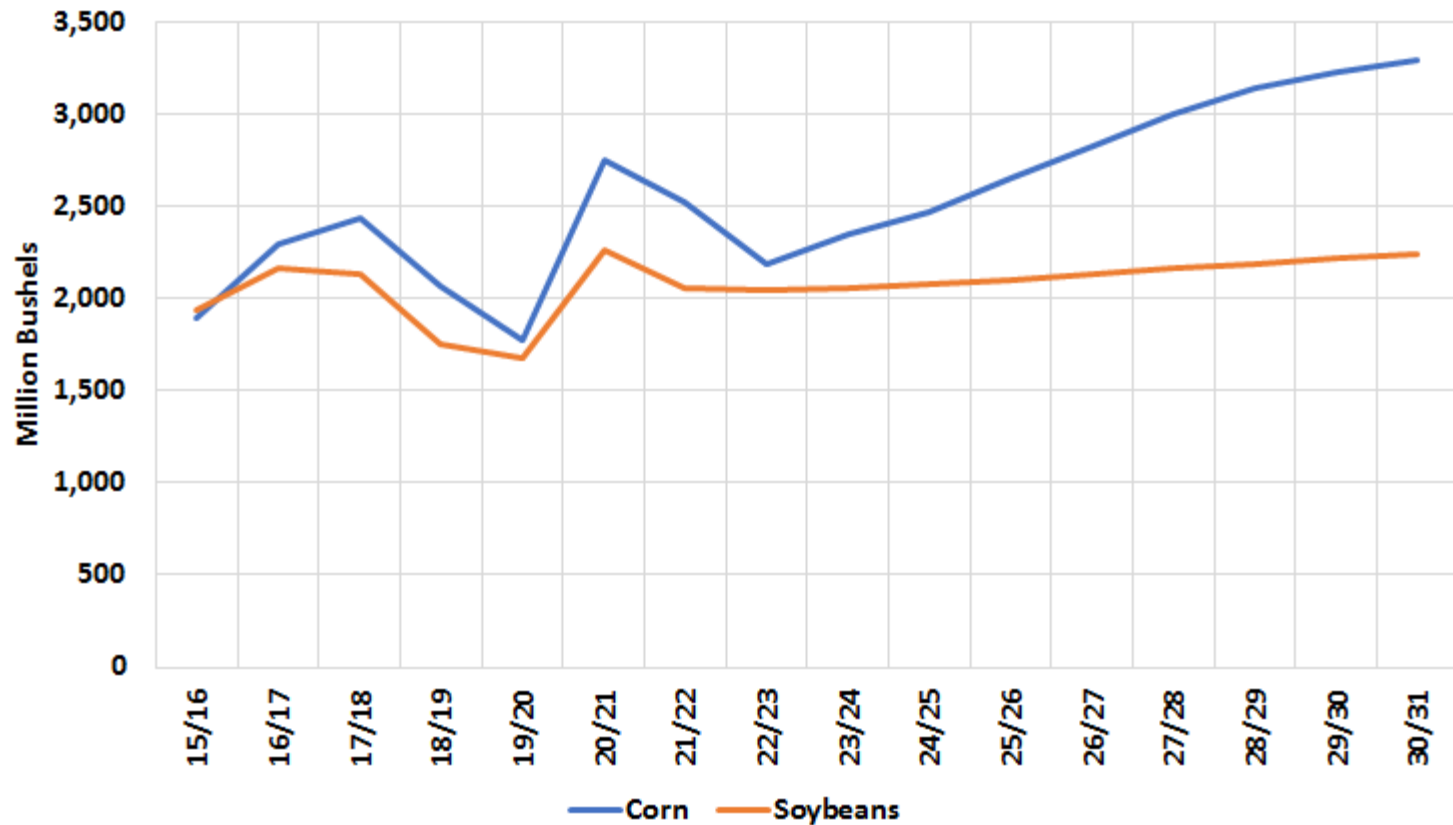
(Sep 1, 2021 to Dec 23, 2021)



Source: USDA-FAS, US Export Sales

US Corn and Soybean Exports

FAPRI Nov 2021 Preliminary Baseline



Brazil 2021/22 Crop Area, Yield, and Production

(December 2021 Estimates)

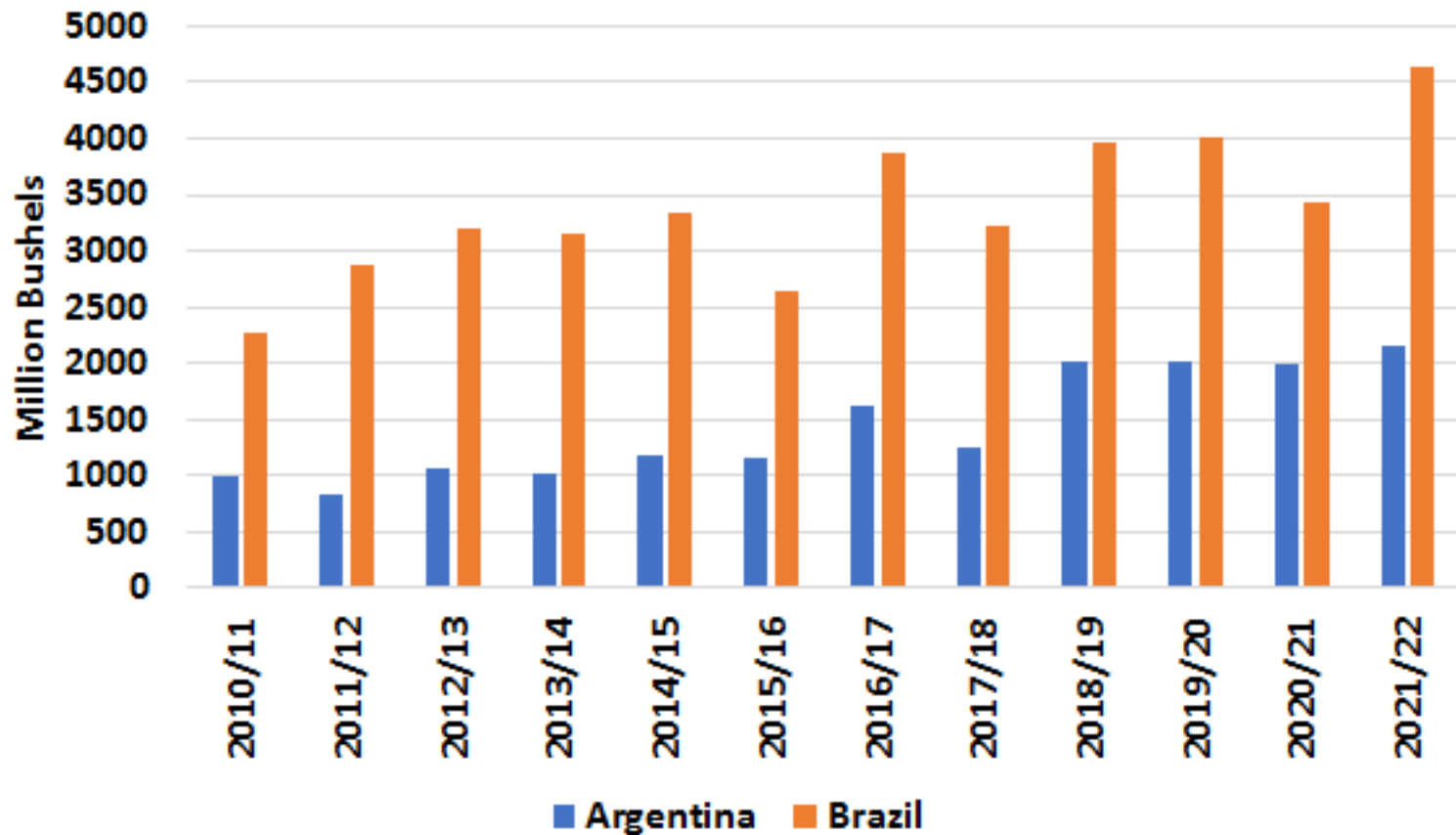
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	Official Brazil Source - CONAB						USDA - PSD Database					
	Area		Yield		Production		Area		Yield		Production	
	Mil Acres		Bu/Acre		Mil Bu		Mil Acres		Bu/Acre		Mil Bu	
	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22
<i>english units</i>												
Corn Total	49.3	51.6	69.6	89.5	3,427	4,613	49.2	51.4	69.7	90.4	3,425	4,645
First Crop	10.7	11.1	90.6	102.8	973	1,144						
Second Crop	37.1	39.2	64.5	86.7	2,391	3,396						
Third Crop	1.4	1.4	43.2	50.5	62	73						
Soybeans	96.2	99.7	56.2	56.4	5,406	5,621	96.1	99.8	52.8	53.0	5,071	5,291
<i>metric units</i>												
	Area		Yield		Production		Area		Yield		Production	
	1000 HA		MT/HA		1000 MT		1000 HA		MT/HA		1000 MT	
	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22
Corn Total	19,931	20,865	4.37	5.62	87,050	117,182	19,900	20,800	4.37	5.67	87,000	118,000
First Crop	4,347	4,507	5.69	6.45	24,722	29,066						
Second Crop	14,999	15,847	4.05	5.44	60,741	86,259						
Third Crop	585	585	2.71	3.17	1,587	1,856						
Soybeans	38,926	40,352	3.53	3.54	137,321	142,790	38,900	40,400	3.55	3.56	138,000	144,000

Sources: USDA-FAS, PSD Database, 12/2021 and Brazil's Perspectivas para a Agropecuaria-Safra 2021/22, 12/9/2021.

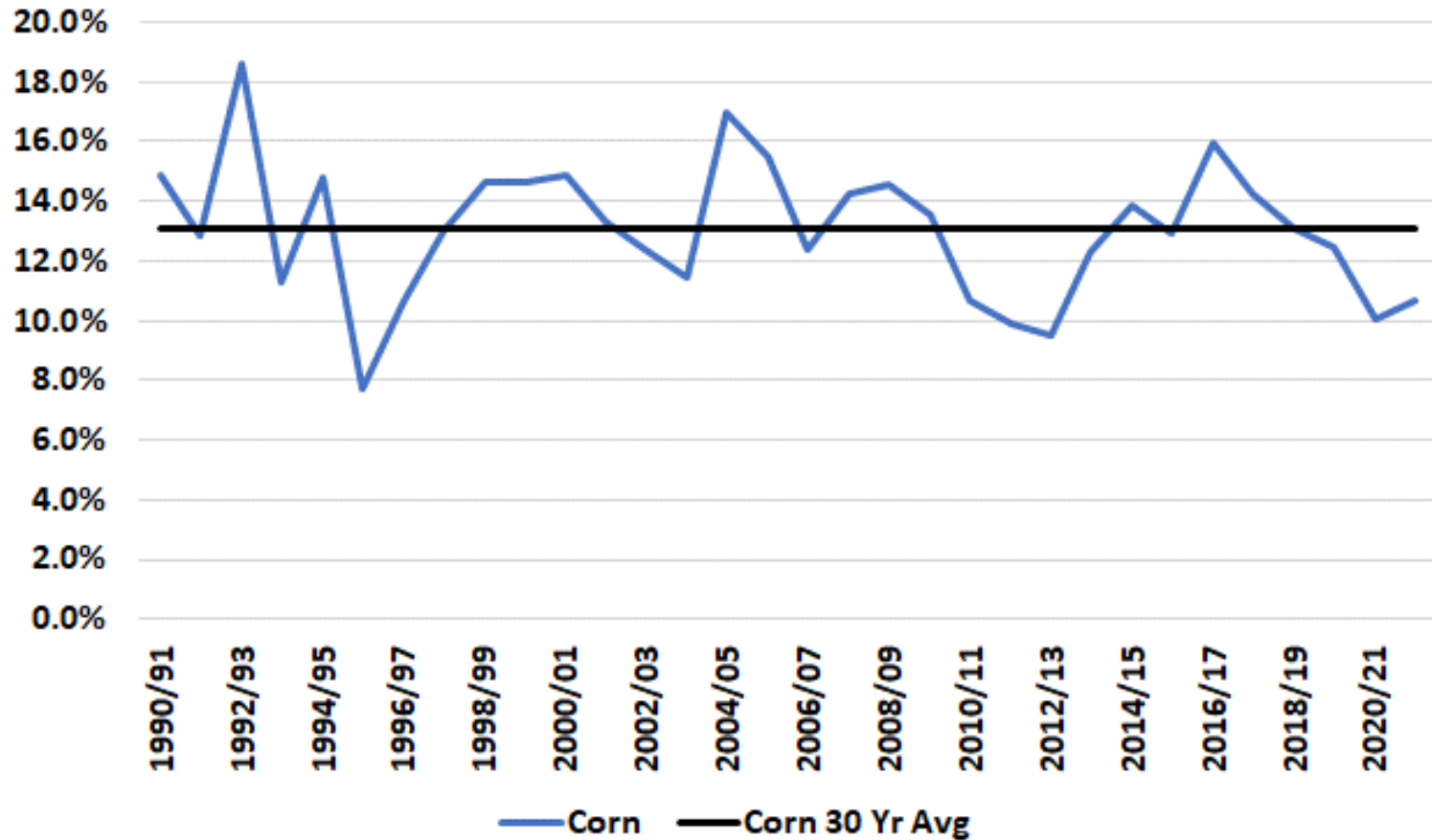
Record corn production expected in Argentina and Brazil

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Corn Ending Stocks-to-Use Ratio

World less China



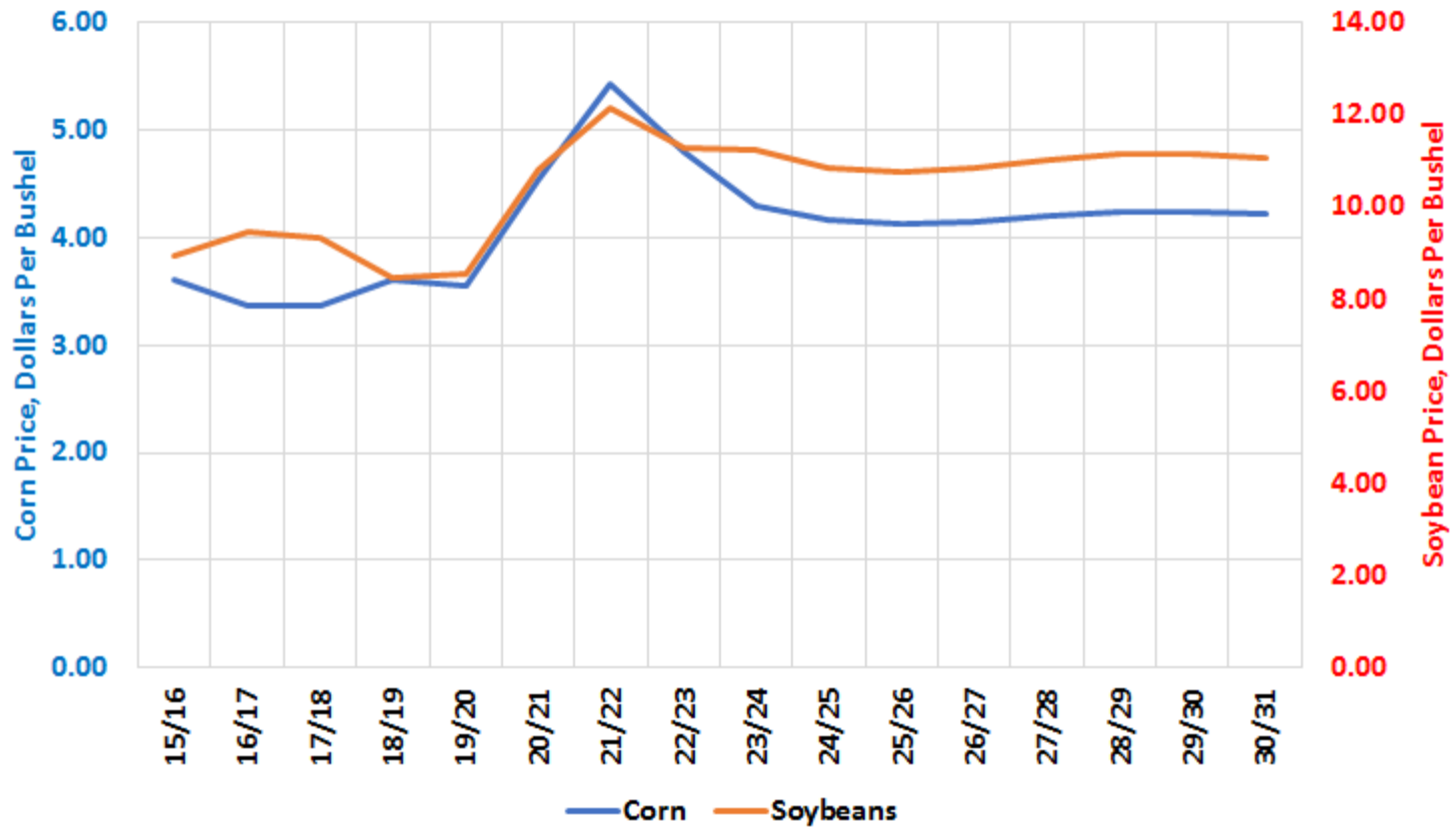
December 2022 Corn Futures

(Barchart (CME) 1-3-2022)

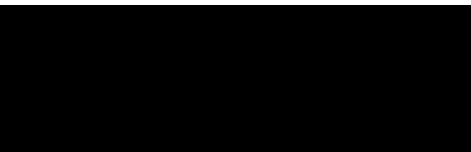


Commodity Prices Projected to Fall

FAPRI Nov 2021 Preliminary Baseline

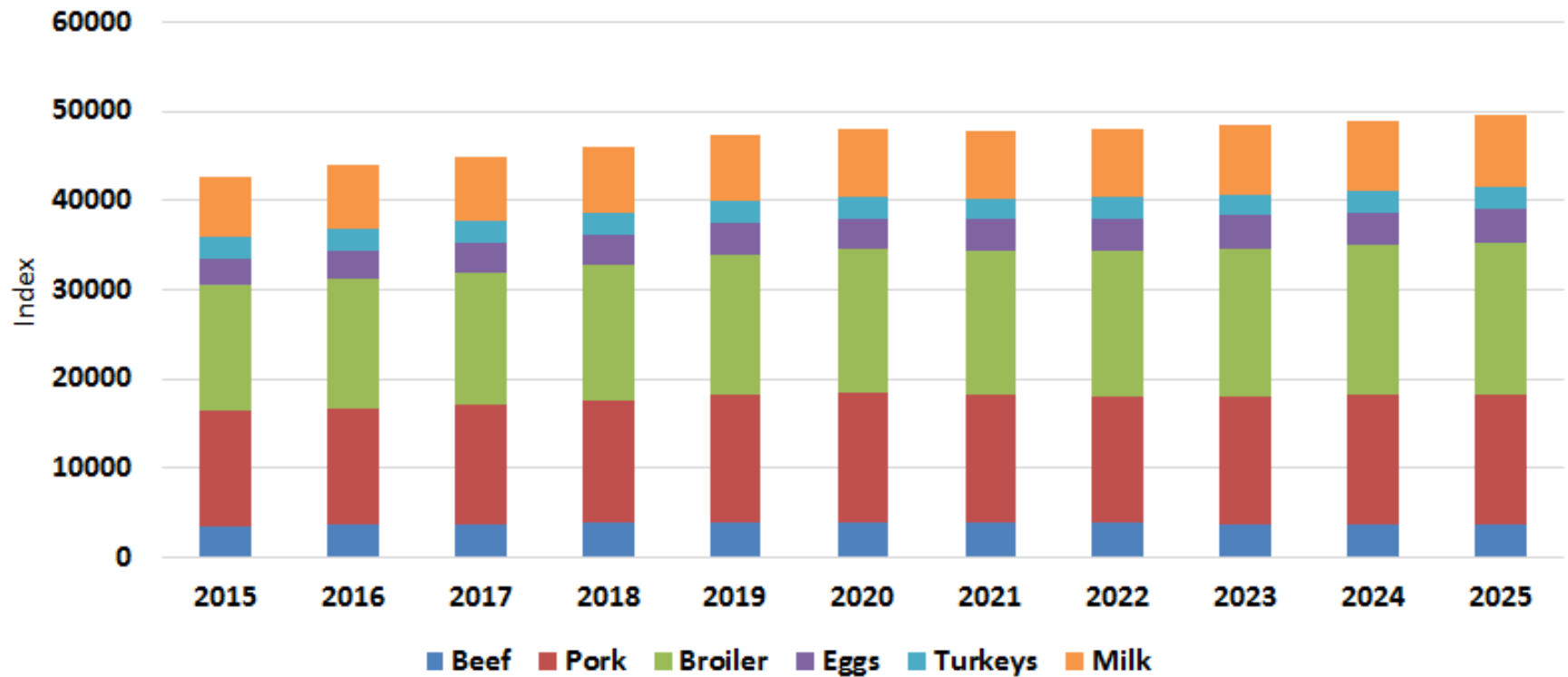


SOYBEAN OUTLOOK



HPAU's by Livestock Species

FAPRI/AMAP Nov 2021 Preliminary Baseline



Renewable Diesel vs Methyl Ester Diesel Net Returns

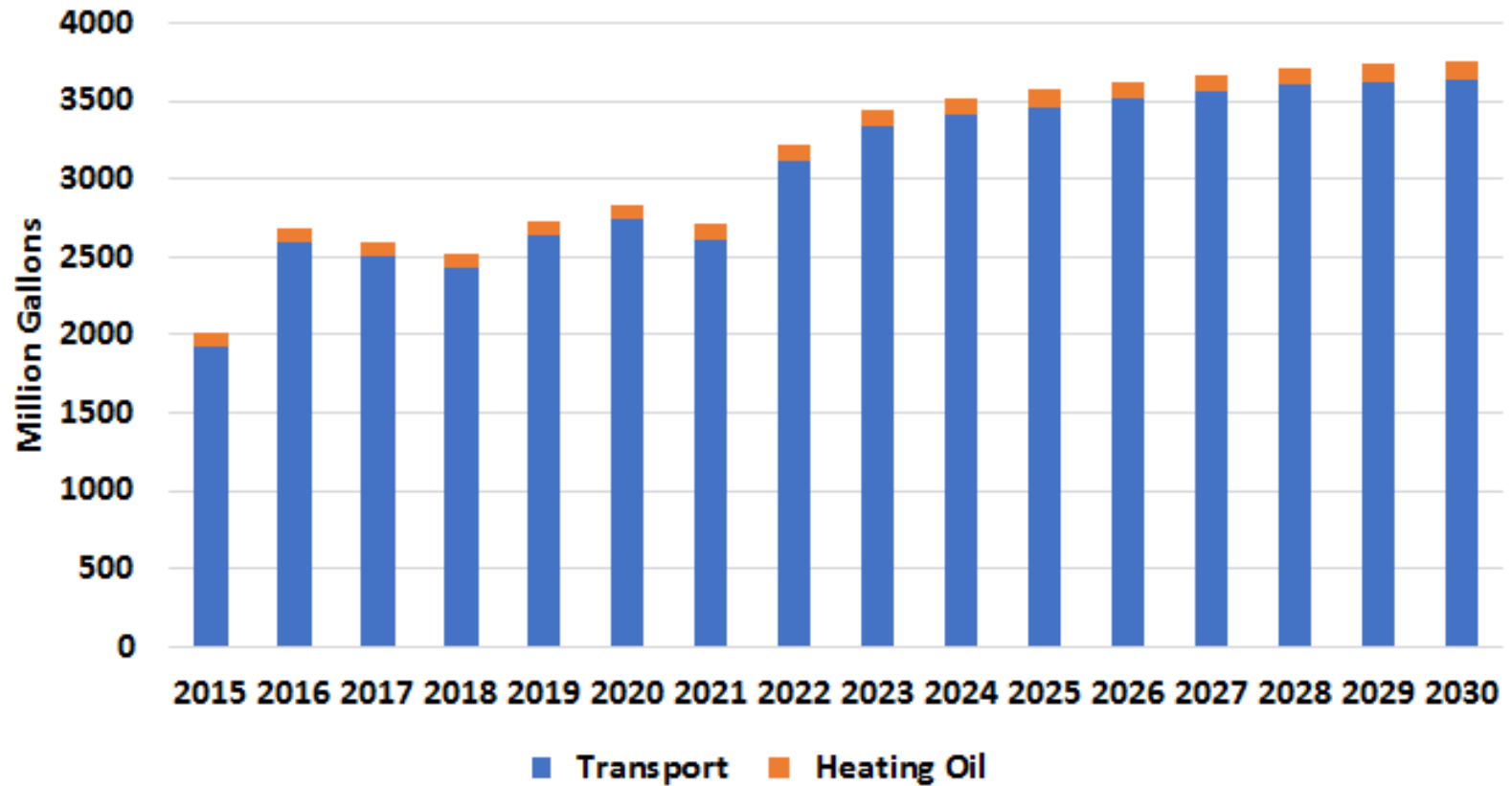
Selected Months in 2021

	Renewable Diesel		Methyl Ester	
	June	Nov	June	Nov
<i>US dollars per gallon</i>				
Methyl Ester Biodiesel Price	6.02	5.46	6.02	5.46
Value of Co-Products	0.27	0.27	0.10	0.10
Plus fungability premium	0.30	0.30	0.00	0.00
Plus additional RIN value	0.35	0.32	0.00	0.00
Plus CA carbon credit value*	1.25	1.25	0.00	0.00
Total Revenue	8.19	7.60	6.12	5.56
Less Cost of Feedstock	7.97	5.07	5.79	4.28
Less Other Variable Costs	0.53	0.53	0.53	0.53
Total Cost	8.50	5.60	6.32	4.81
Net Returns before CAP X	-0.30	1.99	-0.20	0.76

* Assumes \$200/mt carbon price with soybean oil as the feedstock

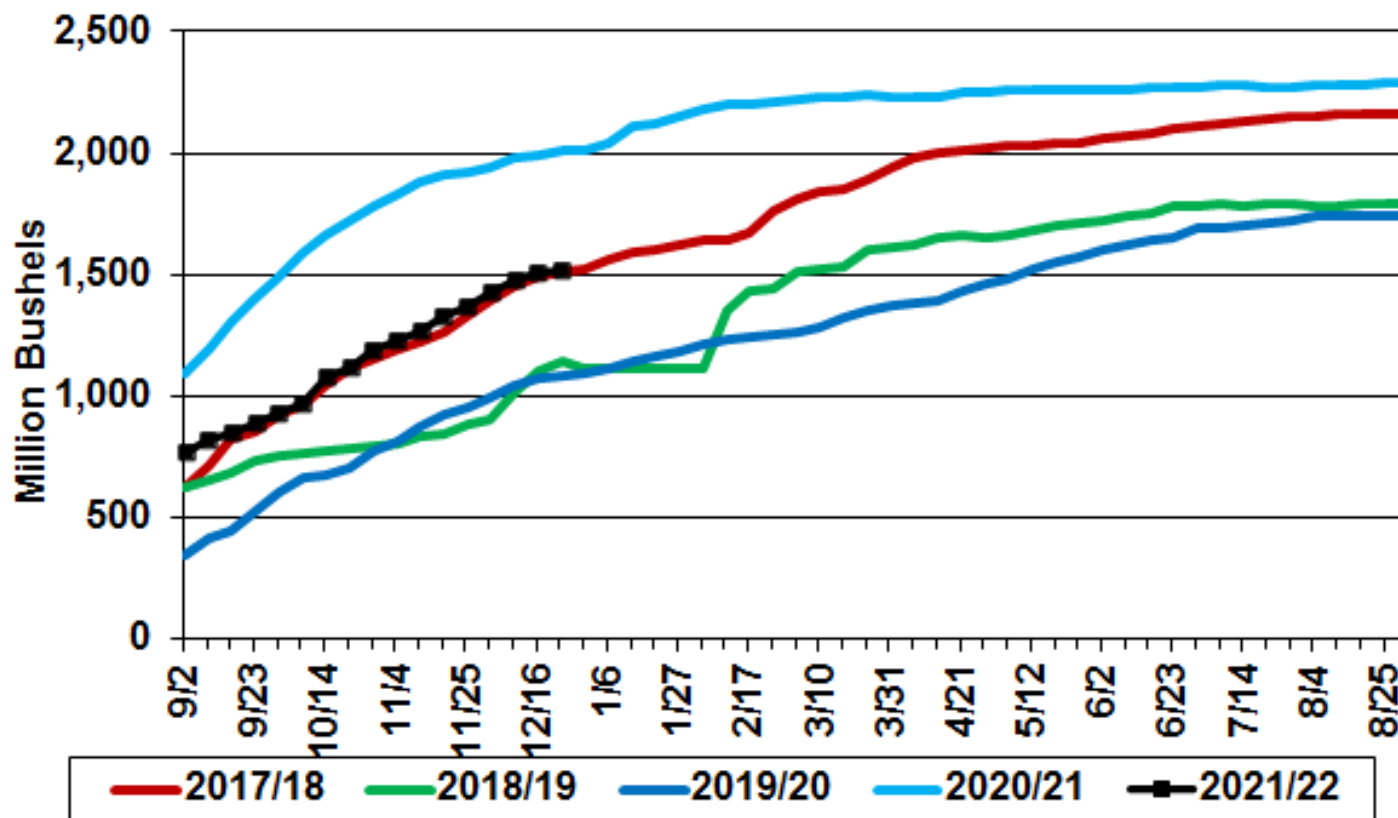
US Biodiesel Domestic Consumption

FAPRI Nov 2021 Preliminary Baseline



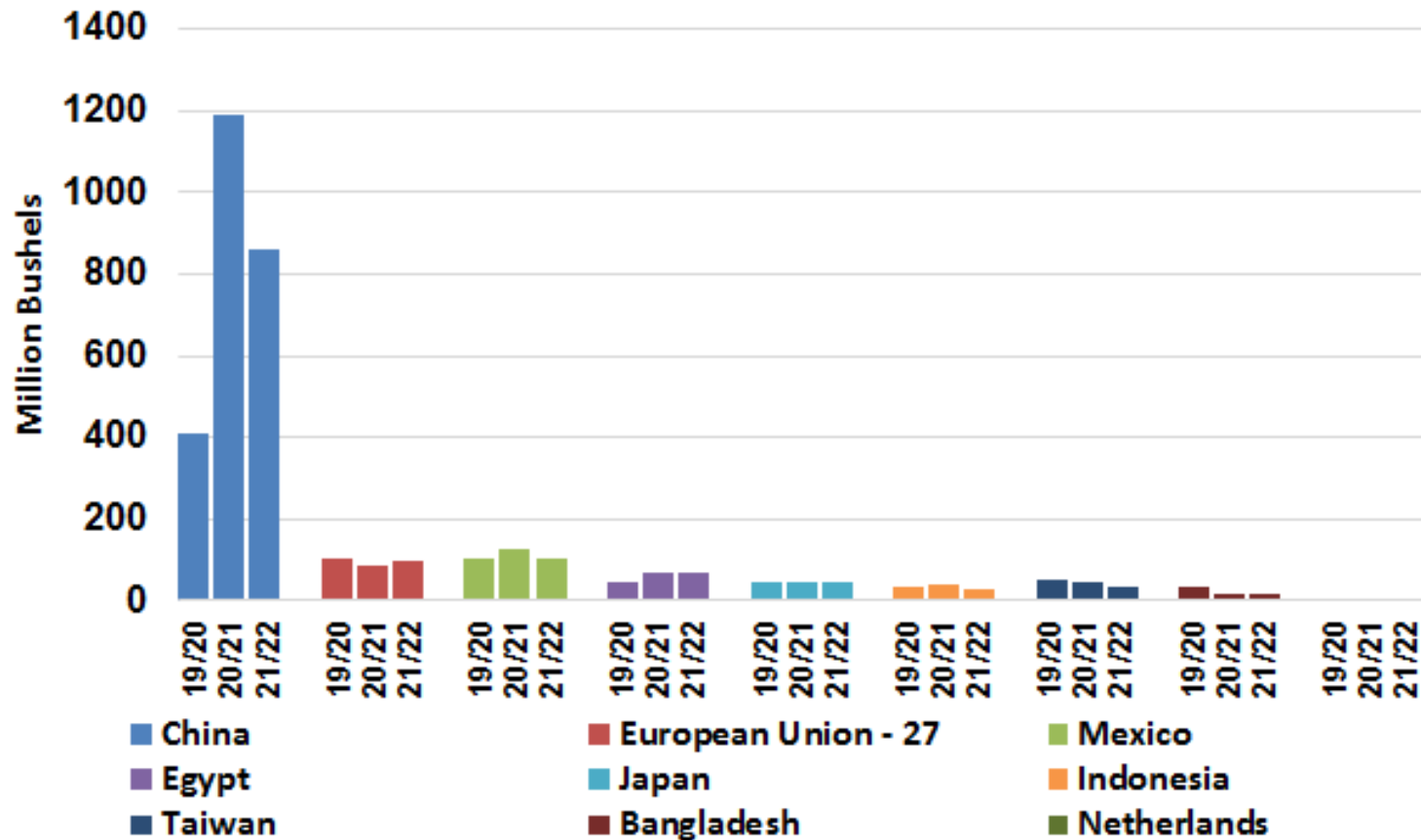
Accumulated Soybean Exports and Outstanding Sales to All Countries

(Sep 1, 2021 to Dec 23, 2021)



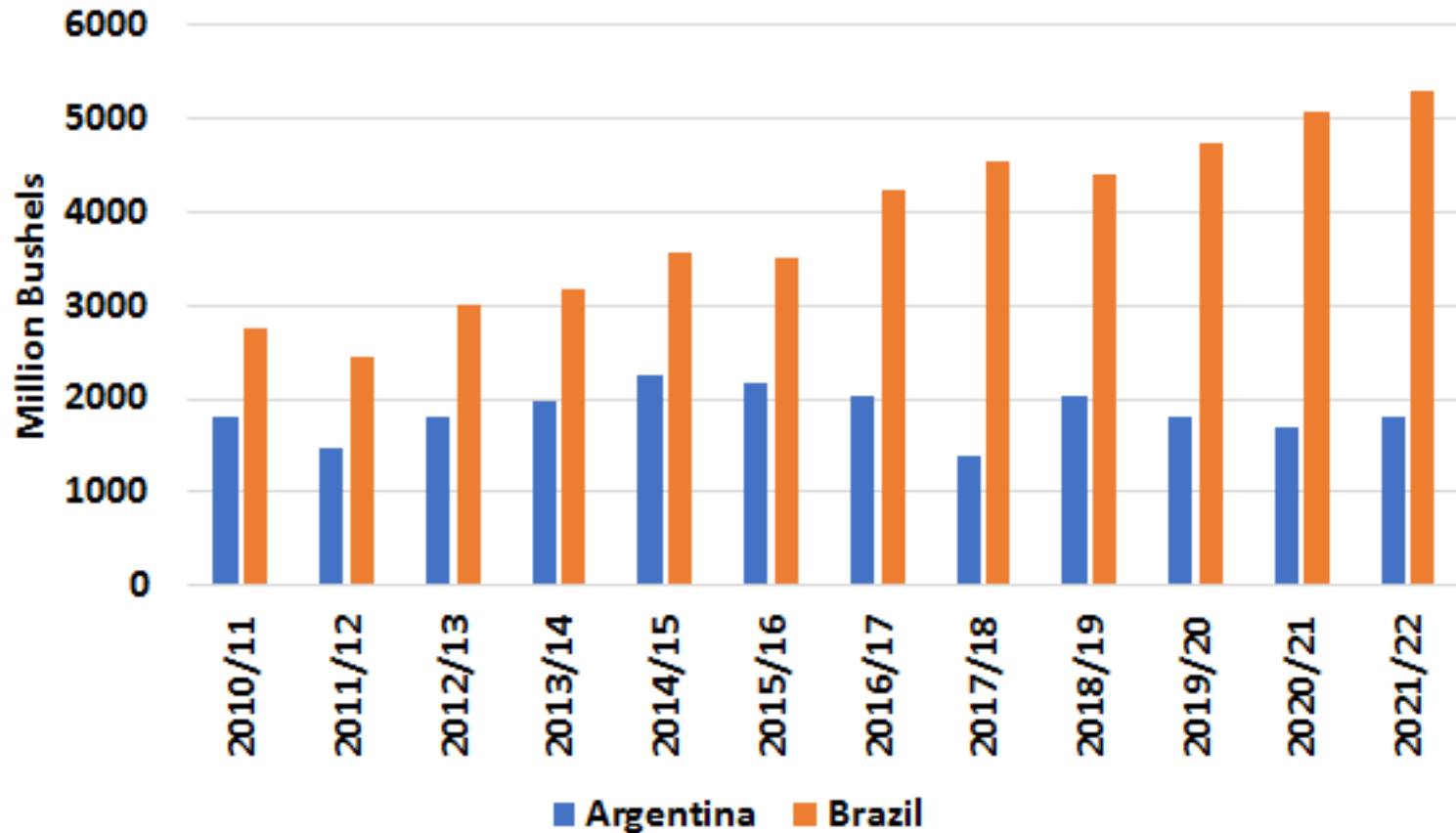
Source: USDA-FAS, US Export Sales

Accumulated Soybean Exports and Outstanding Sales (Sep 1, 2021 to Dec 23, 2021)



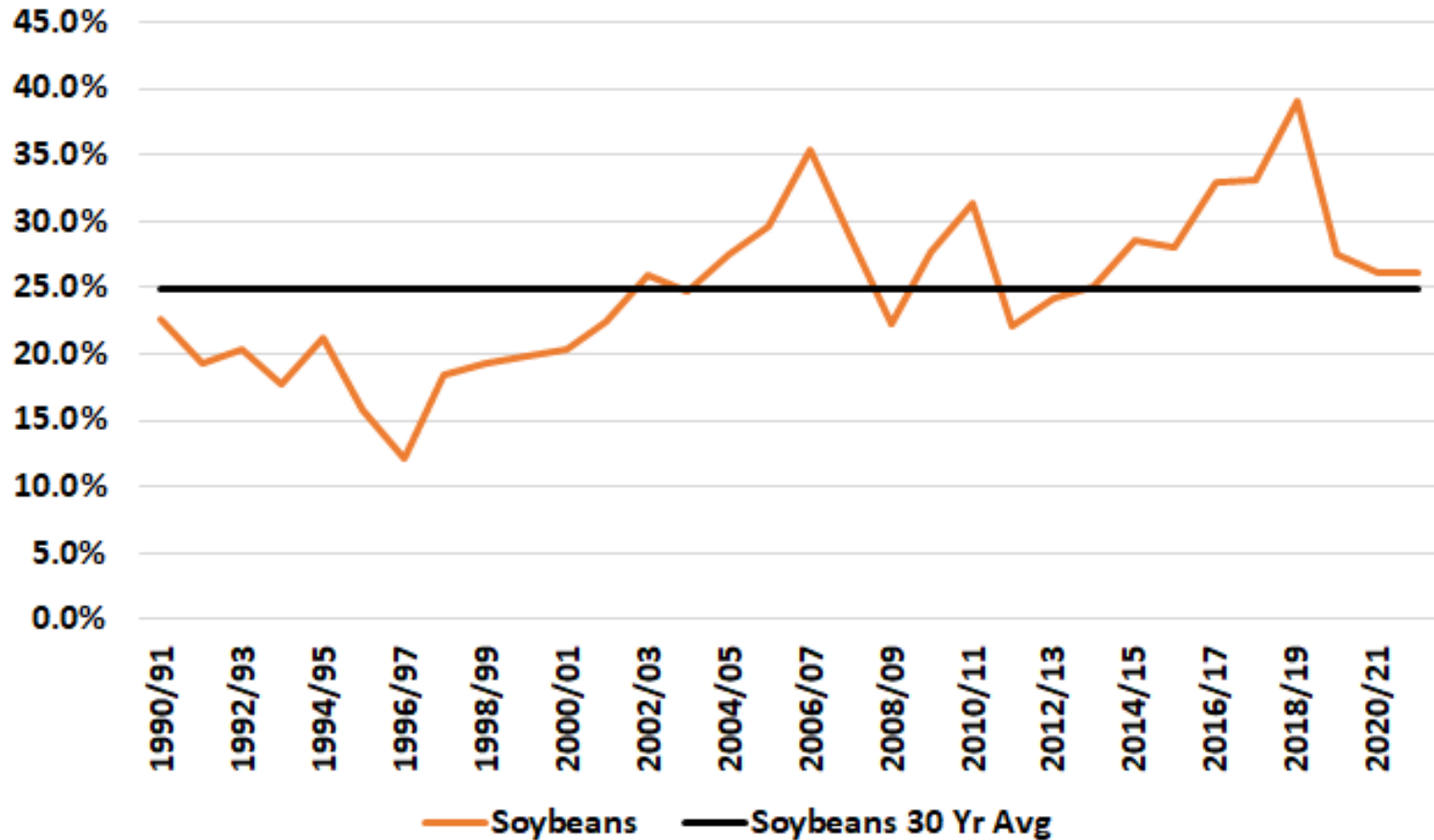
Record soybean production expected in Brazil

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Soybean Ending Stocks-to-Use Ratio

World less China

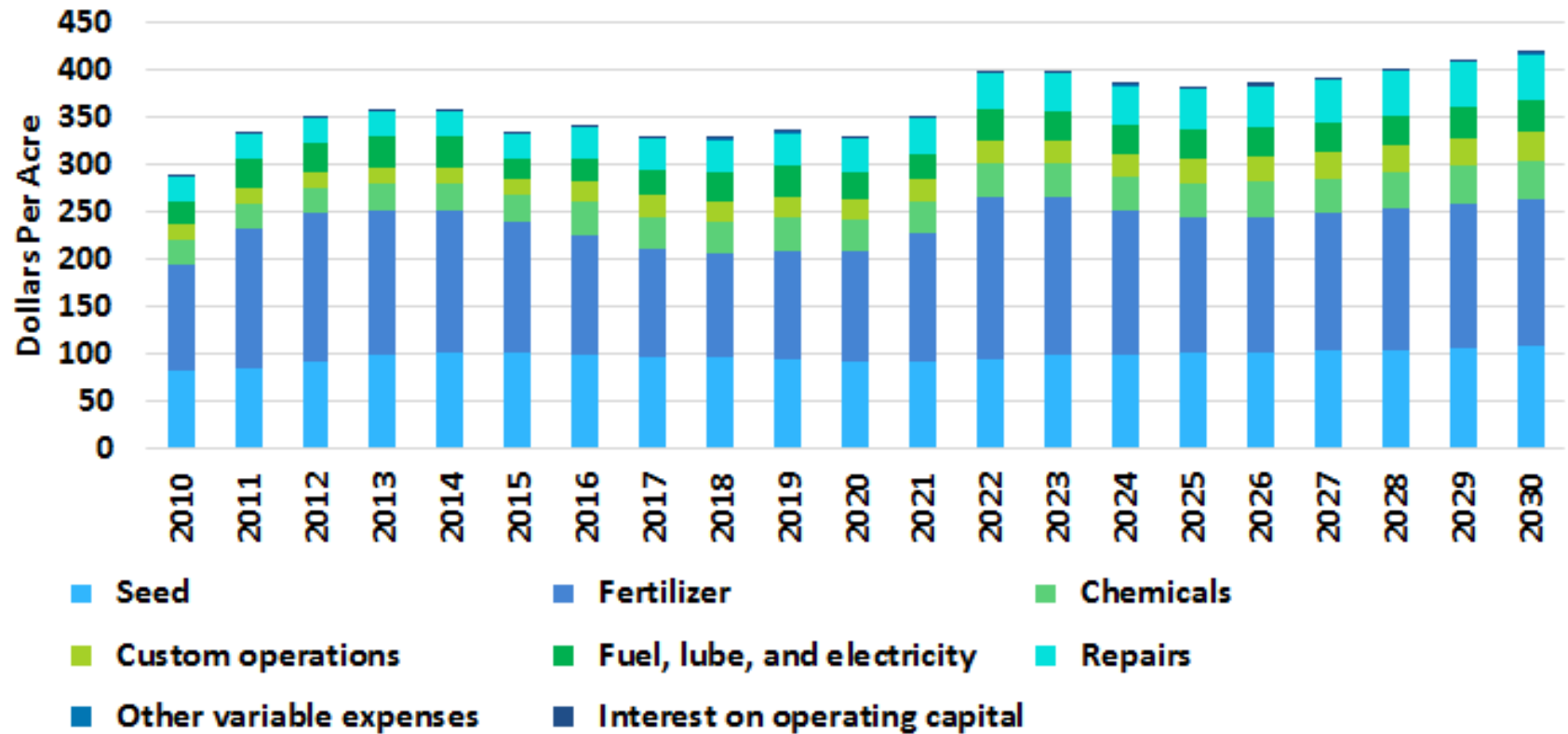


November 2022 Soybean Futures

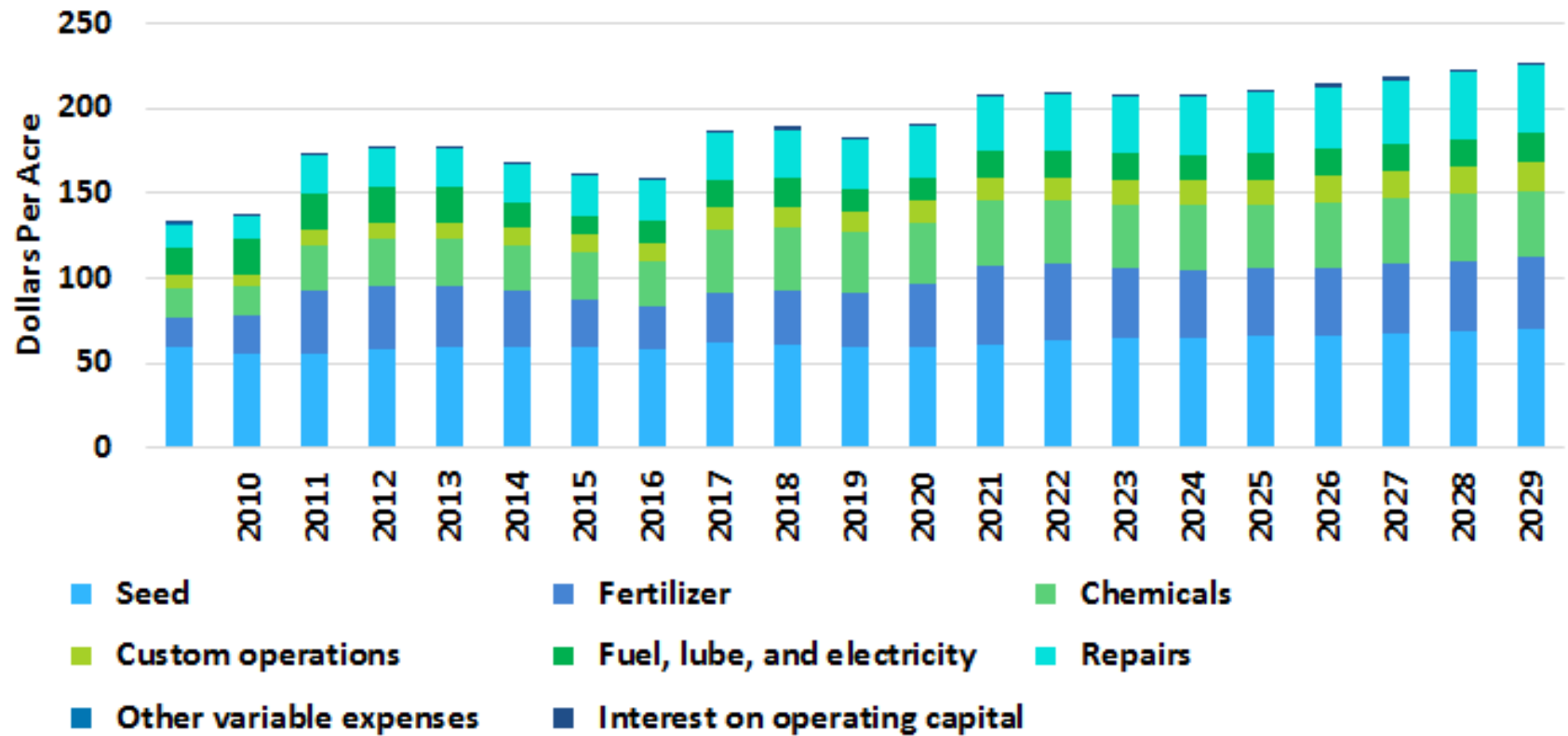
Source: Barchart (CME) 1-3-2022



U.S. Corn Cost of Production



U.S. Soybean Cost of Production



FAPRI and USDA Crop Area Projections

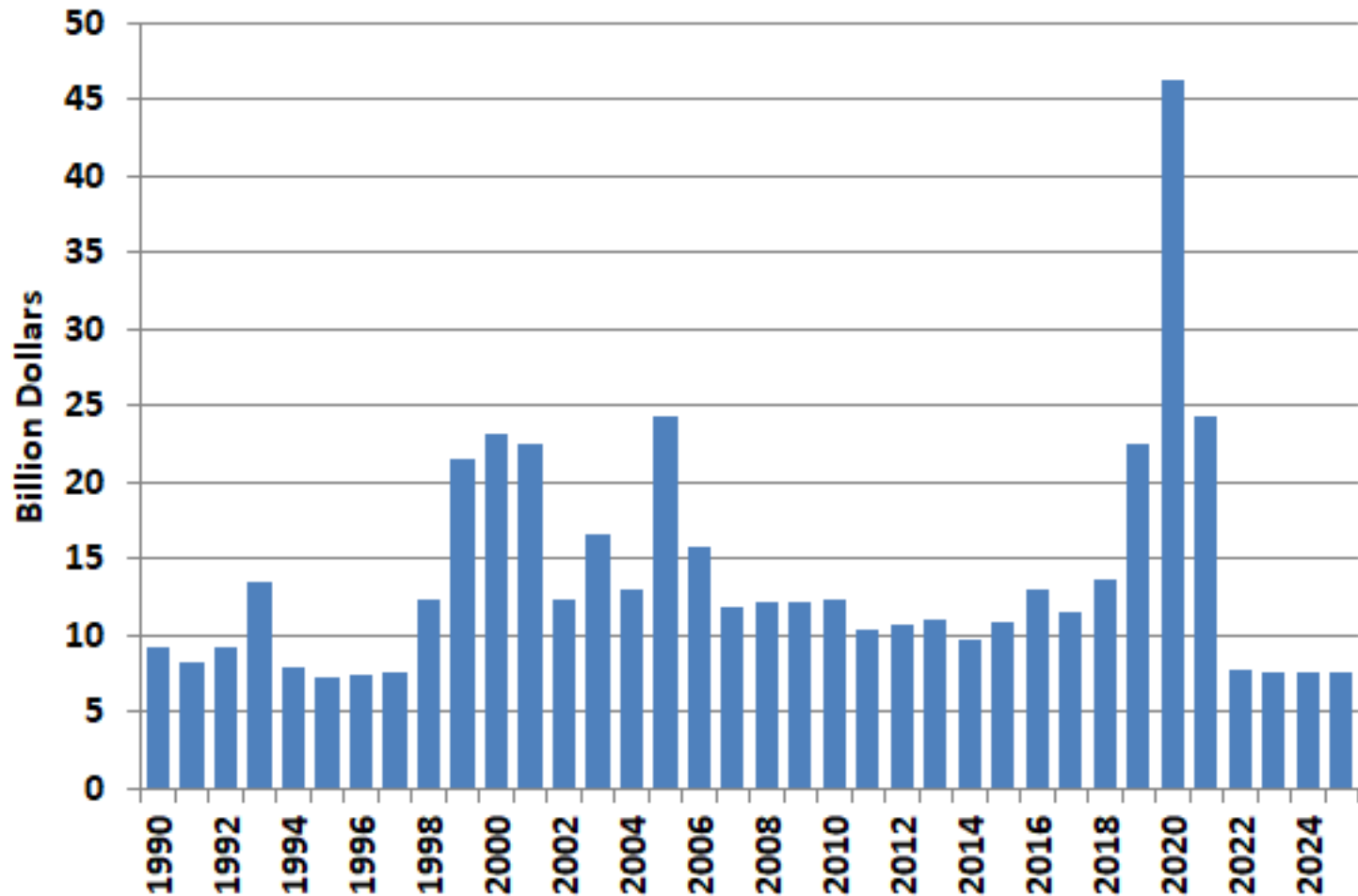
2022 US Crop Planted Area Projections

	FAPRI*	USDA**	2021
<i>Mil Acres</i>			
Corn	92.2	92.0	93.3
Soybeans	88.2	87.5	87.2
Wheat	47.6	49.0	46.7
Cotton	12.0	12.0	11.1
Rice	2.7	2.8	2.5
5-Crop Total	242.6	243.3	240.9

*Projections made in November 2021.

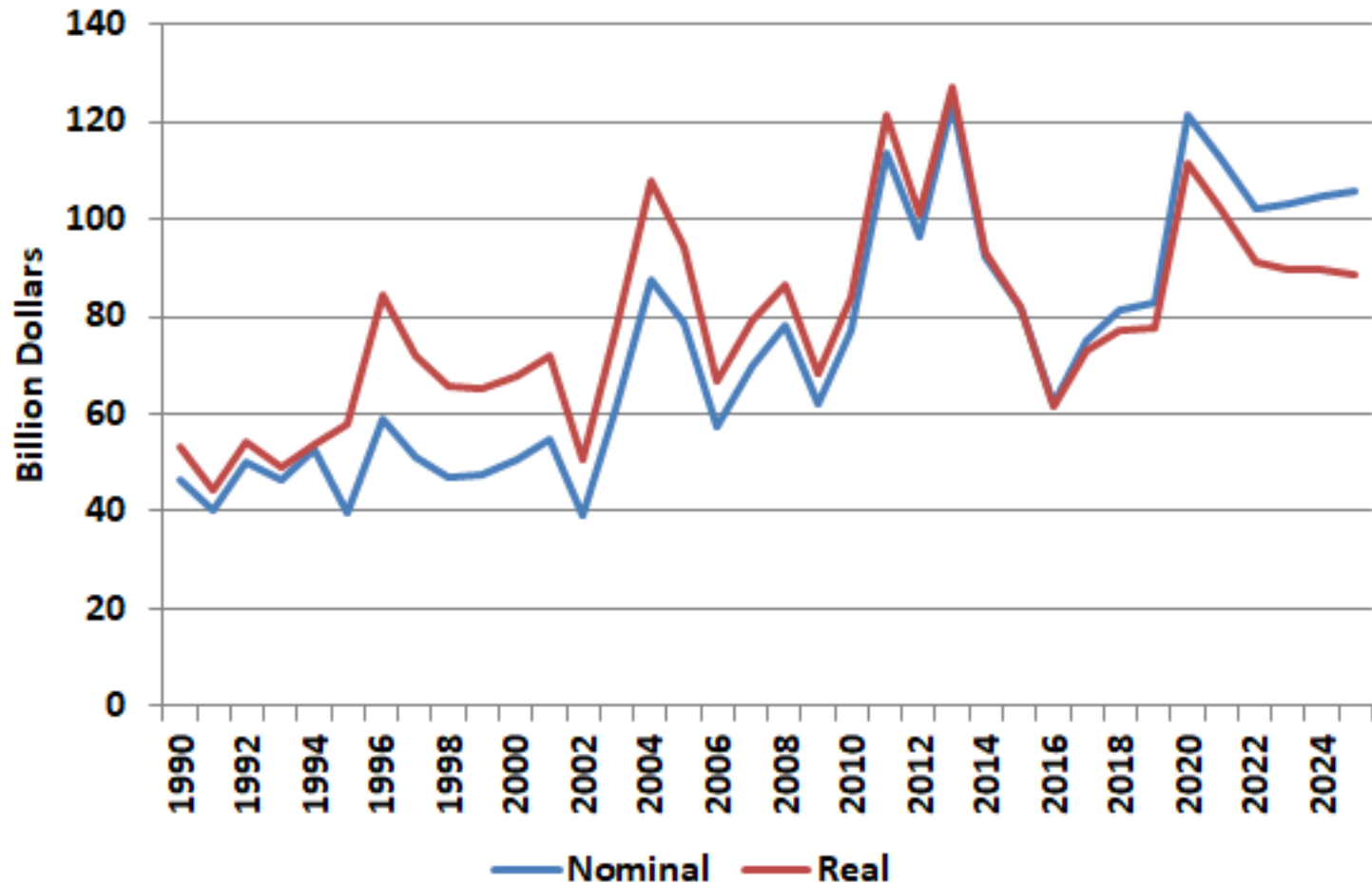
** USDA projections made in October 2021.

U.S. Federal Direct Government Payments to Farmers



U.S. Net Farm Income

FAPRI Nov 2021 Preliminary Baseline



Lending Implications

- ❑ Strong commodity prices have strengthened the financial position of farmers across 2021.
- ❑ Government payments are expected to be significantly lower in 2022.
- ❑ Farmers should minimize price and production risk locking in profitability in 2022 using the futures market and crop insurance on a portion of their production.
- ❑ Managing debt load and creating cash reserves would be good insurance against the impending roller coaster ride on commodity prices.

THANKS!

Speaker Contact Information:

John Kruse, PhD

Associate Research Professor

University of Missouri – Columbia

email: krusej@missouri.edu

US Soybean COP revised higher

Historical Revision to U.S. Soybeans Cost of Production

Year Planted	2018	2019	2020	2018	2019	2020	2018	2019	2020
<i>dollars per planted acre</i>	----- current -----			----- previous -----			----- difference -----		
Variable Costs									
Seed	62.39	60.92	59.51	57.40	56.10	56.37	9%	9%	6%
Fertilizer	29.17	31.27	31.92	24.06	25.79	25.89	21%	21%	23%
Chemicals	37.30	37.38	35.77	26.19	26.09	26.35	42%	43%	36%
Custom operations	12.45	12.74	12.67	10.52	10.80	11.04	18%	18%	15%
Fuel, lube, and electricity	15.78	16.00	15.65	14.54	15.56	15.00	9%	3%	4%
Repairs	28.13	28.69	29.20	24.09	24.53	25.18	17%	17%	16%
Other variable expenses	0.01	0.01	0.01	0.06	0.07	0.07	-83%	-86%	-86%
Interest on operating capital	1.93	1.94	0.39	1.64	1.64	0.31	18%	18%	24%
Hired labor	4.72	4.84	4.96	3.46	3.51	3.66	36%	38%	36%
Total Variable Costs	191.88	193.79	190.08	161.96	164.09	163.88	18%	18%	16%
Fixed Costs									
Unpaid Labor	16.26	17.14	17.43	20.57	21.61	22.52	-21%	-21%	-23%
Machinery Capital	107.55	110.68	110.56	92.65	95.26	97.24	16%	16%	14%
Rental Rate	150.33	151.81	151.45	145.39	148.48	150.00	3%	2%	1%
Taxes & Insurance	11.96	11.98	12.17	10.74	10.83	11.07	11%	11%	10%
General Overhead	17.88	18.33	18.69	18.89	19.44	19.95	-5%	-6%	-6%
Total Fixed Costs	303.98	309.94	310.30	288.24	295.62	300.79	5%	5%	3%
Regional Total Variable Costs of Production									
Heartland	186.72	188.94	184.72	152.25	154.55	154.34	23%	22%	20%
Northern Crescent	190.01	191.96	188.79	165.90	168.90	168.65	15%	14%	12%
Eastern Uplands	223.01	227.90	224.95	166.78	170.68	170.41	34%	34%	32%
Southern Seaboard	217.14	221.38	218.41	184.51	188.48	188.28	18%	17%	16%
Mississippi Portal	275.45	281.27	274.38	238.05	243.72	243.42	16%	15%	13%
Prairie Gateway	182.78	182.76	179.23	159.49	161.94	161.61	15%	13%	11%
Northern Plains	154.75	155.54	153.00	141.06	142.98	142.94	10%	9%	7%

Argentina 2021/22 Crop Area, Yield, and Production

(December 2021 Estimates)

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	Official Argentina Source - Bolsa de Cereales						USDA - PSD Database					
	Area		Yield		Production		Area		Yield		Production	
	Mil Acres		Bu/Acre		Mil Bu		Mil Acres		Bu/Acre		Mil Bu	
	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22
<i>english units</i>												
Corn	16.3	18.0	121.9	124.4	1,988	2,244	15.8	16.8	125.7	127.7	1,988	2,146
Soybeans	41.8	NA	40.6	NA	1,697	NA	40.7	40.5	41.7	44.9	1,698	1,819
<hr/>												
	Area		Yield		Production		Area		Yield		Production	
	1000 HA		MT/HA		1000 MT		1000 HA		MT/HA		1000 MT	
	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22
<i>metric units</i>												
Corn	6,600	7,300	7.65	7.81	50,500	57,000	6,400	6,800	7.89	8.02	50,500	54,500
Soybeans	16,900	16,500	2.55	2.67	43,100	44,000	16,470	16,400	2.81	3.02	46,200	49,500

Sources: USDA-FAS, PSD Database, 12/2021, Bolsa de Cereals 12/2021.