

The U.S. Ethanol Industry

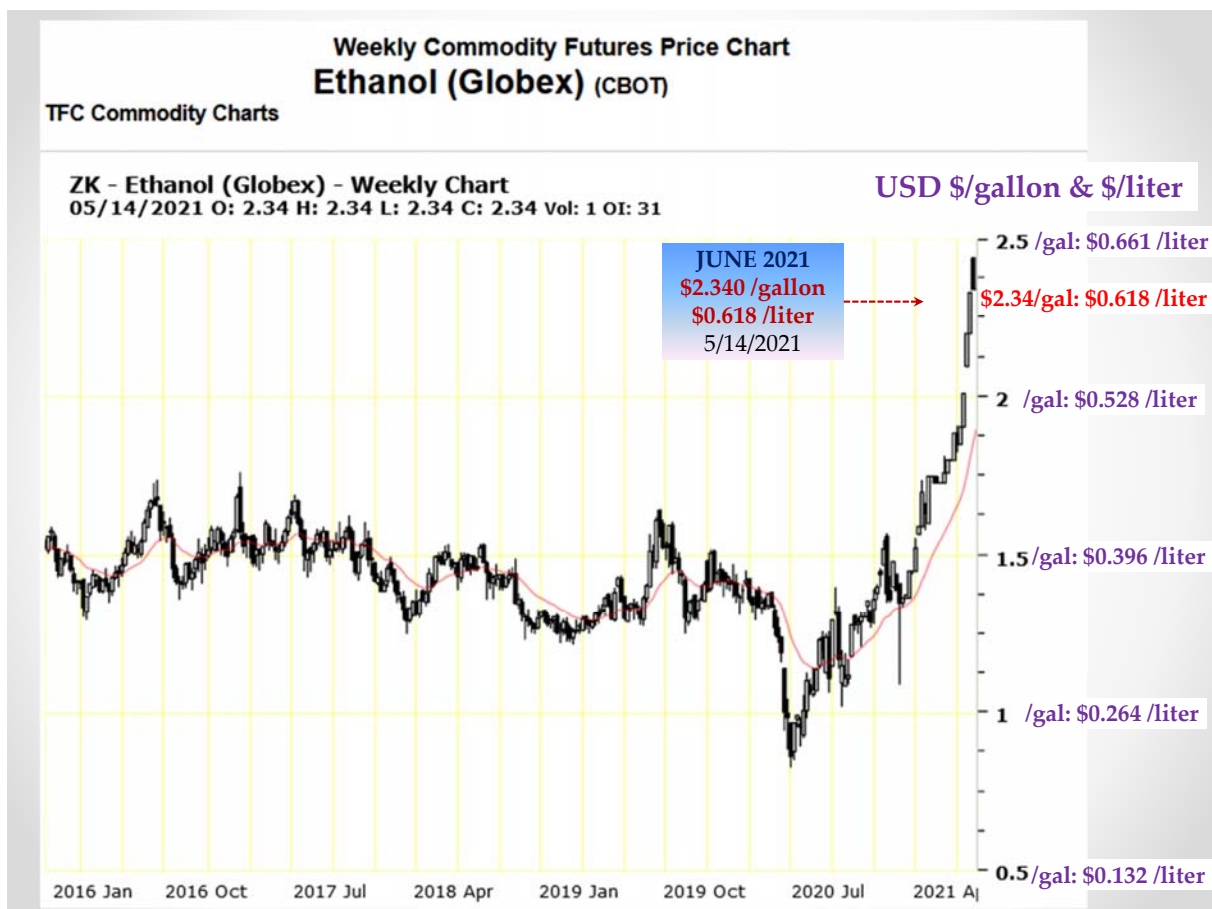
Trends in Prices & Profitability

Part 1 of Information for the U.S. Grains Council

May 16, 2021



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Extension Agricultural Economist
Kansas State University



Ethanol & RBOB Futures

Weekly Charts: January 2016 – May 14, 2021



\$Ethanol / \$RBOB per gallon

3/2/2020	= 1.28 / 1.54 = 0.83
4/1/2020	= 0.84 / 0.55 = 1.52*
5/1/2020	= 1.00 / 0.77 = 1.30*
6/1/2020	= 1.15 / 1.07 = 1.07
7/1/2020	= 1.25 / 1.22 = 1.03
8/3/2020	= 1.11 / 1.21 = 0.92
9/1/2020	= 1.31 / 1.22 = 1.07
10/1/2020	= 1.36 / 1.15 = 1.18
11/2/2020	= 1.39 / 1.05 = 1.32
12/1/2020	= 1.49 / 1.22 = 1.22
1/4/2021	= 1.50 / 1.37 = 1.09
2/1/2021	= 1.71 / 1.59 = 1.08
3/1/2021	= 1.68 / 1.89 = 0.89
4/1/2021	= 1.85 / 2.00 = 0.93
5/3/2021	= 2.34 / 2.09 = 1.19
5/14/2021	= 2.34 / 2.22 = 1.06*

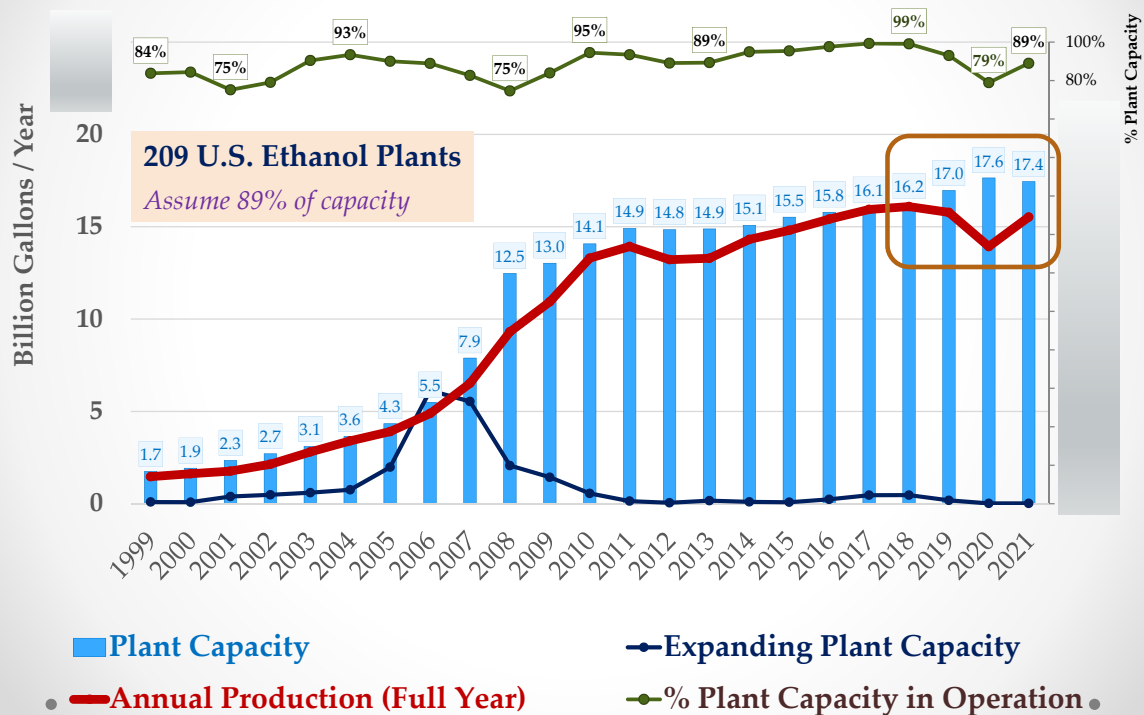
CBOT Corn Futures

Weekly Continuous Chart: October 2015 – May 14, 2021



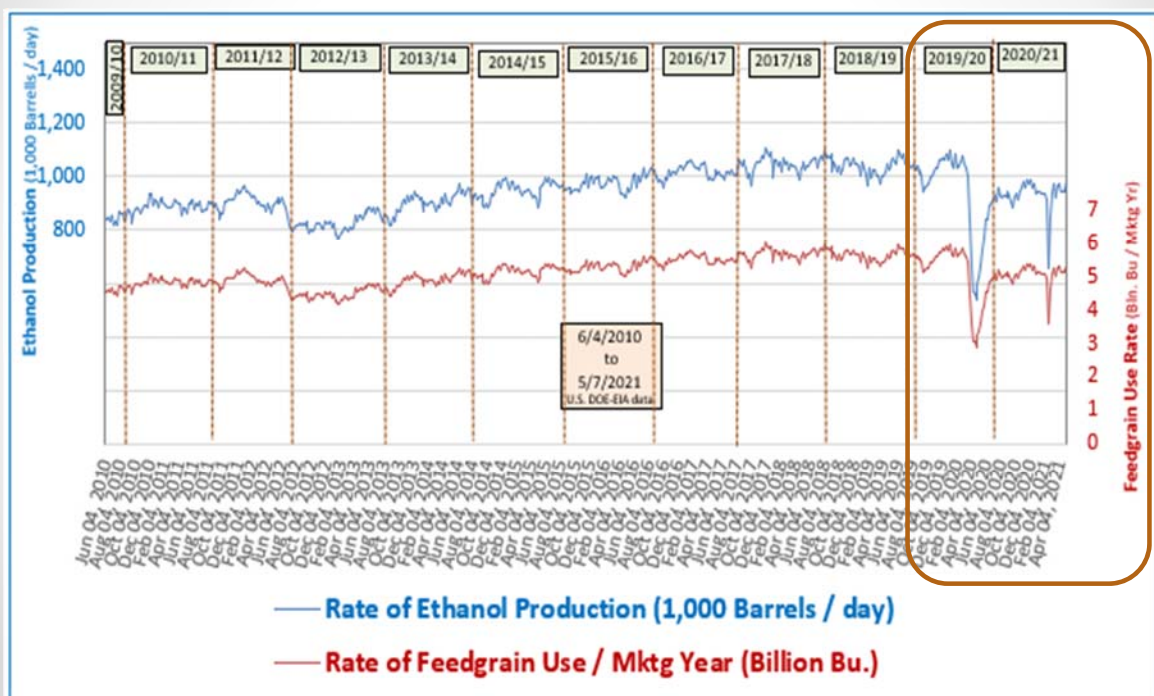
U.S. Ethanol Capacity & Production

Source: Renewable Fuels Association – As of May 14, 2021

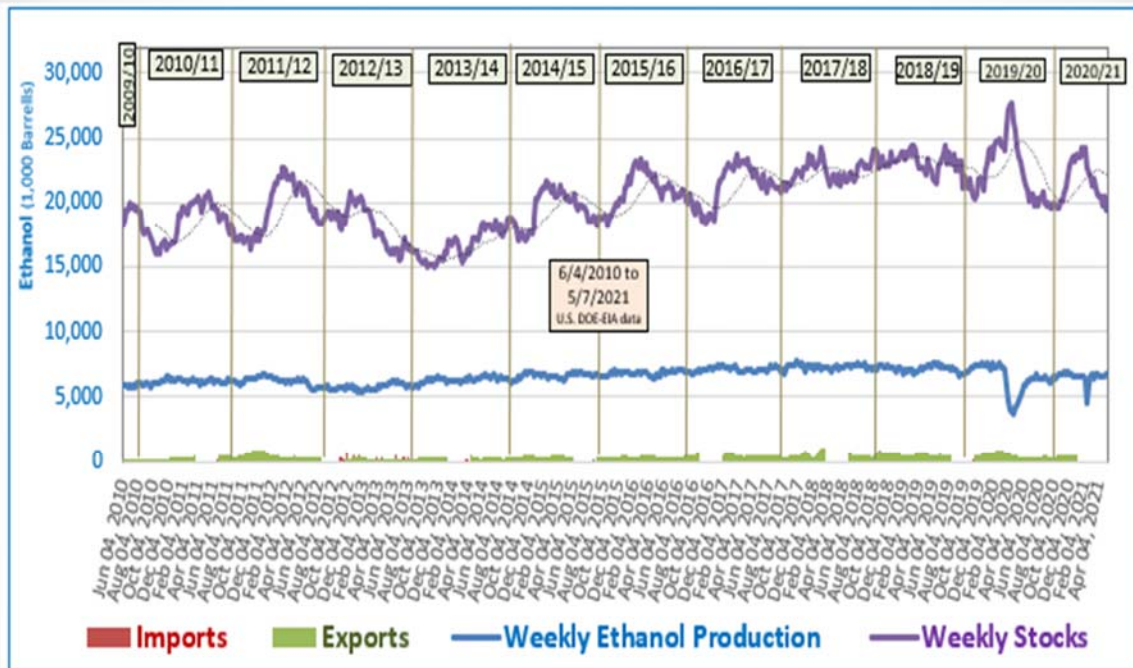


U.S. Ethanol Production & Corn Use

Weekly EIA ethanol data & KSU corn use est's. (6/4/2010 thru 5/7/2021)

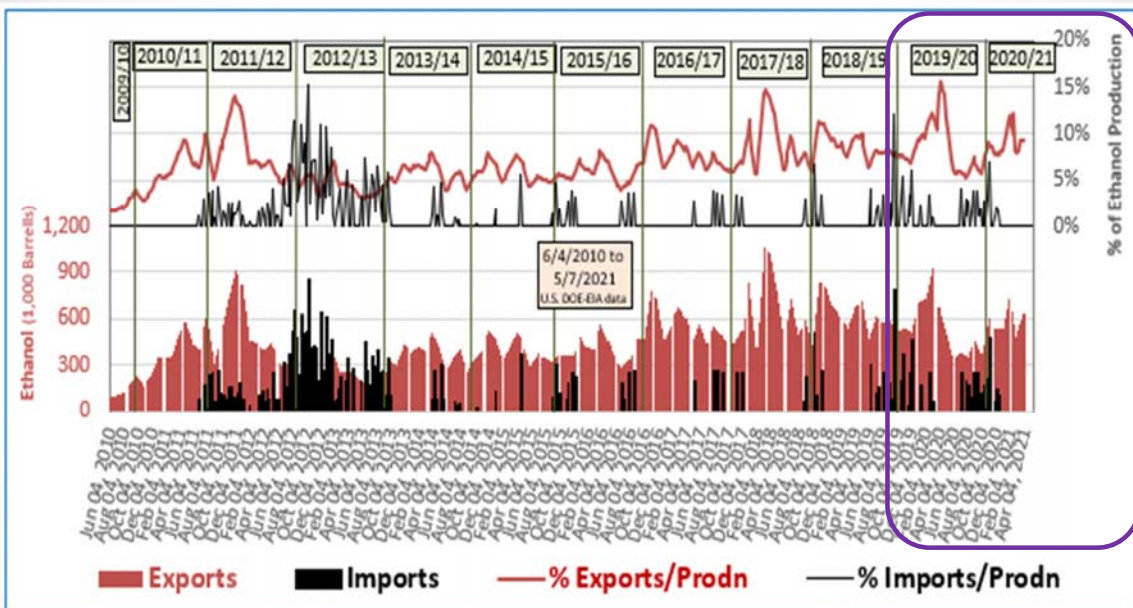


Weekly U.S. Ethanol Production, Imports, Exports & Stocks (thru 5/7/2021)



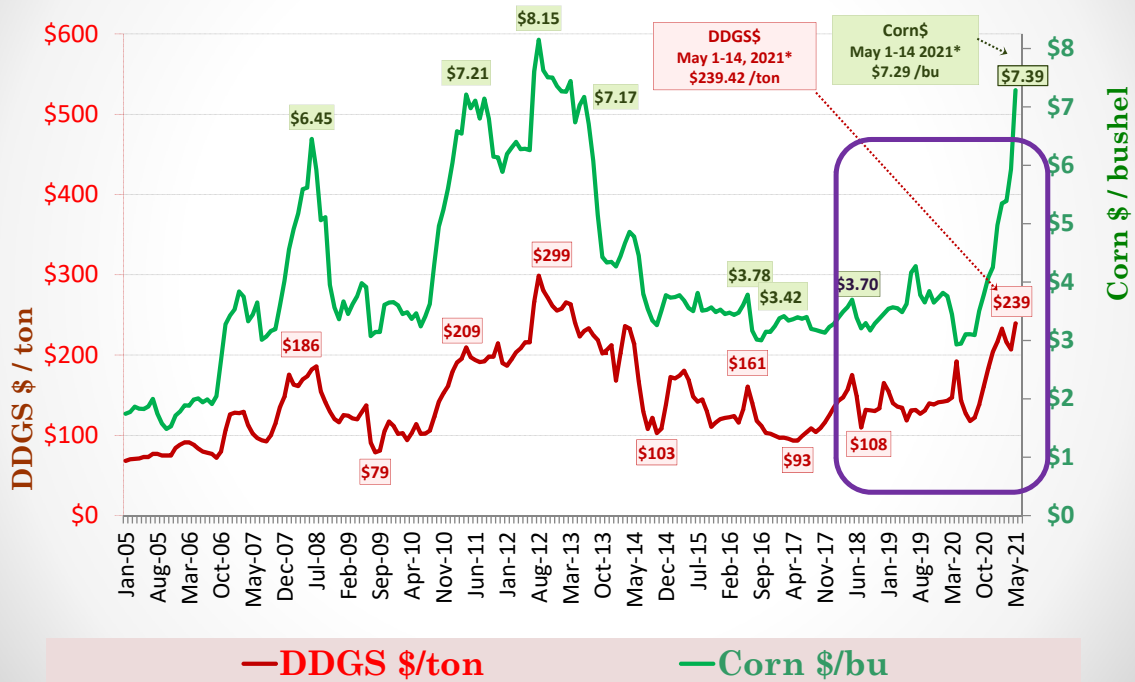
U.S. Ethanol

Weekly Imports, Monthly Exports & their %-of-Stocks (thru 5/7/2021)



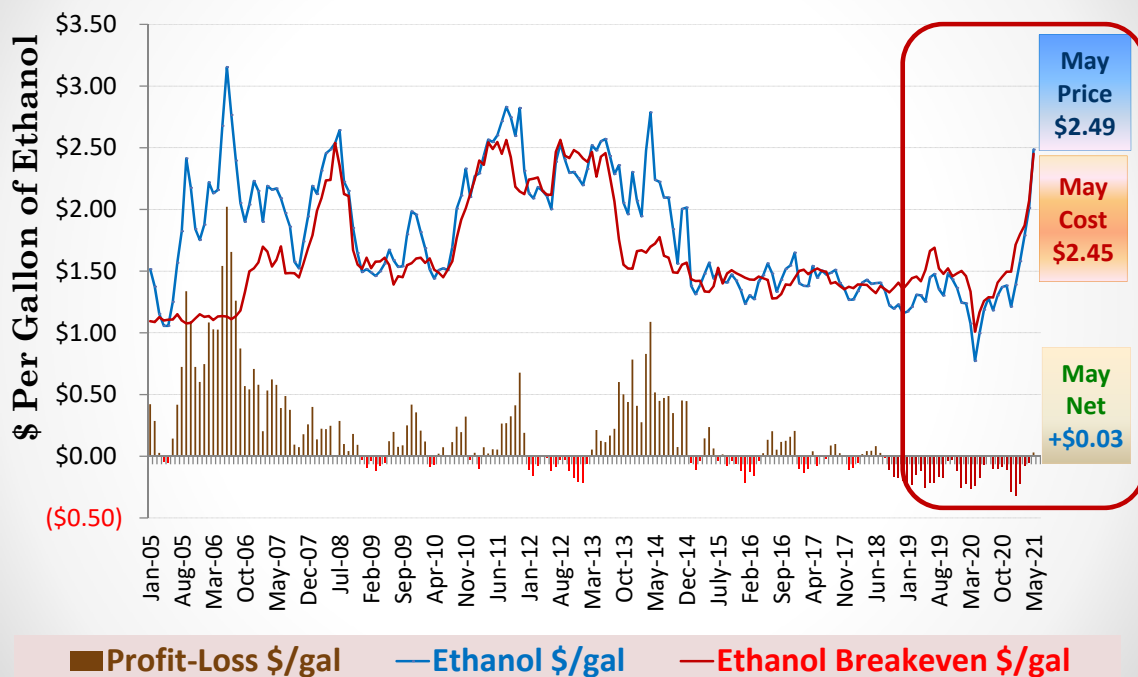
Ethanol DDGS & Corn Input Prices

ISU Ethanol Plant Model (January 2005 – March 5, 2021)



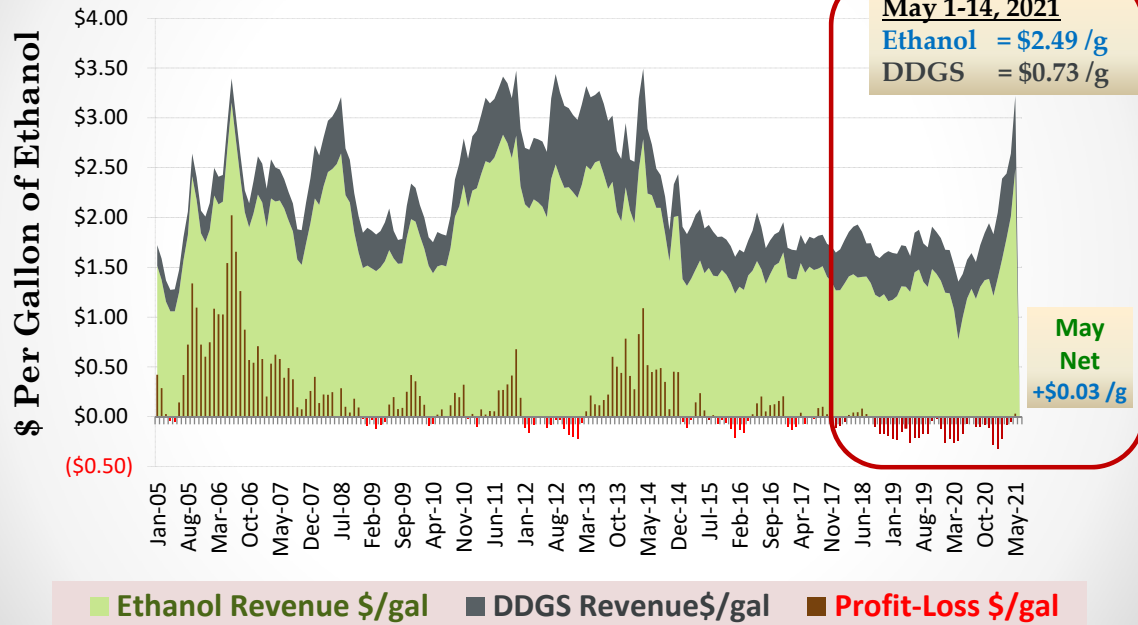
Ethanol Price, Cost & Profits

ISU Ethanol Plant Model (January 2005 – May 14, 2021)

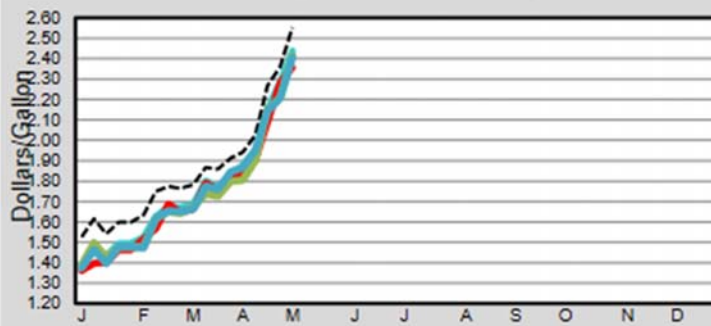


Ethanol Revenues & Net Returns

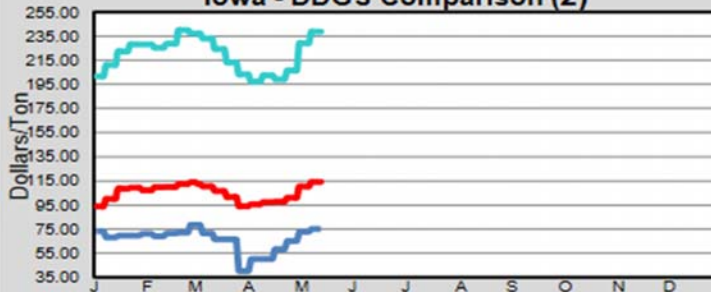
ISU Ethanol Plant Model (January 2005 – May 14, 2021)



Weekly Ethanol Prices (1)



Iowa - DDGS Comparison (2)



- (1) — IA — NE --- ECB — SD — KS
 (2) — Dried — Modified — Wet

Corn Markets



KANSAS STATE
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Department of Agricultural Economics

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— DTN Grains® Standard —

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Todd's Take

A Sense of Grains' Impending Doom

Fri May 14, 2021 09:52 AM CDT
Earlier this week, corn prices traded above \$7 and soybeans were above \$16. Why are so many expecting the bottom to fall out?

Cash Market Moves
Mississippi River at
Memphis Reopens for
Business Despite
Cracked Bridge

Todd's Take
A Sense of Grains'
Impending Doom

Iowa Battle Lines Drawn
on E15 Mandate
Gas Retailers Oppose
Iowa Bill Despite
Receiving Millions in
Industry Grants

KCS Switches Tracks to
CN From CP
Canadian Railroads'
Battle to Create Single
North American Rail
Line Takes Turn

Hard Winter Wheat Tour
Preview
Hard Winter Wheat
Tour Assesses Crop
Size, Quality Next
Week

More News

5/13 01:56PM
Scrutinize Your Stand
Dude, Where's My Stand?
It's Time to Scout Crop
Emergence.

5/13 01:21PM
View From the Cab
Balancing Love and
Business in Iowa

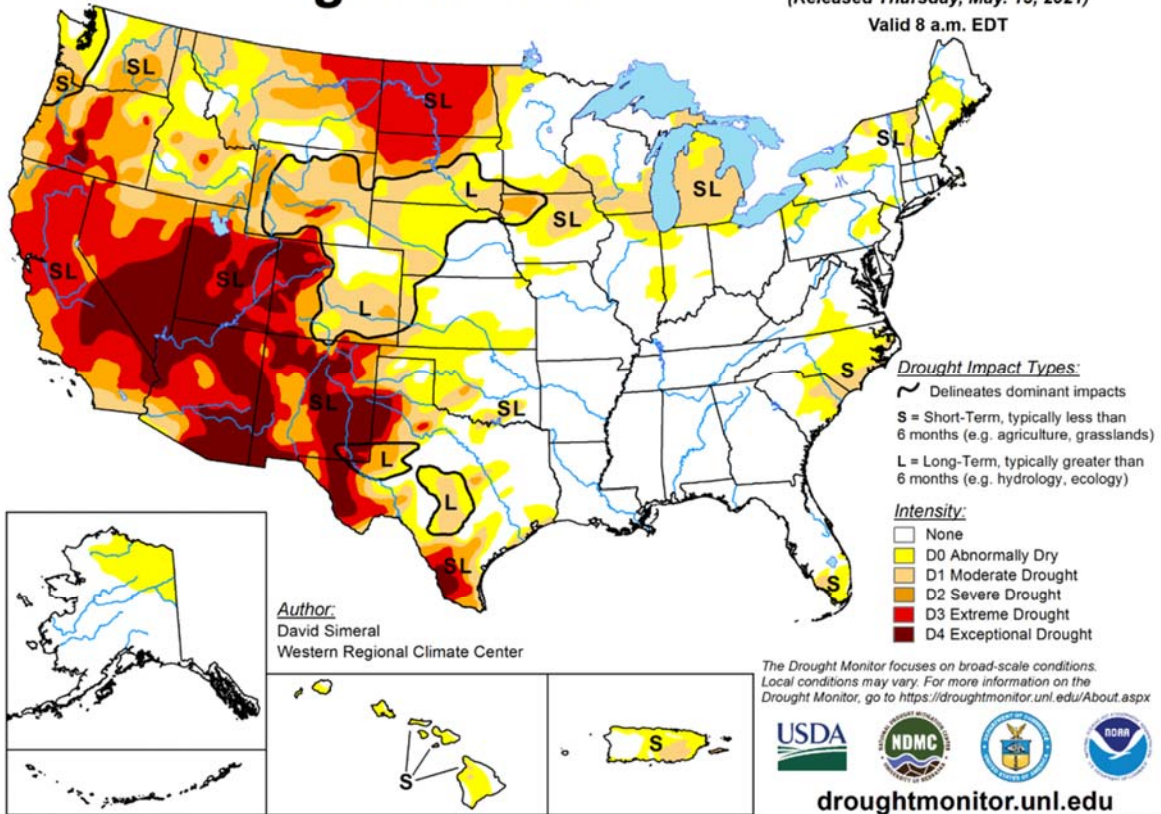
5/16 07:06PM
DTN's Quick Takes
Periodic Updates on the
Grains, Livestock Futures
Markets

5/14 01:54PM
DTN Closing Grain Comments
In Baffling, Wide-Range
Trade, July Corn Plunges
Despite China Again Buying
More Corn

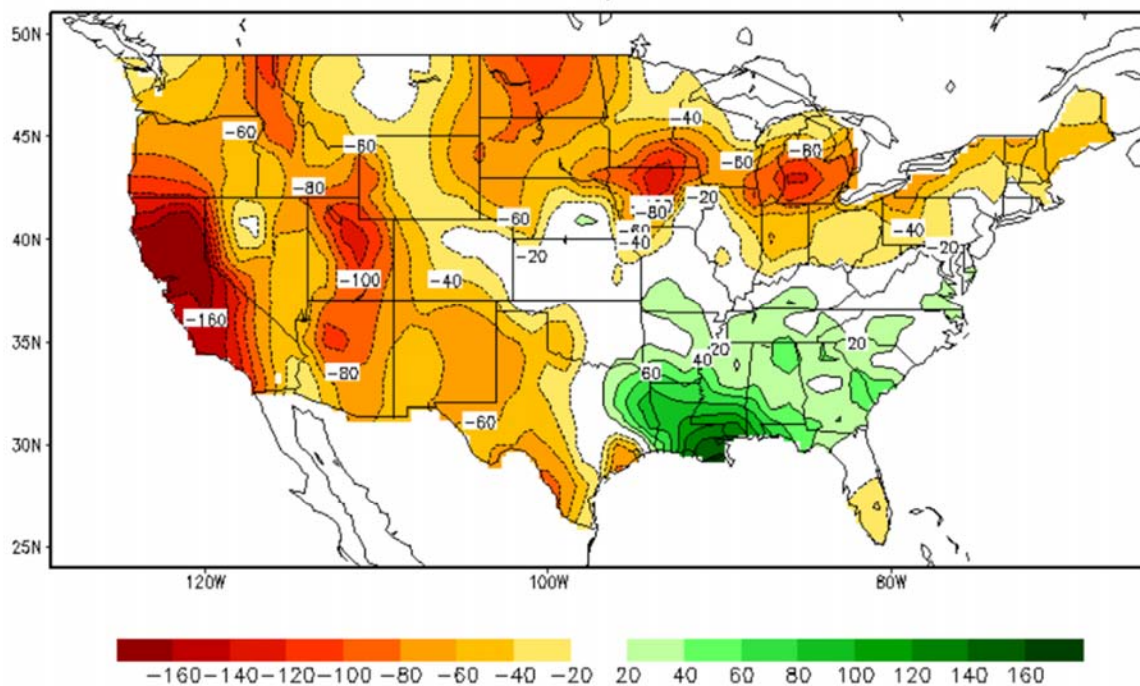
5/14 04:02PM
DTN Closing Livestock
Comments
Livestock Contracts Know
Next Week Will Pose
Challenges

U.S. Drought Monitor

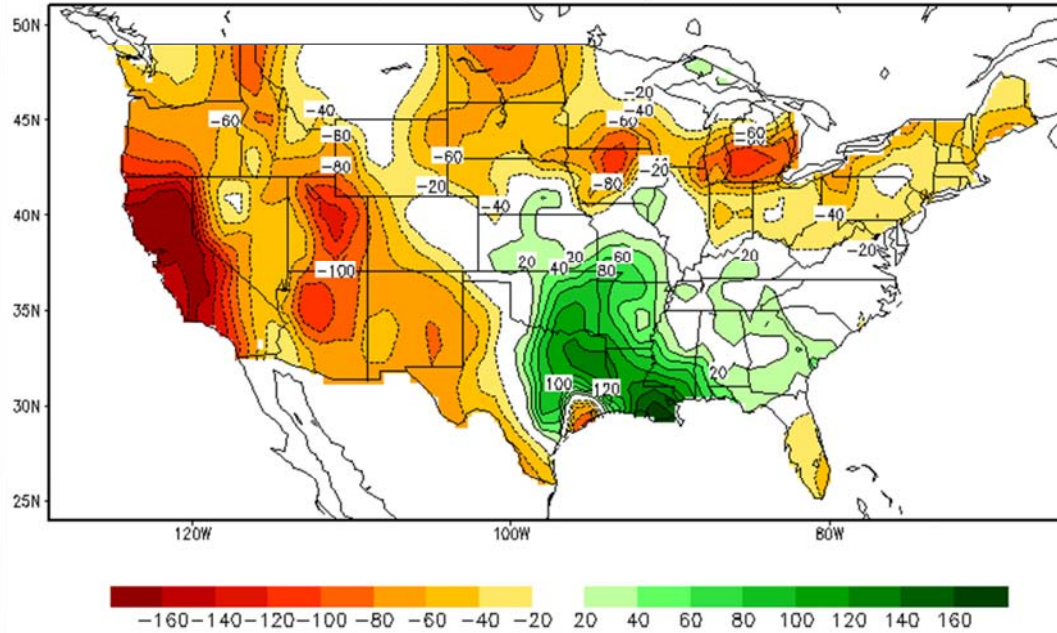
May 11, 2021
(Released Thursday, May. 13, 2021)
Valid 8 a.m. EDT



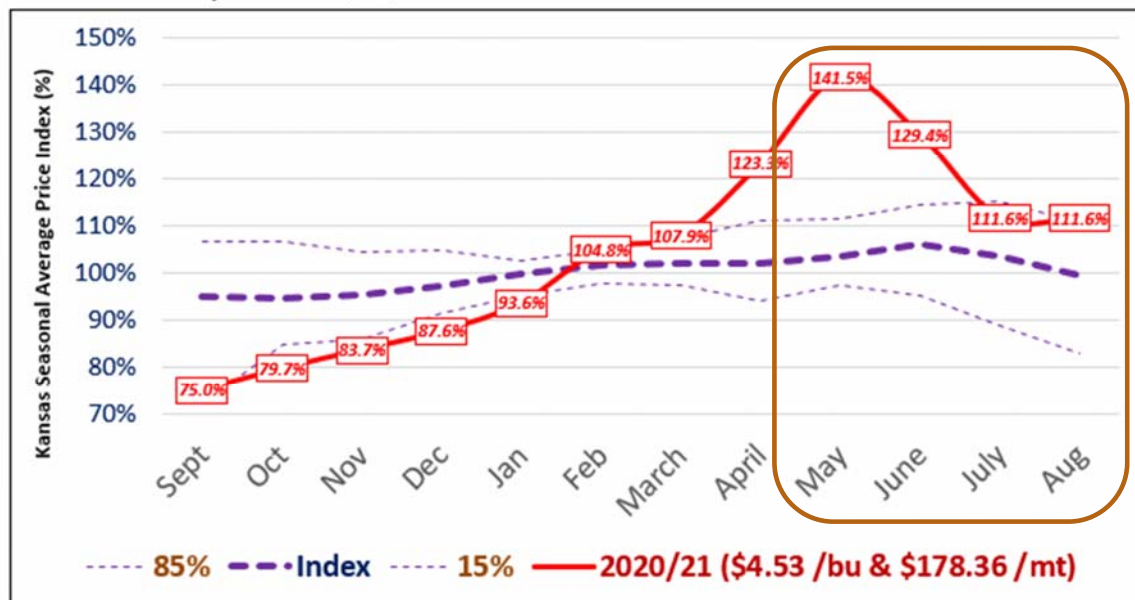
Calculated Soil Moisture Anomaly (mm) MAY 15, 2021



Predicted Soil Moisture Anomaly (mm)
(16May2021–23May2021)

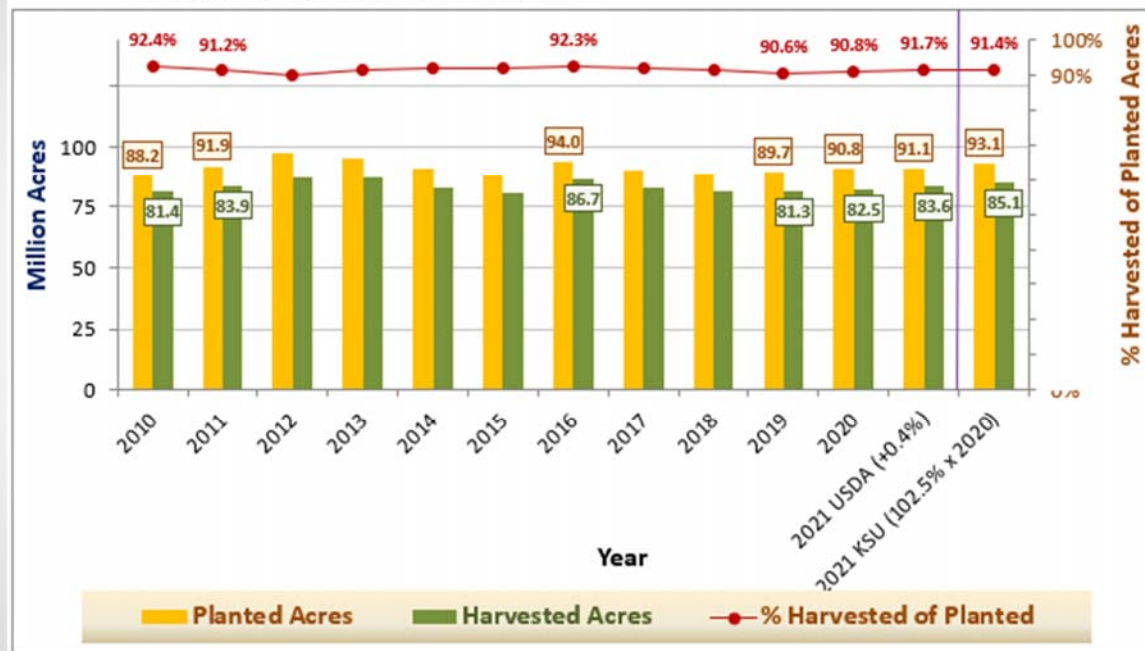


Kansas Corn Seasonal Price Index (MY 1999/00 – MY 2019/20) plus “Current Crop”
MY 2020/21 as of May 14, 2021

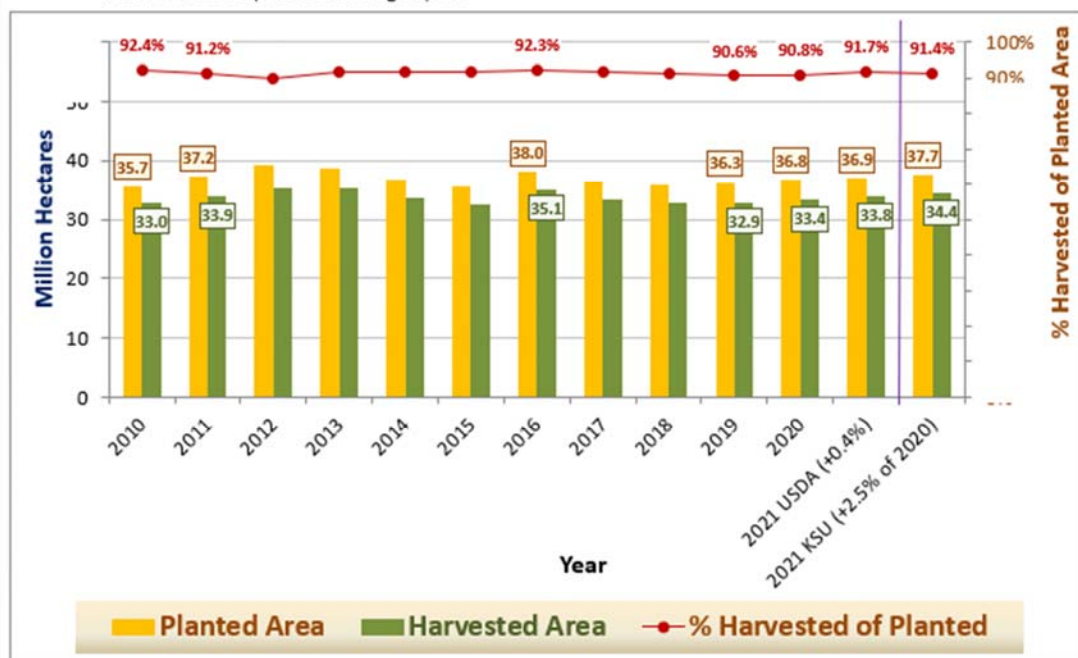


Futures Based Projection for “Next Crop” MY 2021/22 = \$4.81 /bu & \$189.52 /mt

U.S. Corn Acreage for Years 2010 Through 2021 as of the May 12, 2021 USDA Report & March 30, 2021 USDA Prospective Planting Report



U.S. Corn Area for Years 2010 Through 2021 as of the May 12, 2021 USDA Report & March 30, 2021 USDA Prospective Planting Report



U.S. Corn Yield Trend for 2005-2021 as of the May 12, 2021 USDA Report with KSU Projection

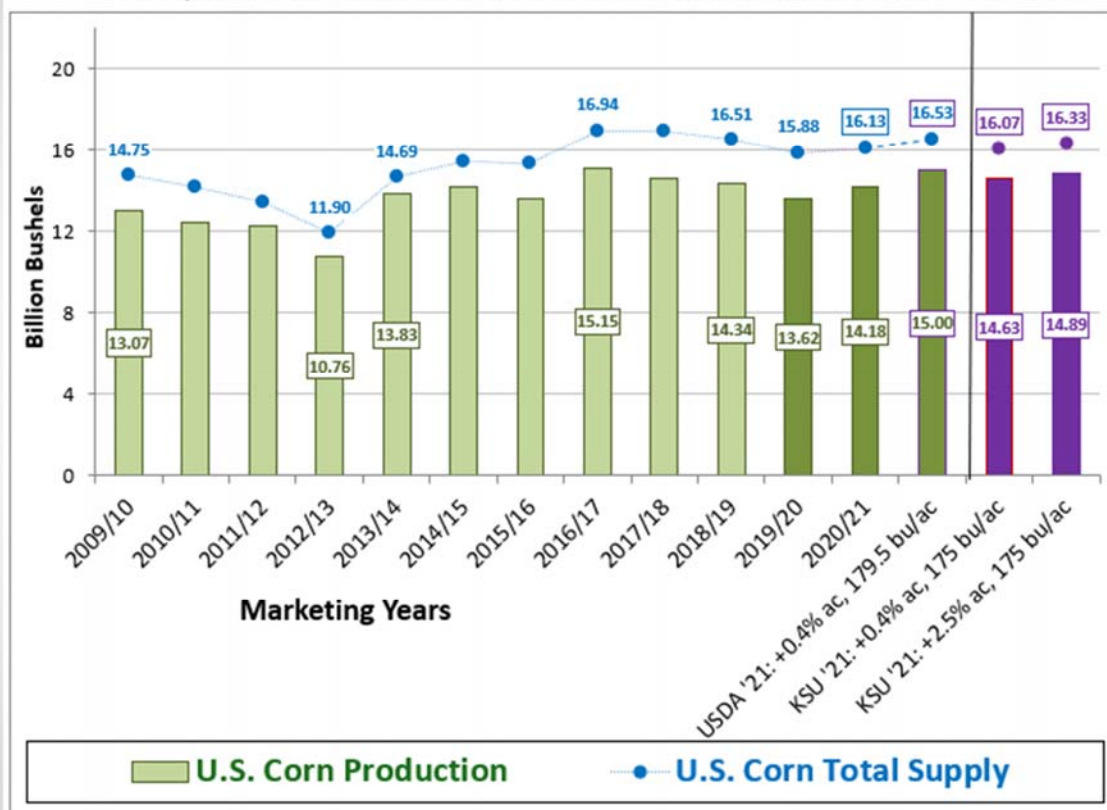


U.S. Corn Yield Trend for 2005-2021 as of the May 12, 2021 USDA Report with KSU Projection



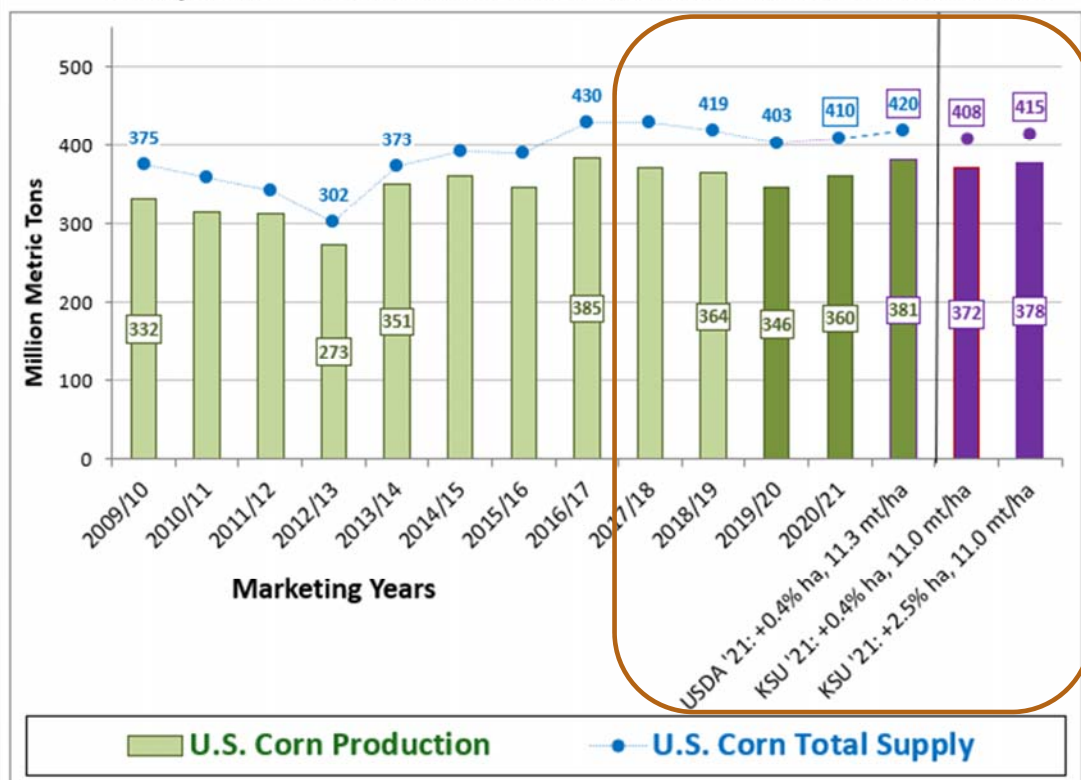
U.S. Corn Production & Total Supplies: MY 2009/10 - "New Crop" MY

2021/22 as of the May 12, 2021 USDA WASDE, Outlook Conference, Prospective Plantings, & KSU #'s

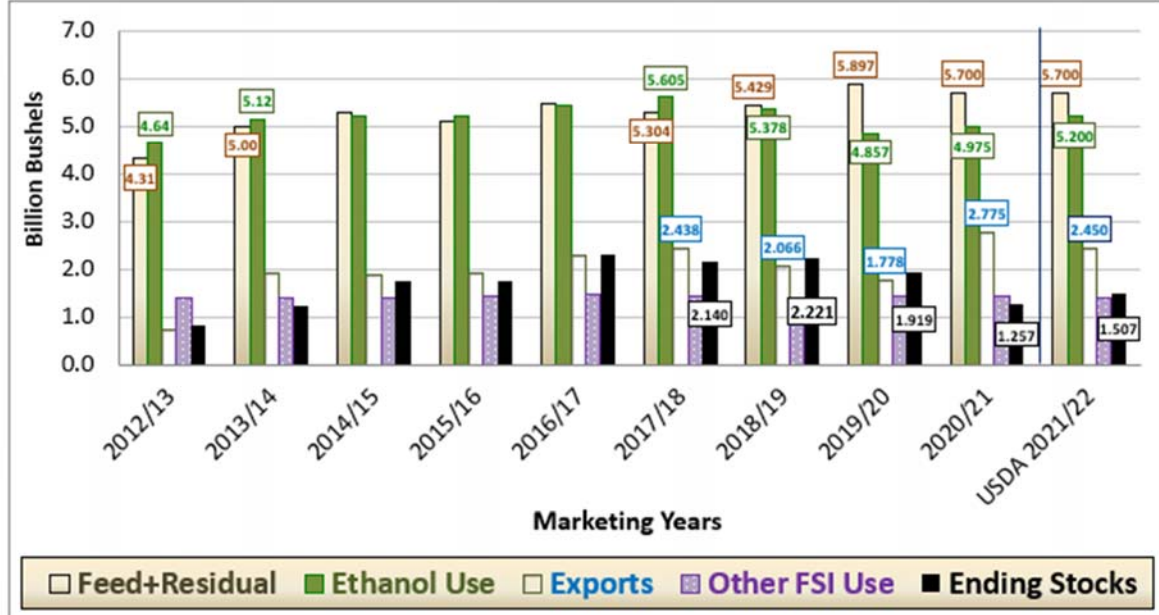


U.S. Corn Production & Total Supplies: MY 2009/10 thru "New Crop" MY

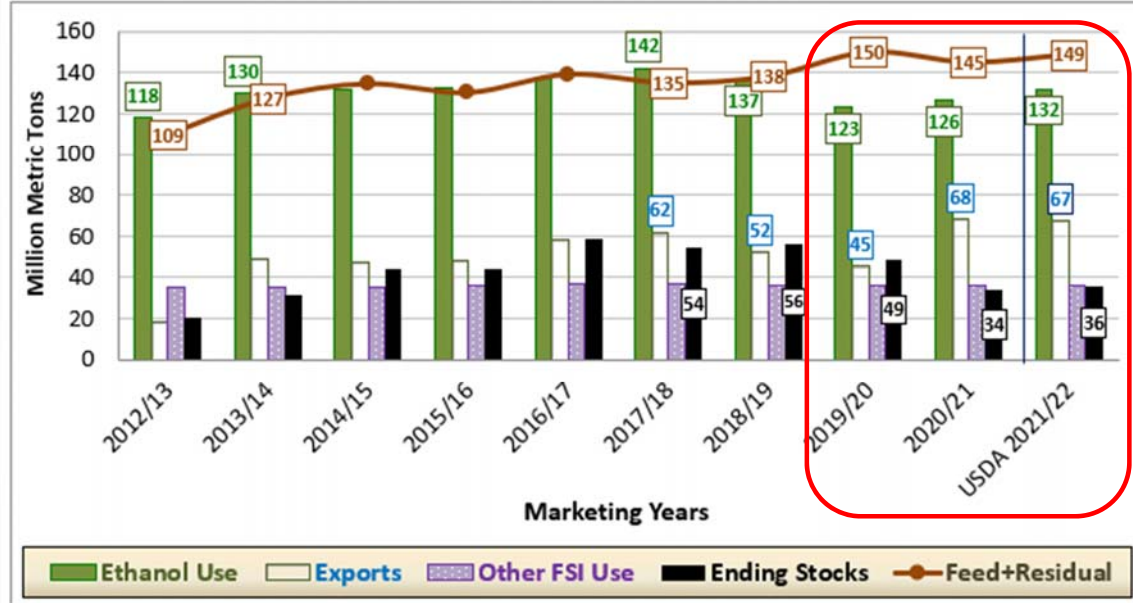
2021/22 as of the May 12, 2021 USDA WASDE, Outlook Conference, Prospective Plantings, & KSU #'s



U.S. Corn Use & Ending Stocks: MY 2012/13 through Projected "Next Crop" MY 2021/22 as of the May 12, 2021 USDA WASDE report

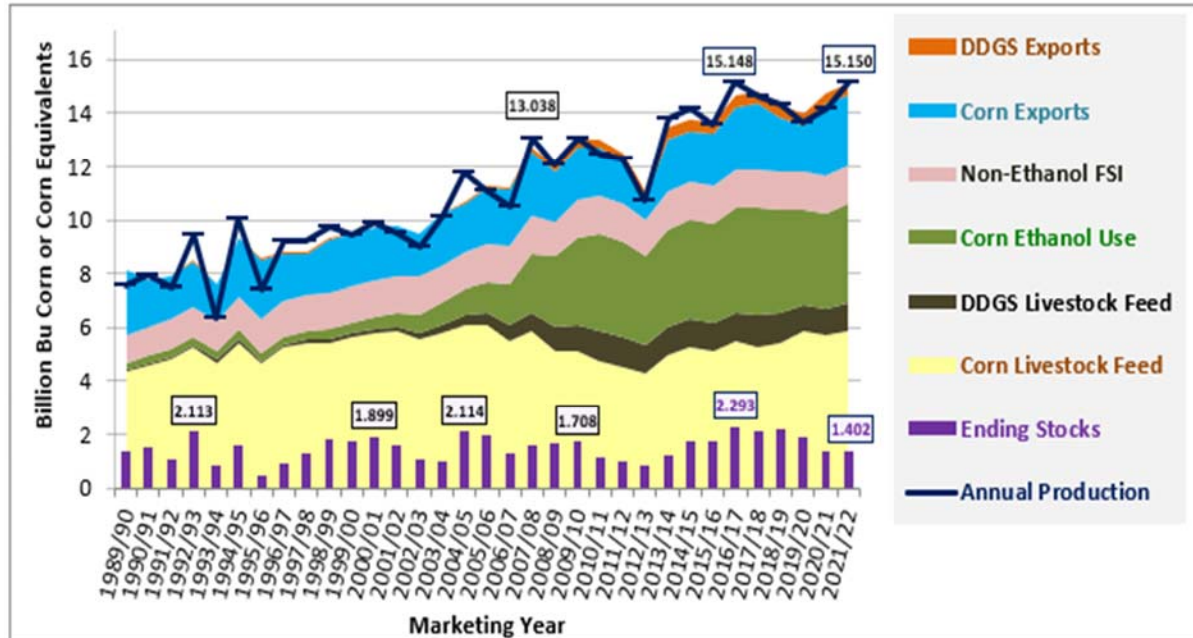


U.S. Corn Use & Ending Stocks: MY 2012/13 through Projected "Next Crop" MY 2021/22 as of the May 12, 2021 USDA WASDE report



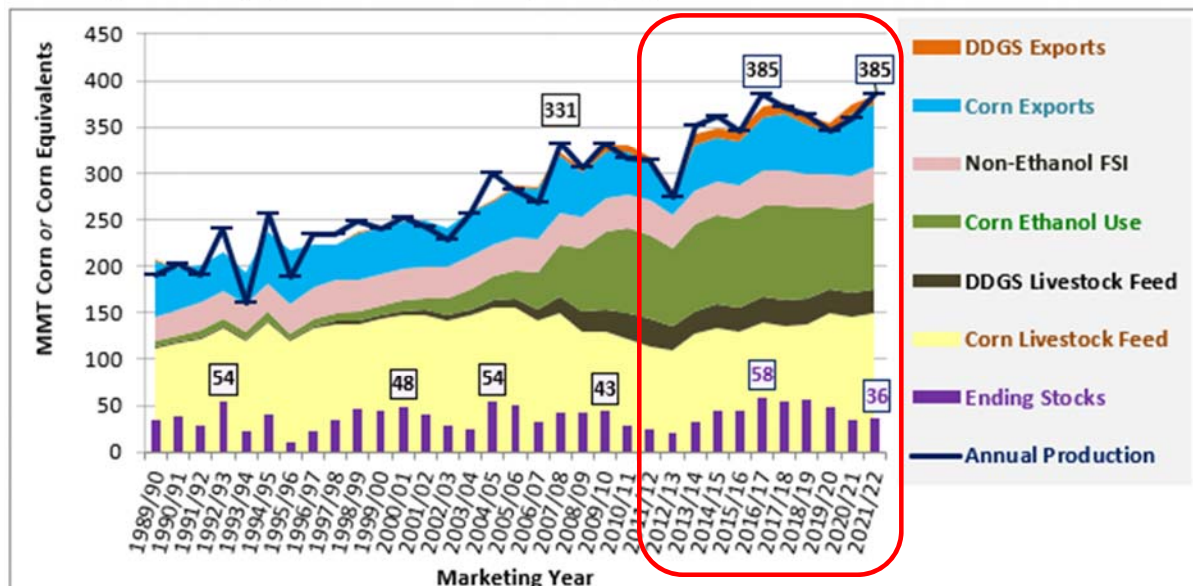
U.S. Corn Supply-Demand with DDGS Adjustments as of the May 12, 2021 USDA World

Agricultural Supply and Demand Estimates (WASDE) report



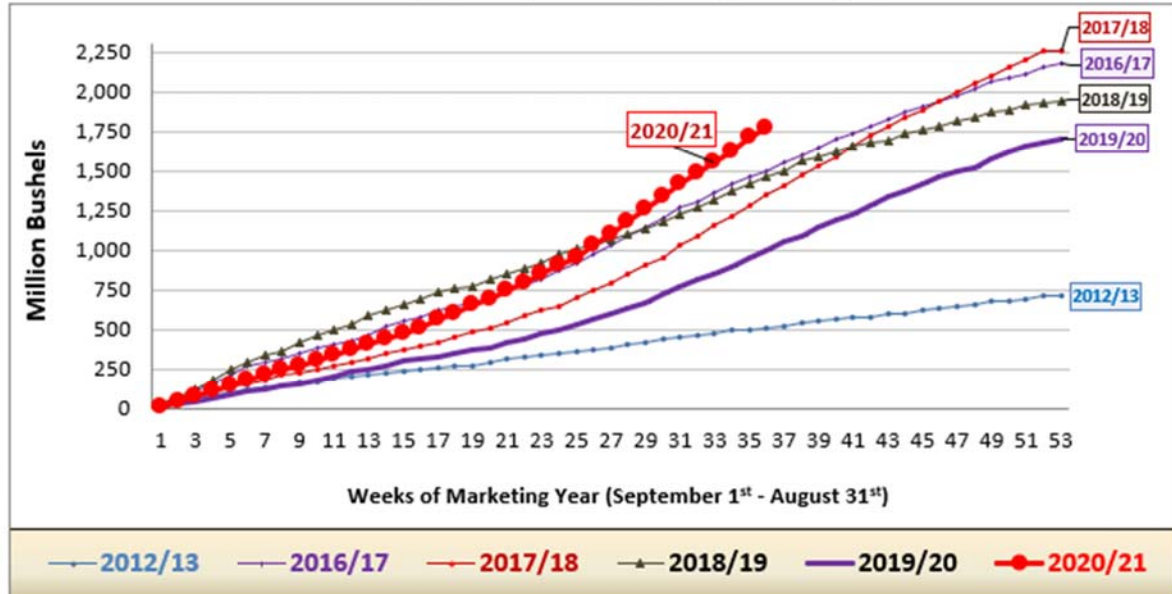
U.S. Corn Supply-Demand with DDGS Adjustments as of the May 12, 2021 USDA World

Agricultural Supply and Demand Estimates (WASDE) report



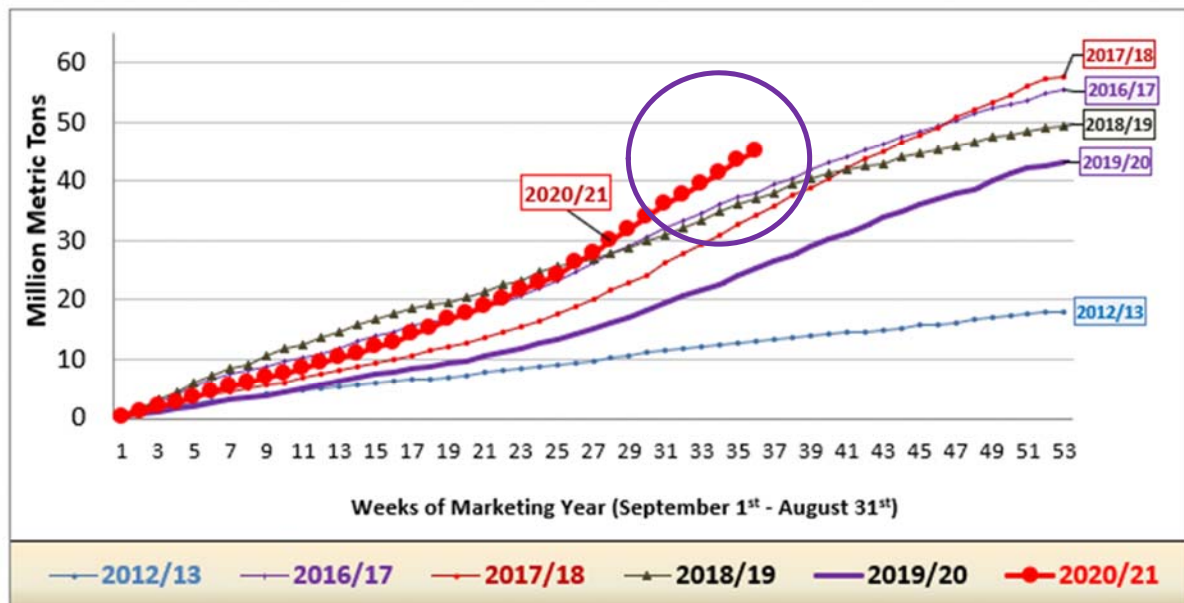
U.S. Corn Exports for MY 2012/13 & 2016/17 - "Current Crop" MY 2020/21

based on USDA FAS Weekly Export reports thru 5/6/2021 (EOMY on 8/31)

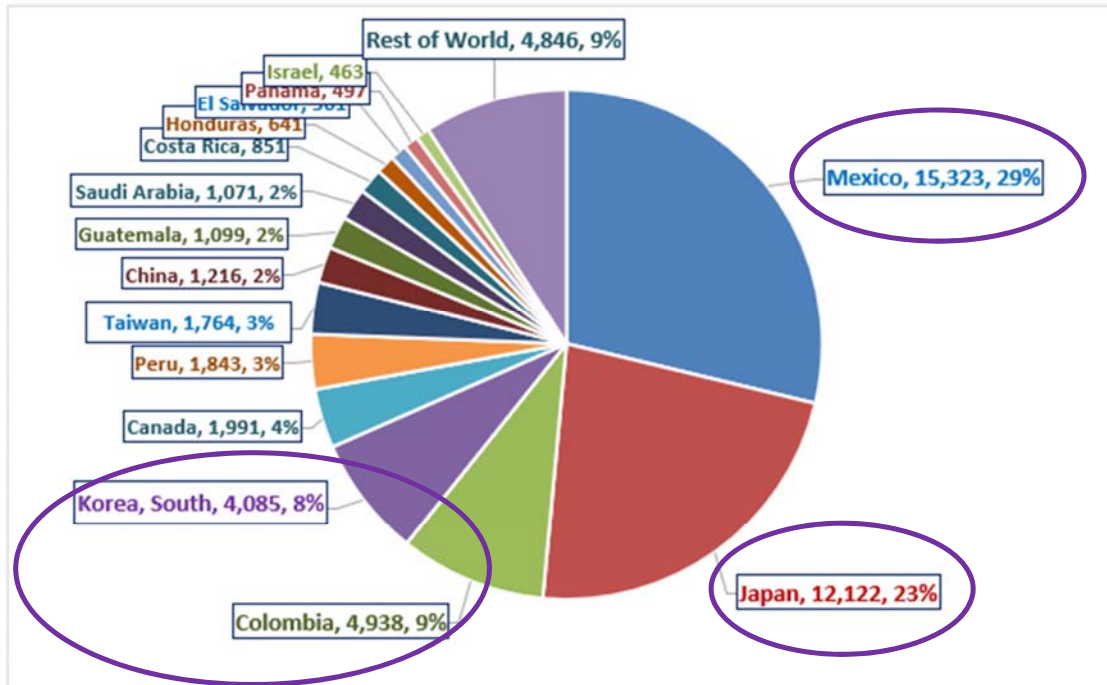


U.S. Corn Exports for MY 2012/13 & 2016/17 through "Current Crop" MY 2020/21

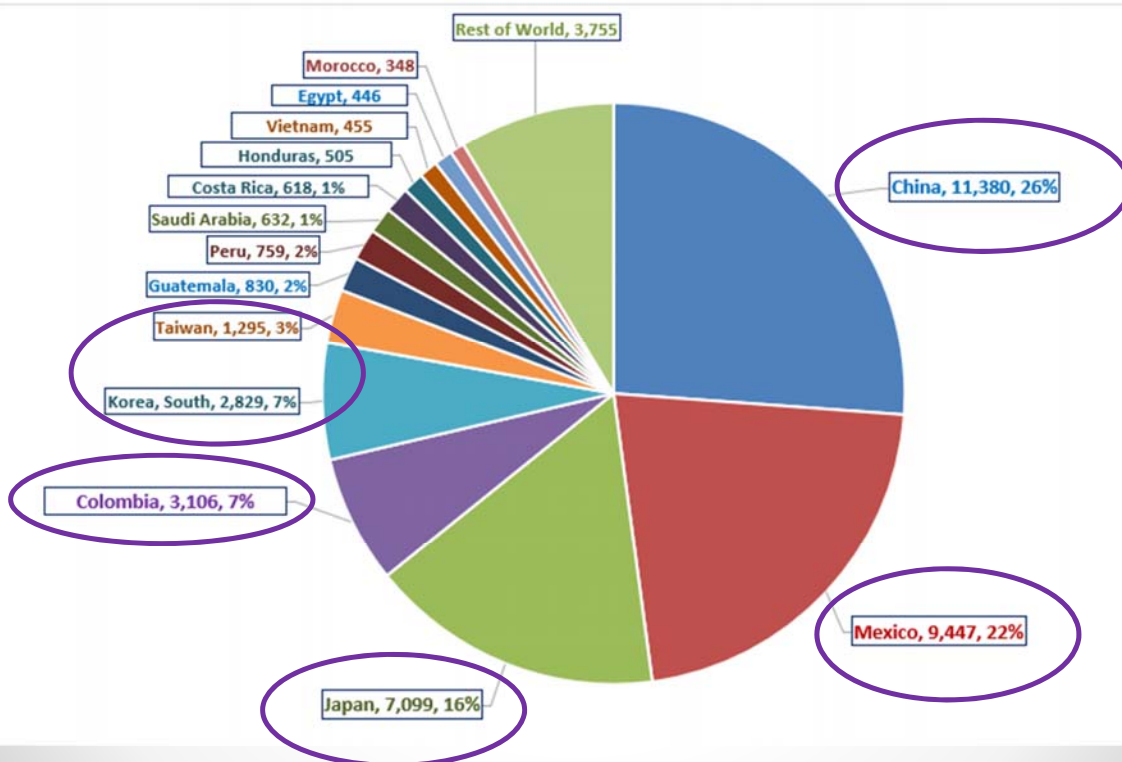
based on USDA FAS Weekly Export reports thru 5/6/2021 (EOMY on 8/31)



Top 15 U.S. Corn Export Buyers – Three Year Average: MY 2017/18 through “Old Crop” MY 2019/20: as of the February 9, 2021 USDA WASDE report (via USDA FAS PSD Online) (1,000 mt)



Top 15 U.S. Corn Export Buyers – “Current” MY 2020/21 through April 29, 2021: as of the April 29, 2021 USDA U.S. Export Shipments (1,000 mt), with Marketing Year from September 1, 2020 through August 31, 2021.



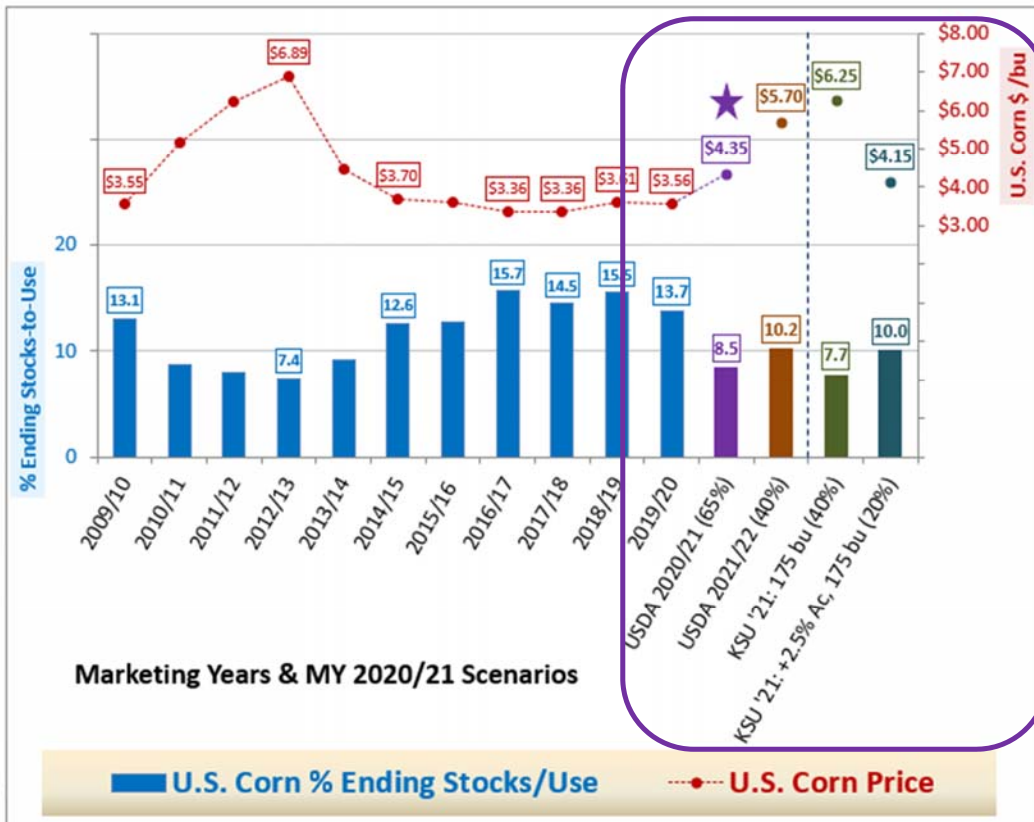
U.S. Corn Ending Stocks & % Ending Stocks-to-Use for MY 2005/06 through "New Crop" MY 2020/21: as of the May 12, 2021 WASDE Report



U.S. Corn Ending Stocks & % Ending Stocks-to-Use for MY 2005/06 through "Current Crop" MY 2020/21: as of the May 12, 2021 USDA WASDE report

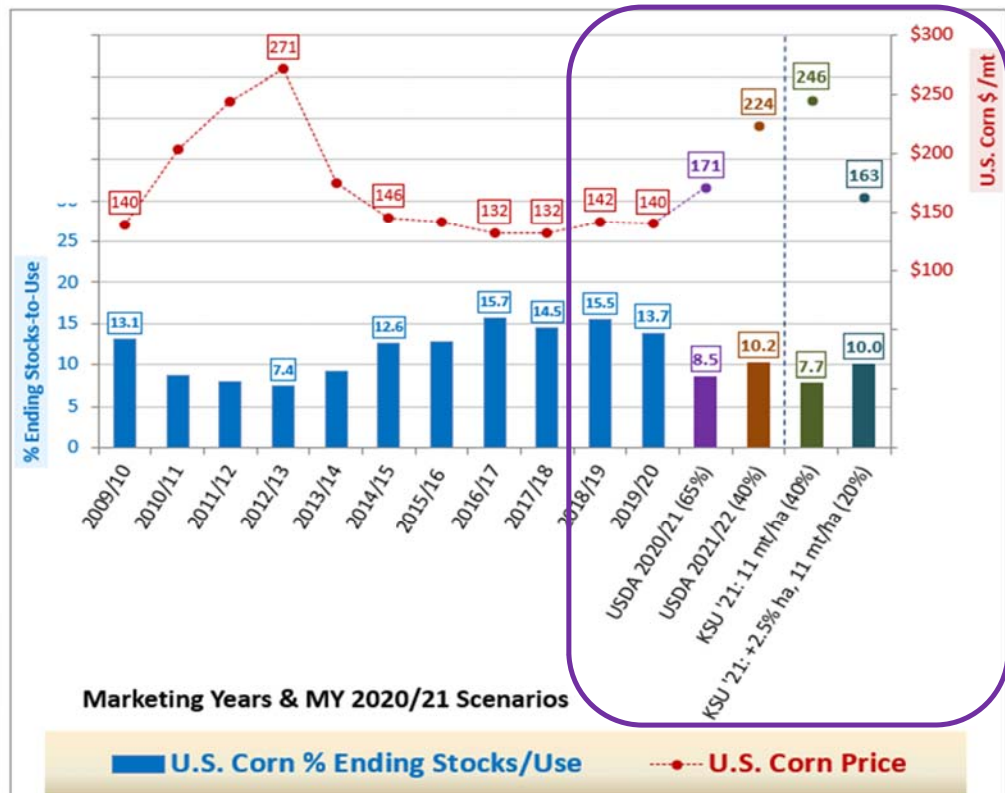


U.S. Corn %Ending Stocks vs U.S. Average Cash Corn Prices, MY 2009/10 – “New Crop” MY 2021/22: as of the May 12, 2021 USDA WASDE report, with KSU Market scenarios



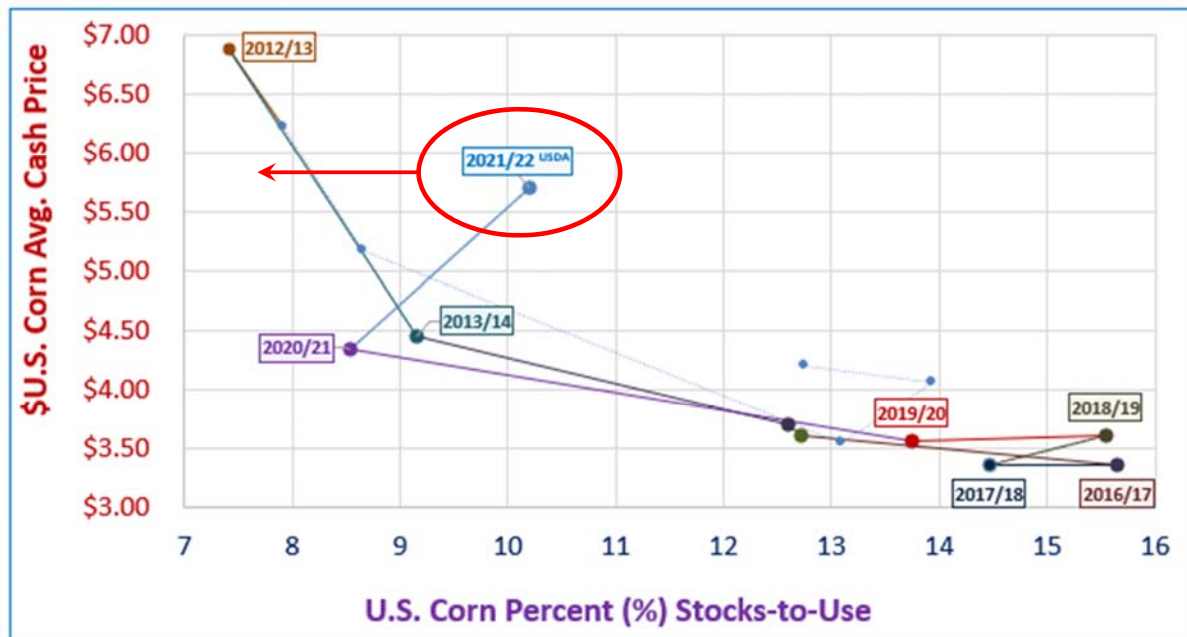
35

U.S. Corn % Ending Stocks vs U.S. Avg. Cash Corn Prices, MY 2009/10 – “New Crop” MY 2021/22: as of the May 12, 2021 USDA WASDE rpt, with KSU Market scenarios

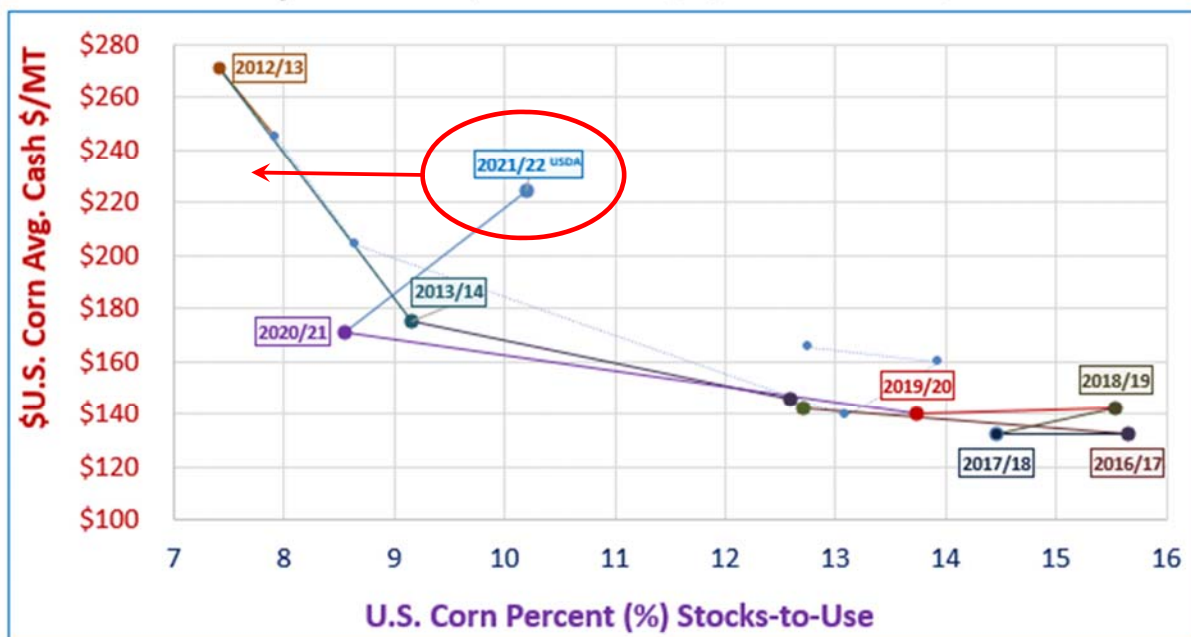


36

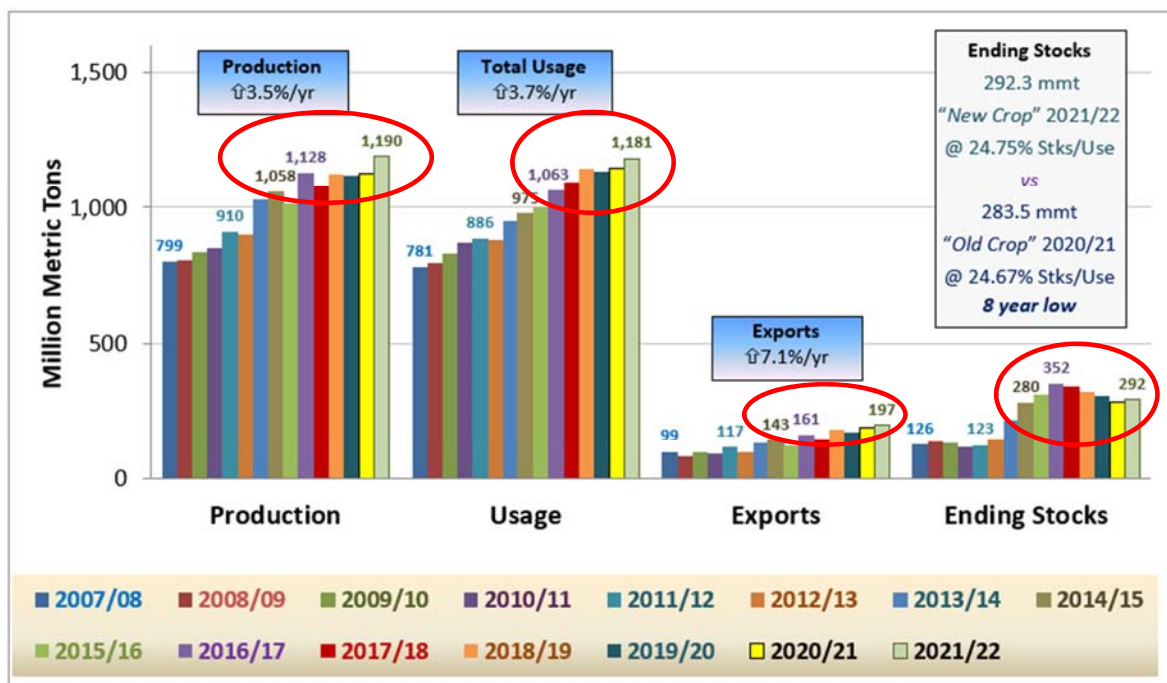
U.S. Corn Price vs U.S. % Stocks-to-Use, MY 2007/08 thru
"New Crop" MY 2021/22: as of the May 12, 2021 USDA WASDE report



U.S. Corn Price vs U.S. % Stocks-to-Use, MY 2007/08 thru
"New Crop" MY 2021/22: as of the May 12, 2021 USDA WASDE report



World Corn Supply-Demand, MY 2007/08 through "New Crop" MY 2021/22; as of the May 12, 2021
 USDA WASDE report.



World Corn Supply and Use

Item	2020/2021		2021/2022	
	Estimate	Change from April 9	Forecast	Change from 2020/2021
----- Million Tons -----				
Beginning stocks	304.5	1.5	283.5	-20.9
Production	1,128.5	-8.6	1,189.9	61.4
Total Supply	1,432.9	-7.1	1,473.4	40.4
Feed use	730.3	-0.9	748.3	18.0
Total use	1,149.4	-6.8	1,181.1	31.7
Trade	186.8	-0.4	197.5	10.6
Ending Stocks	283.5	-0.3	292.3	8.8

World Corn Production

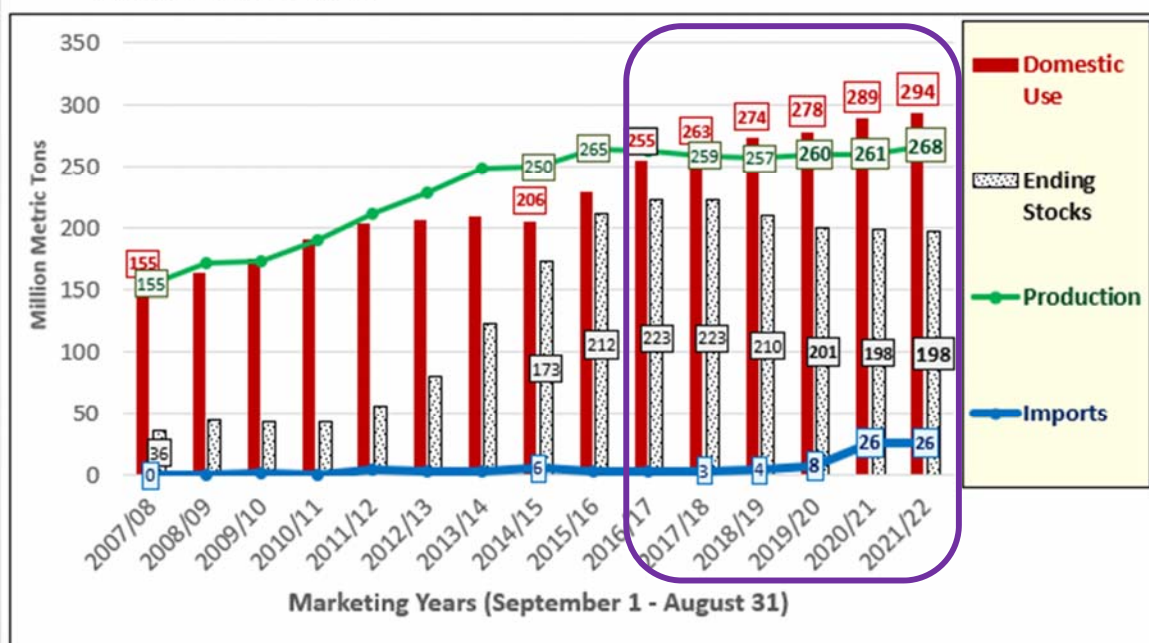
Country or Region	2020/2021		2021/2022	
	Estimate	Change from April 9	Forecast	Change from 2020/2021
----- Million Tons -----				
World	1,128.5	-8.6	1,189.9	61.4
United States	360.3	--	380.8	20.5
Foreign	768.2	-8.6	809.1	40.9
Argentina	47.0	--	51.0	4.0
Brazil	102.0	-7.0	118.0	16.0
Mexico	27.0	-0.8	28.0	1.0
Canada	13.6	--	13.3	-0.3
European Union	64.0	**	66.7	2.7
Serbia	8.0	--	7.3	-0.7
FSU-12	49.4	0.8	58.0	8.6
Ukraine	30.3	0.8	37.5	7.2
Russia	13.9	--	14.9	1.0
South Africa	17.0	--	17.0	--
China	260.7	--	268.0	7.3
India	30.2	--	29.5	-0.7

-- No change. **Rounds to zero.

May 12, 2021

China Corn Supply-Demand: MY 2006/07 – “Current” MY 2020/21 as of the May

12, 2021 USDA WASDE report



Brazil Corn Supply-Demand: MY 2006/07 – “New Crop” MY 2021/22 as of the

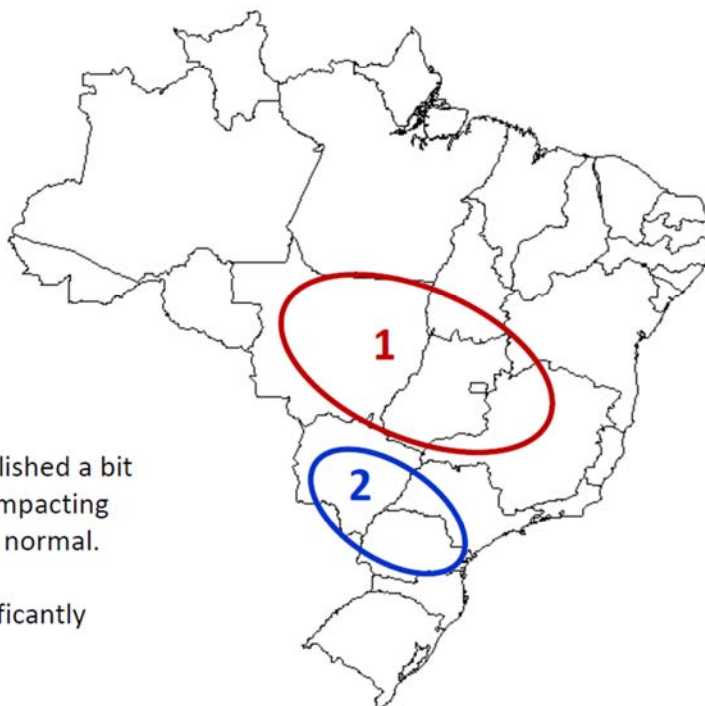
May 12, 2021 USDA WASDE report



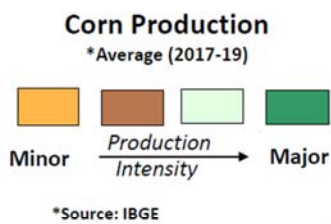
Brazil Corn

Weather Highlights Since
Last Month:

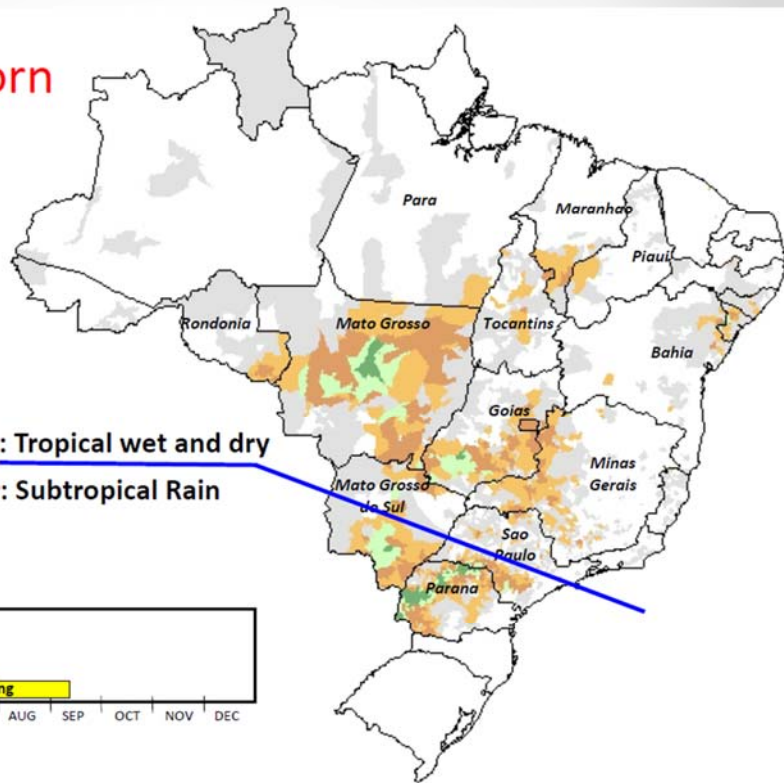
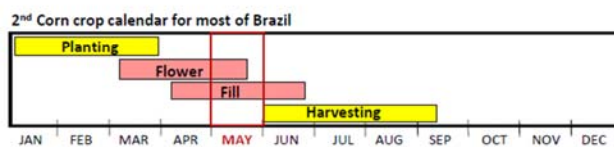
- 1) Seasonal dryness became established a bit earlier than normal, negatively impacting corn that was planted later than normal.
- 2) Unseasonable dryness has significantly impacted yield prospects.



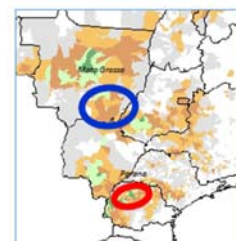
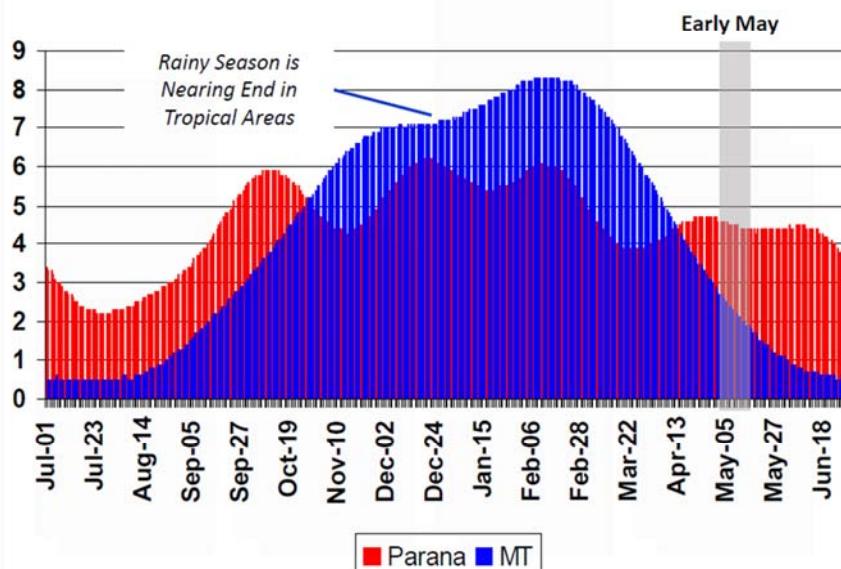
Brazil 2nd Crop Corn



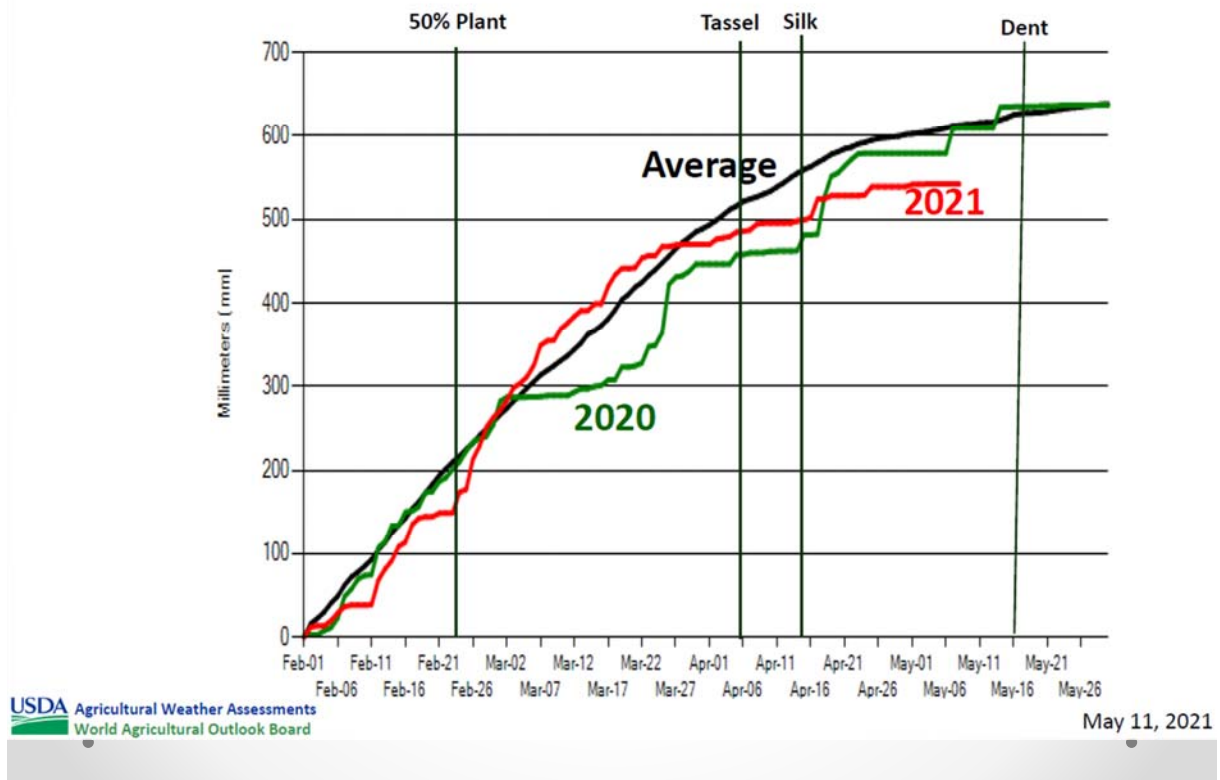
Aw: Tropical wet and dry
Cr: Subtropical Rain



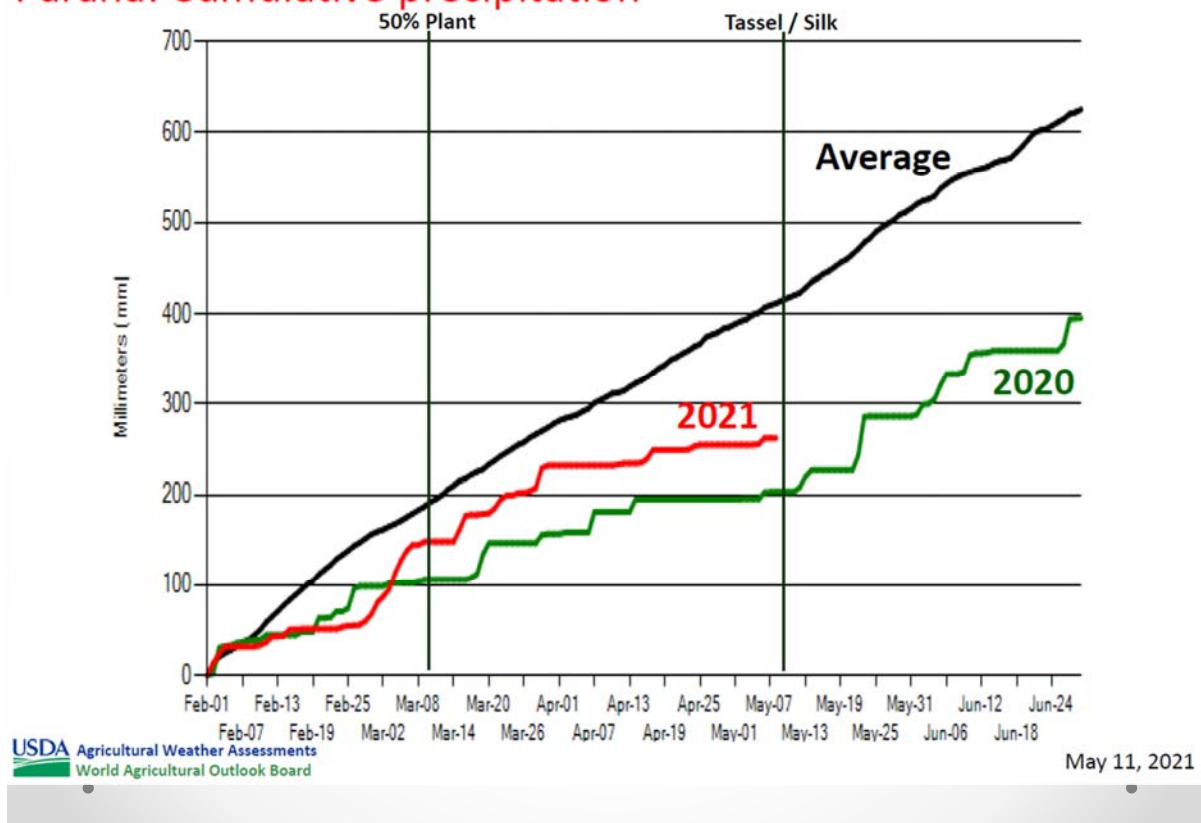
Brazil: Normal Daily Rainfall (mm)

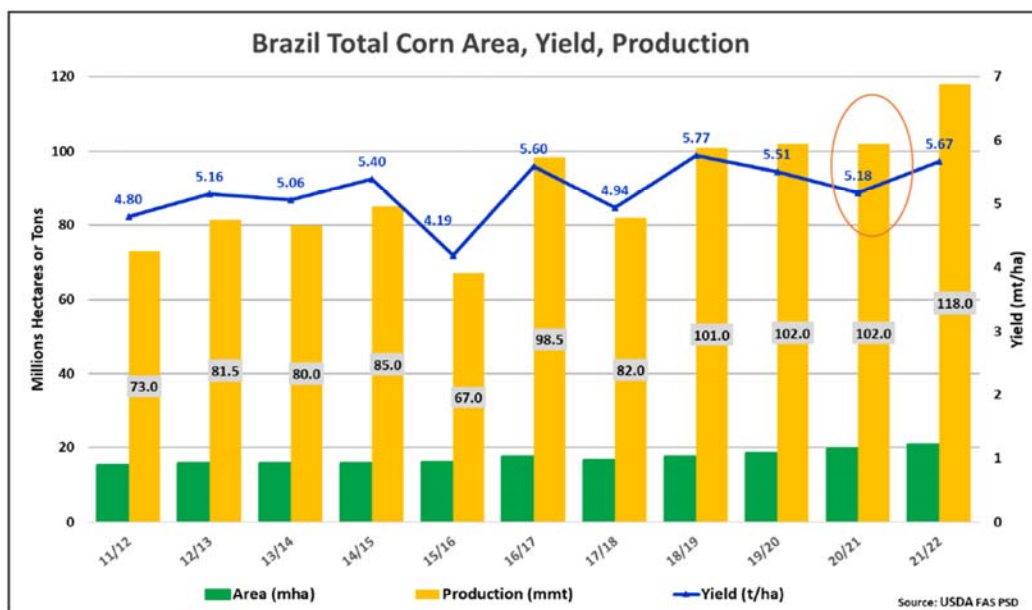


Mato Grosso: Cumulative precipitation



Parana: Cumulative precipitation





Record area forecast for 2020/21
 AREA 19.7 mha (RECORD), unchanged
 YIELD 5.18 t/ha (below trend)
 PROD 102 mmt (tied with 19/20 RECORD), down 7 mmt (6%) from last month

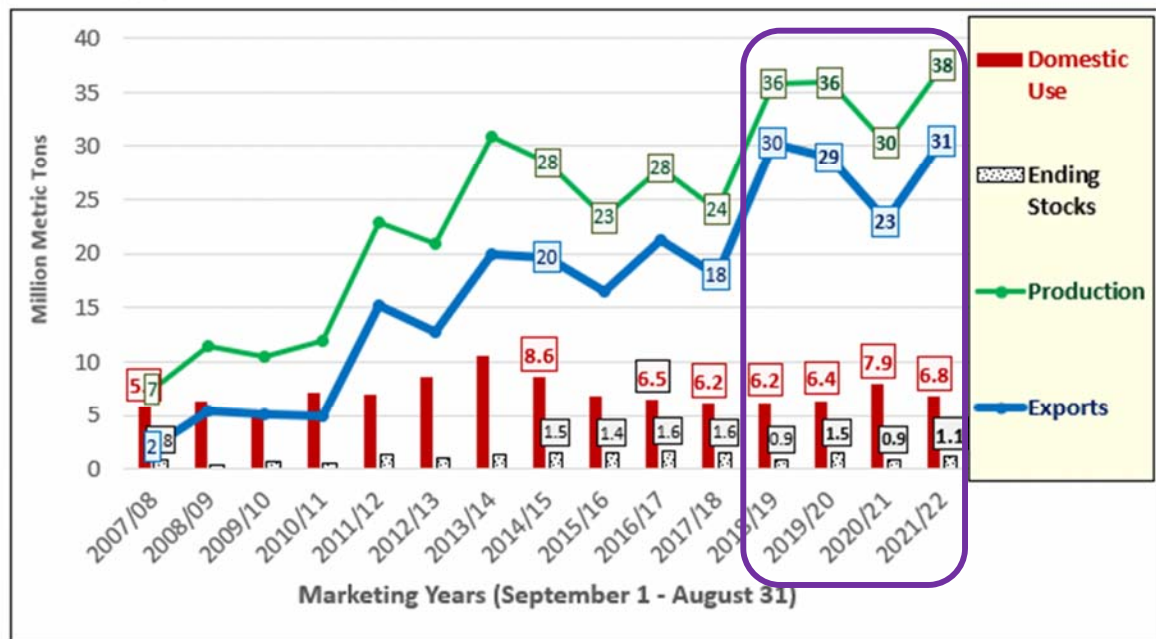
May 12, 2021

Argentina Corn Supply-Demand: MY 2006/07 – “New Crop” MY 2021/22

as of the May 12, 2021 USDA WASDE report

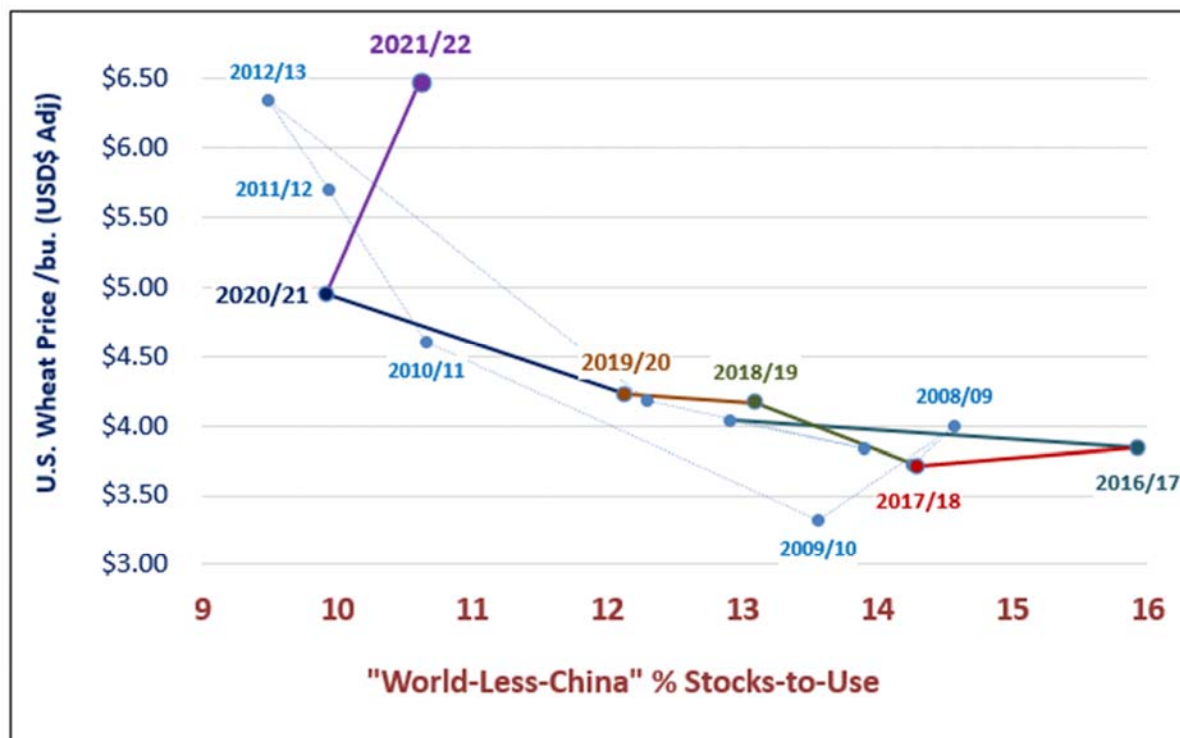


Ukraine Corn Supply-Demand: MY 2006/07 – “Current” MY 2020/21 as of the May 12, 2021 USDA WASDE report



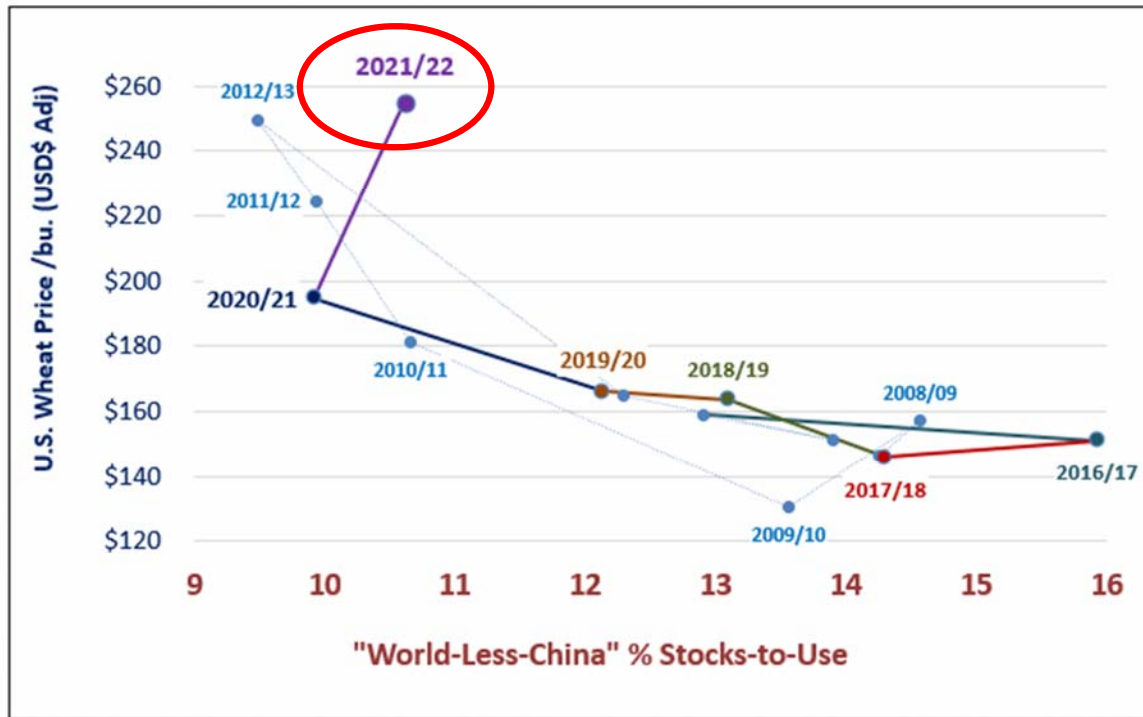
U.S. Corn Price (USD\$ Adj.) vs % “World-Less-China” Corn Stocks-to-Use:

MY 2007/08 through “New Crop” MY 2020/21, as of the May 12, 2021 USDA WASDE report.



U.S. Corn Price (USD\$ Adj.) vs % "World-Less-China" Corn Stocks-to-Use:

MY 2007/08 through "New Crop" MY 2020/21, as of the May 12, 2021 USDA WASDE report.



World vs "World-Less-China" % Corn Stocks-to-Use: MY 2007/08 through "New Crop" MY

2021/22, as of the May 12, 2021 USDA WASDE report.



World Soybean Supply and Use

Item	2020/2021		2021/2022	
	Estimate	Change from April 9	Forecast	Change from 2020/2021
<i>----- Million Tons -----</i>				
Beginning stocks	96.5	0.1	86.5	-10.0
Production	362.9	-0.2	385.5	22.6
Total Supply	459.5	-0.1	472.1	12.6
Crush	322.4	-0.1	331.7	9.3
Total use	369.3	-0.2	380.8	11.4
Trade	171.4	0.4	172.9	1.5
Ending Stocks	86.5	-0.3	91.1	4.6
Addendum				
Beginning stocks				
Argentina plus Brazil	47.4	--	45.4	-2.1
Imports*				
China	100.0	--	103.0	3.0

*From all sources.

-- No change.

May 12, 2021

U.S. Soybeans Supply and Demand

Item	2020/2021		2021/2022	
	Estimate	Change from April 9	Forecast	Change from 2020/2021
Planted area (million acres)	83.1	--	87.6	4.5
Harvested area (million acres)	82.3	--	86.7	4.4
Yield (bushels per acre)	50.2	--	50.8	0.6
<i>----- Million bushels -----</i>				
Beginning stocks	525	--	120	-405
Production	4,135	--	4,405	270
Imports	35	--	35	0
Total supply	4,695	--	4,560	-135
Crush	2,190	--	2,225	35
Seed and Residual	105	--	120	14
Domestic use	2,295	--	2,345	49
Exports	2,280	--	2,075	-205
Total use	4,575	--	4,420	-156
Ending stocks	120	--	140	20
<i>----- Percent -----</i>				
Stocks to use ratio	2.6	--	3.2	0.6
<i>----- Dollars per bushel -----</i>				
Average market price	11.25	--	13.85	2.60

-- No change.

May 12, 2021

U.S. Soybean Oil Supply and Demand

Item	2020/2021		2021/2022	
	Estimate	Change from April 9	Forecast	Change from 2020/2021
----- Million pounds -----				
Beginning stocks	1,853	--	1,818	-35
Production	25,515	--	25,945	430
Imports	350	--	600	250
Total supply	27,718	--	28,363	645
Domestic disappearance	23,600	100	25,400	1,800
Biofuel	9,500	1600	12,000	2,500
Food, feed, other	14,100	-1500	13,400	-700
Exports	2,300	-200	1,450	-850
Total use	25,900	-100	26,850	950
Ending stocks	1,818	100	1,513	-305
----- Cents per pound -----				
Average market price	55.00	10.00	65.00	10.00

-- No change.

May 12, 2021

World Soybean Production

Country or Region	2020/2021		2021/2022	
	Estimate	Change from April 9	Forecast	Change from 2020/2021
----- Million Tons -----				
World	362.9	-0.2	385.5	22.6
United States	112.5	--	119.9	7.3
Foreign	250.4	-0.2	265.6	15.2
Argentina	47.0	-0.5	52.0	5.0
Brazil	136.0	--	144.0	8.0
Paraguay	9.9	0.2	10.5	0.6
Canada	6.4	--	6.4	**
India	10.5	-0.2	11.2	0.8
China	19.6	--	19.0	-0.6

-- No change. **Rounds to zero.

May 12, 2021

Grain Sorghum Markets

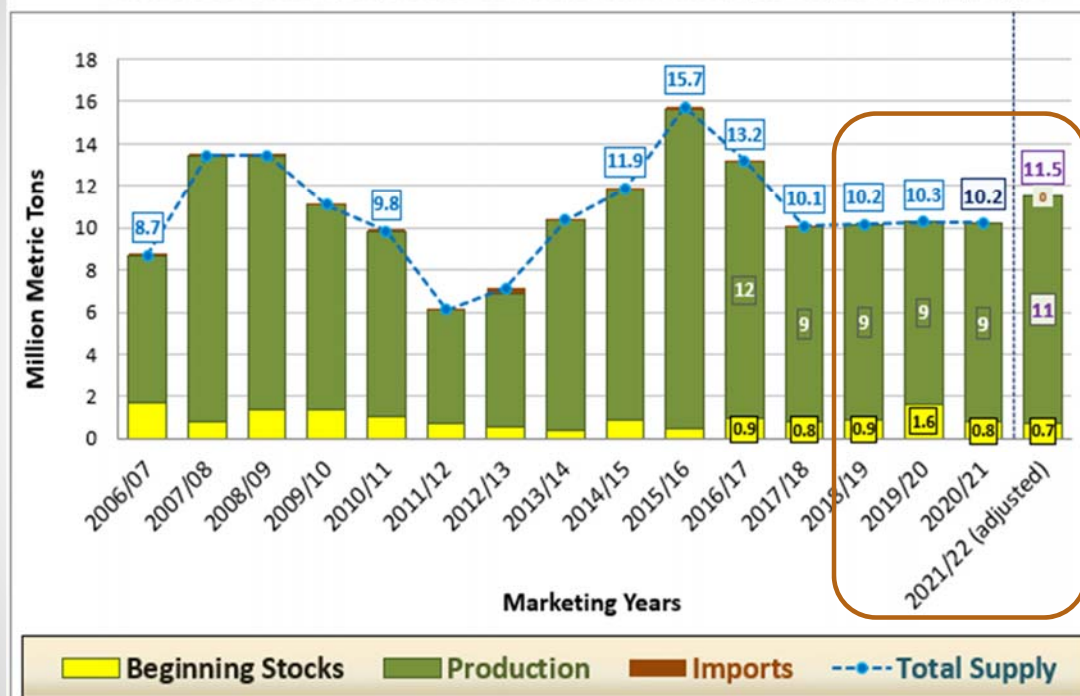


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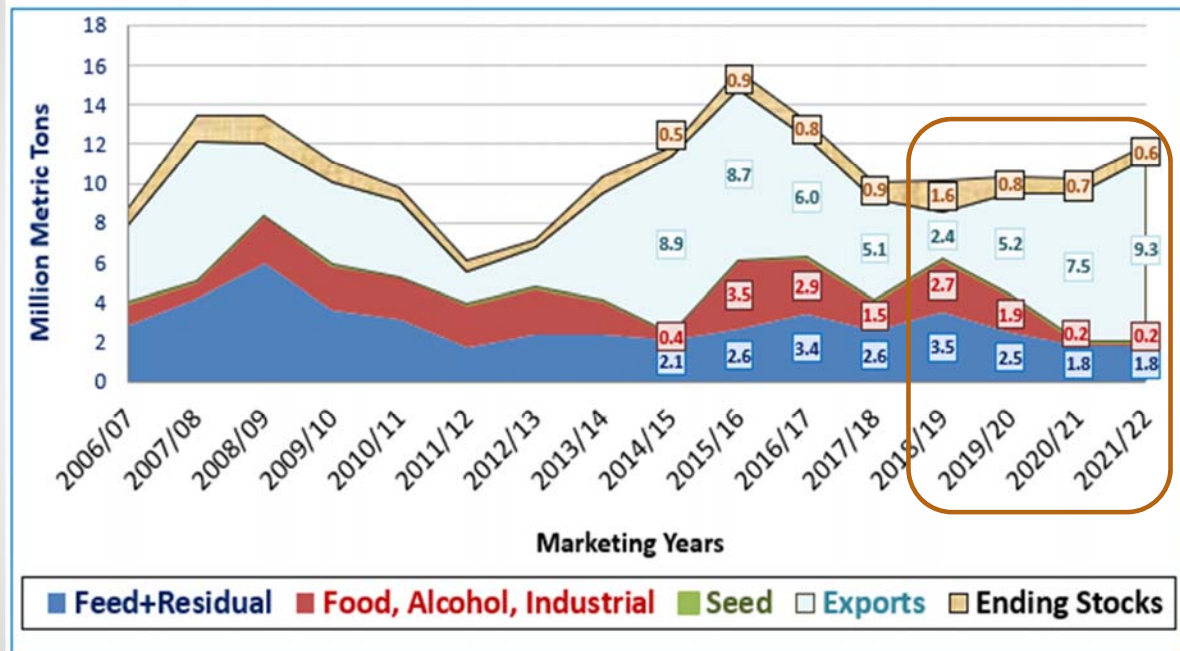
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U.S. Grain Sorghum Total Supplies: MY 2006/07 through "New Crop" MY 2021/22 as of the March 9 USDA WASDE report, the 2021 USDA Outlook Conference & 3/31 Prospective Plantings Report.



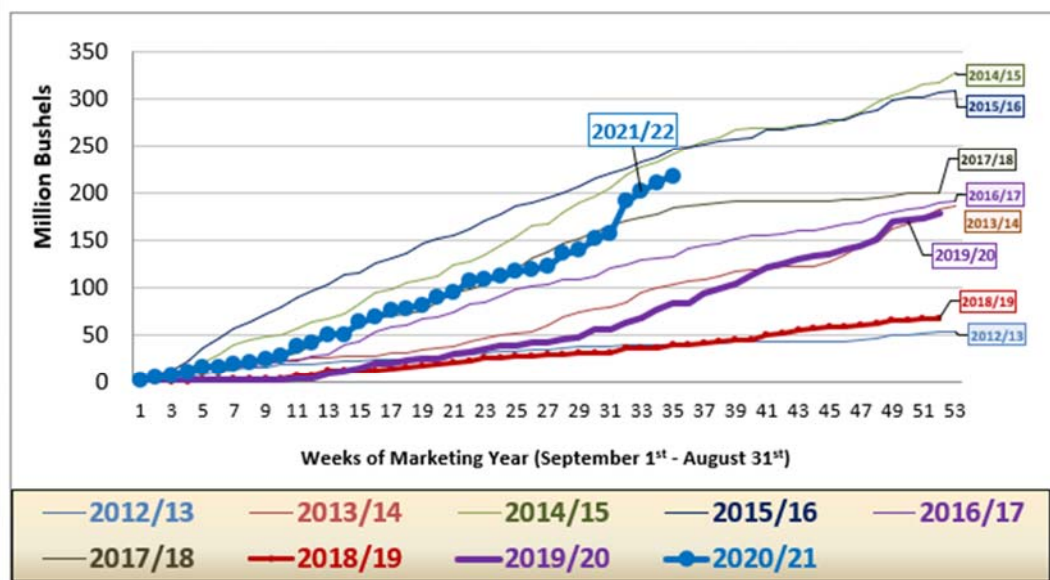
Trends in U.S. Grain Sorghum Use & Ending Stocks: MY 2006/07 - "New Crop" MY 2021/22 as of the March 9 USDA WASDE report & February 18-19, 2021 USDA Outlook Conference.



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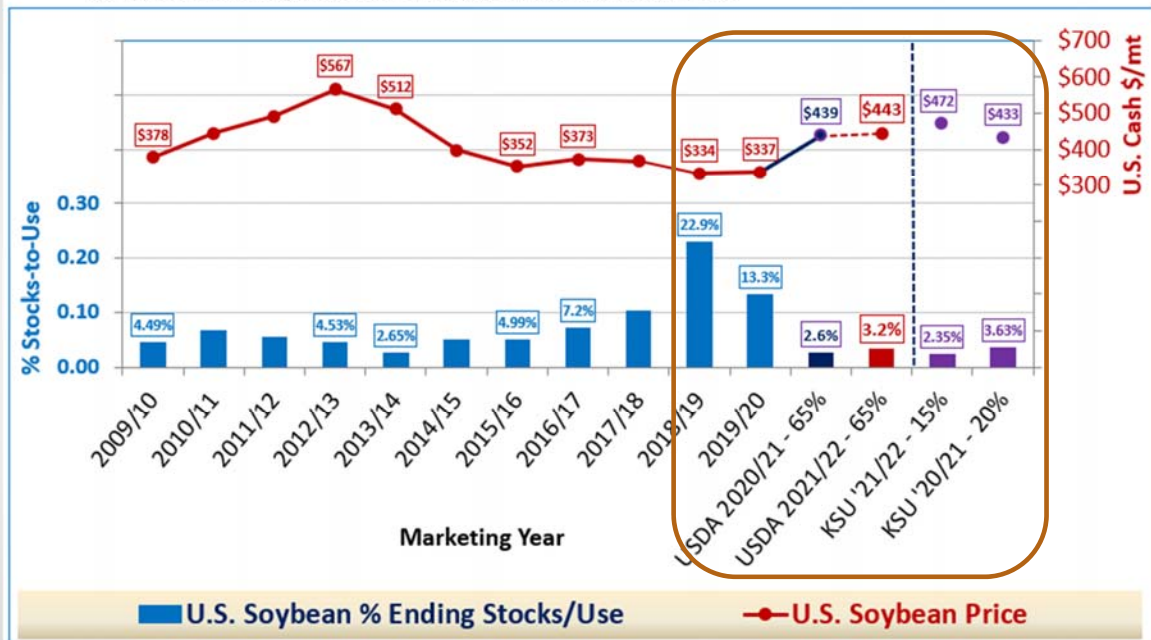
U.S. Grain Sorghum Exports for MY 2012/13 - "Current Crop" MY 2020/21¹² as of April 29, 2021 - via USDA FAS Weekly Export reports



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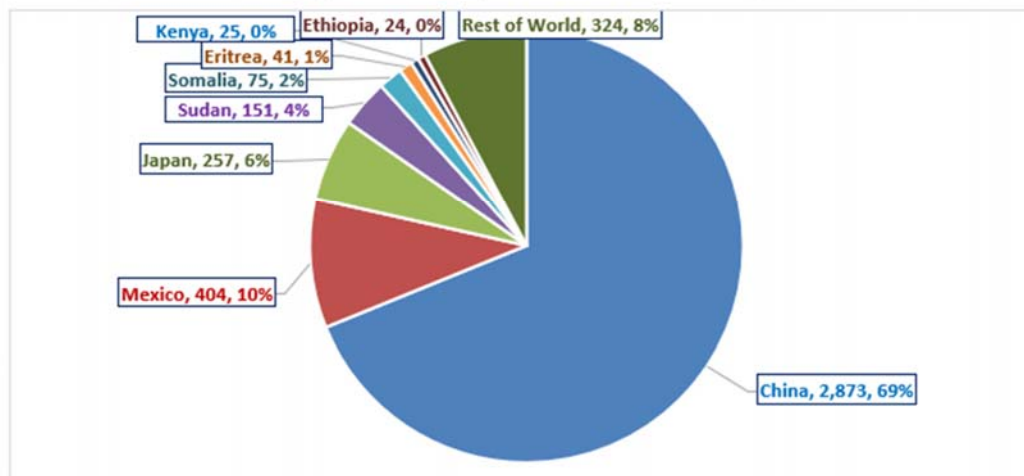
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U.S. Soybean Ending Stocks vs U.S. Avg. Cash Prices: MY 2009/10 – “New Crop” MY 2021/22 as of the March 9, 2021 USDA WASDE Report, USDA Outlook Conf & KSU forecast scenarios.

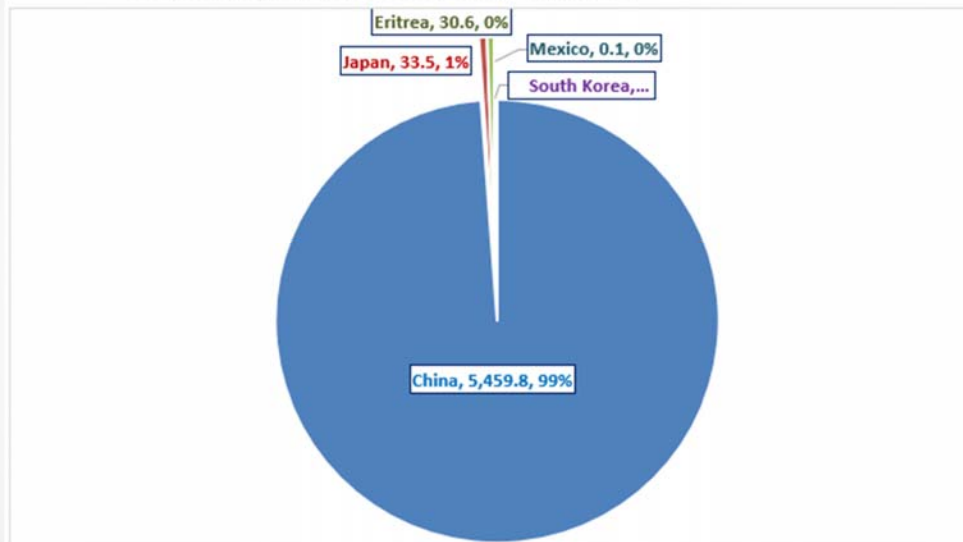


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Top 10 U.S. Grain Sorghum Export Buyers – Three Year Average: MY 2017/18 thru “Old Crop” MY 2019/20 via USDA FAS PSD Online) (1,000 Metric Tons)



Top U.S. Grain Sorghum Export Buyers – “Current” MY 2020/21 through April 29, 2021:
as of the April 29, 2021 USDA U.S. Export Shipments (1,000 mt)



Questions?



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