



Soybean, Corn, and Wheat Market Update for 2021 and Beyond

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Presentation:

October 25, 2021

*Field Crops Market Outlook and Agricultural Policy Updates
Extension Conference*



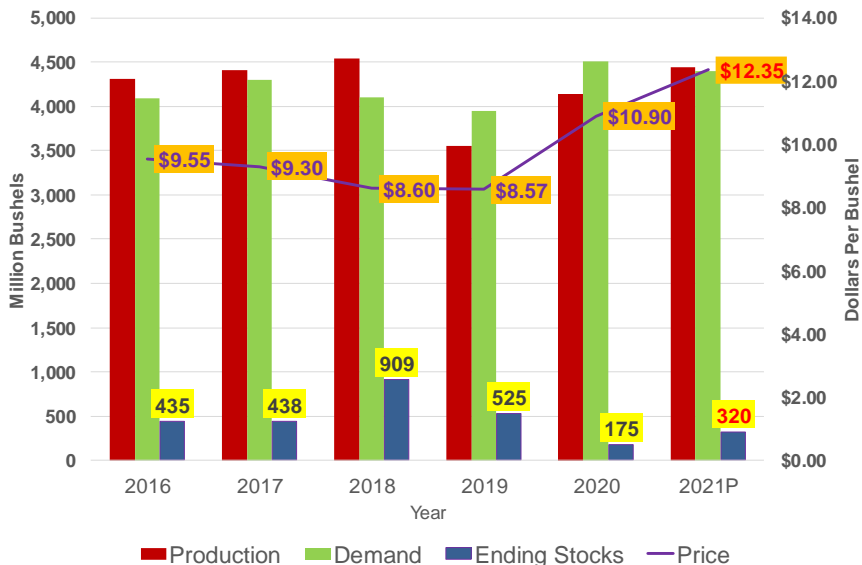
Overview

- Consistent themes in soybean, corn, and wheat markets for 2021
 - ending stocks below 5-year averages reflecting strong demand outstripping supply
- Moving forward if soybean, corn, and wheat markets are to replenish stocks need to (with differing degrees)
 - increase acreage
 - ration demand
 - both of which point to higher prices in 2022
- Projections of what NEW crop acreage needs to be to replenish to previous 5-year average ending stocks
 - potentially record combined acreage needed in 2022
- Increasing costs of inputs (seed, fertilizer, herbicides, insecticides) for 2022 impacting planting decisions and profitability

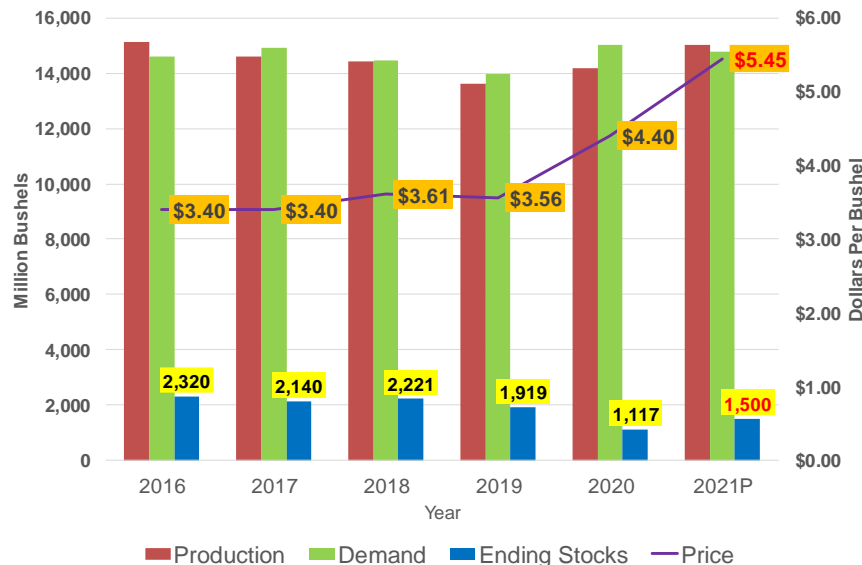


Demand Has Been Outstripping Production

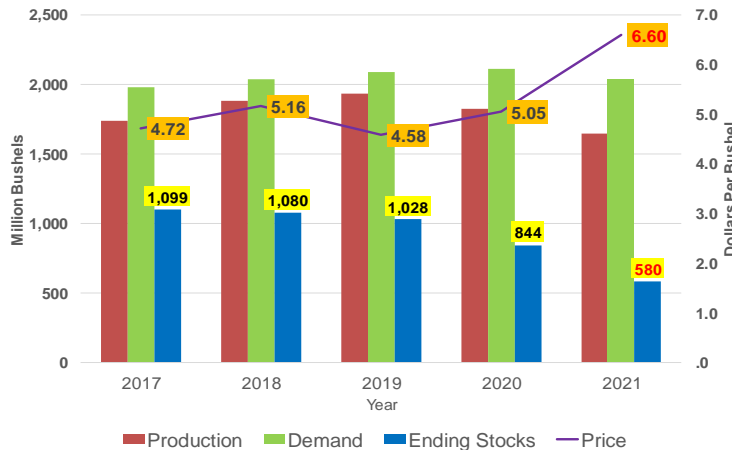
US Soybean Production, Demand, Ending Stocks and Price 2016-2021P



US Corn Production, Demand, Ending Stocks and Price 2017-2021P

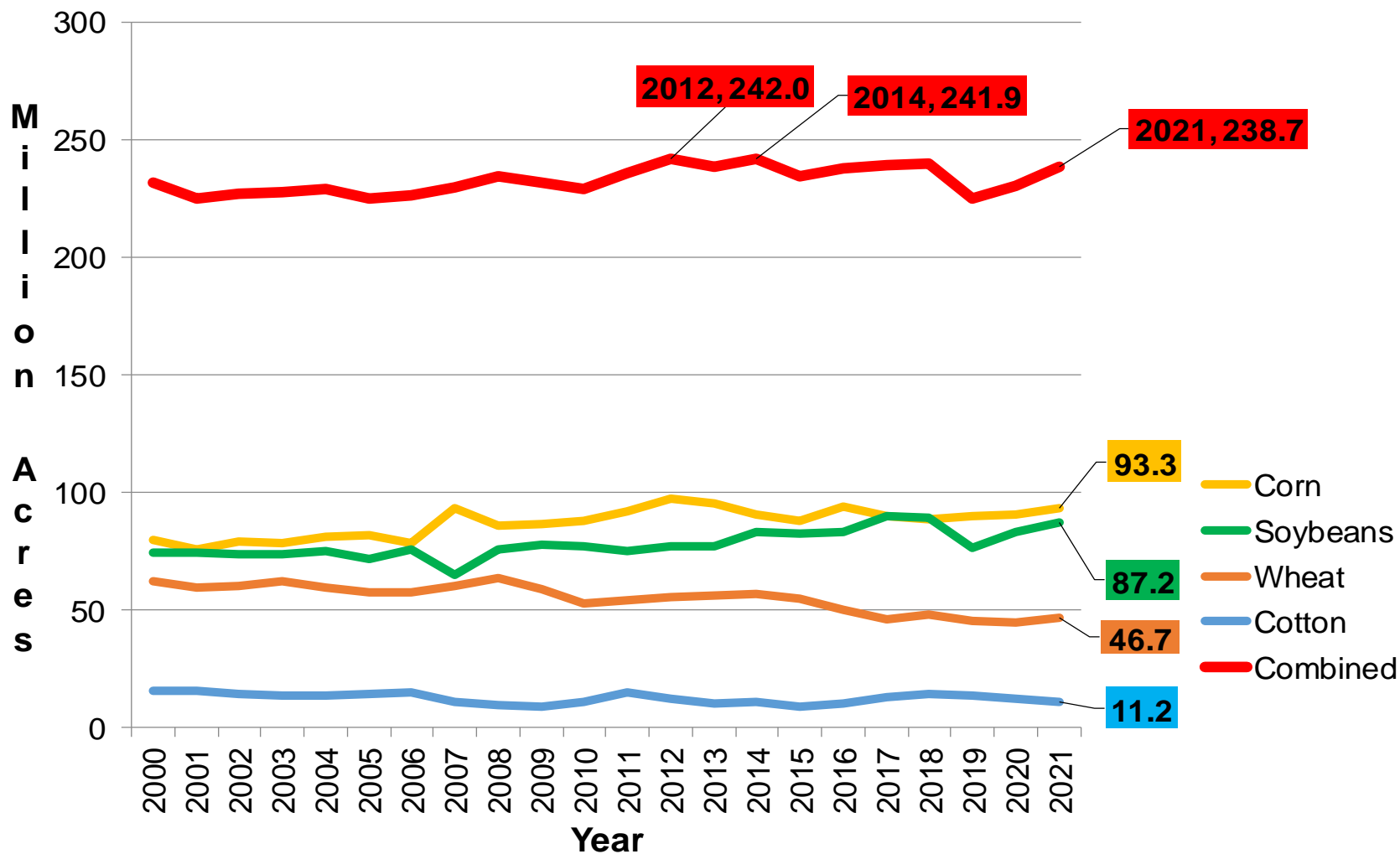


US Wheat Production, Demand, Ending Stocks and Price 2017-2021P



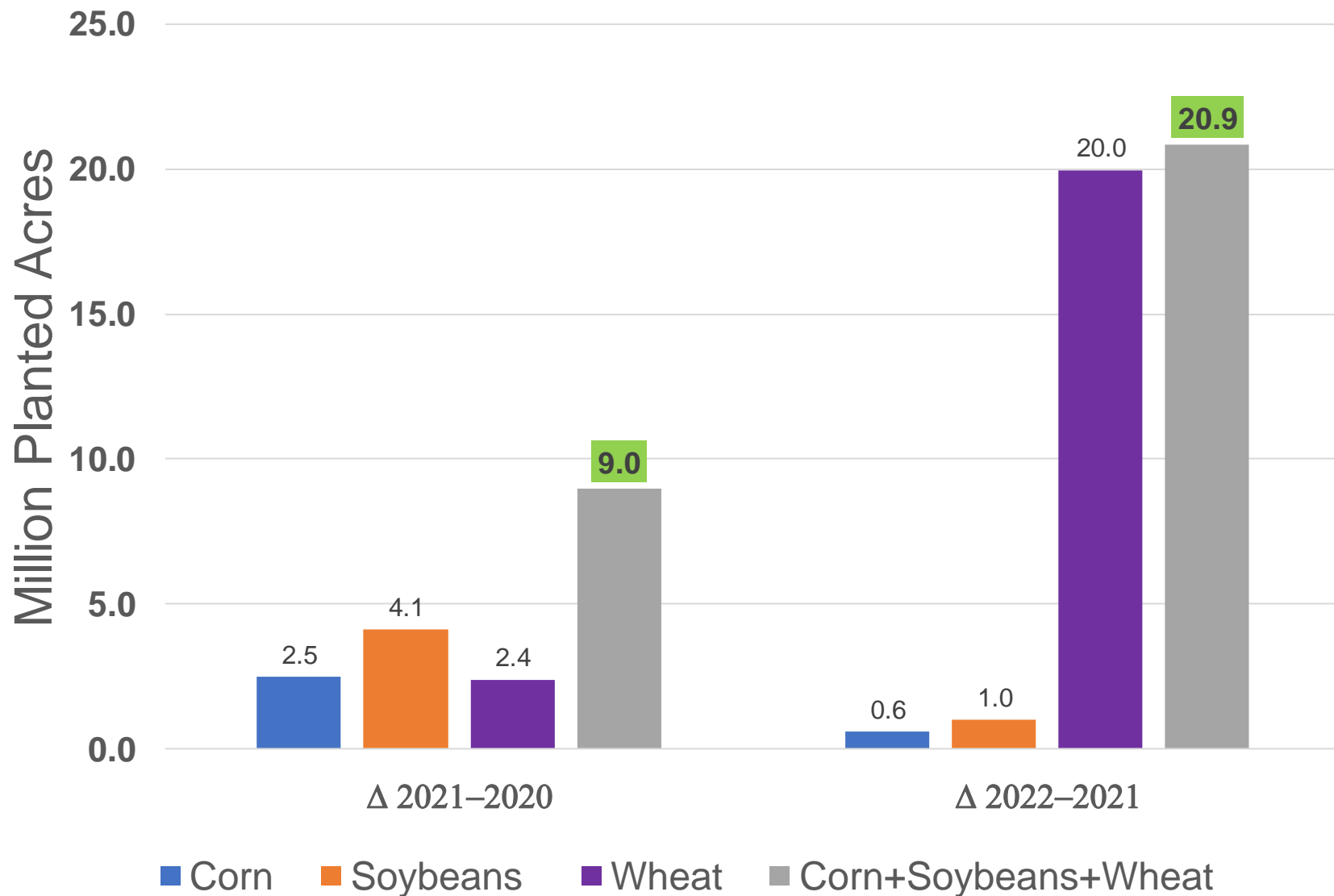


US Corn, Soybean, Wheat, and Cotton Acreage 2000-2021



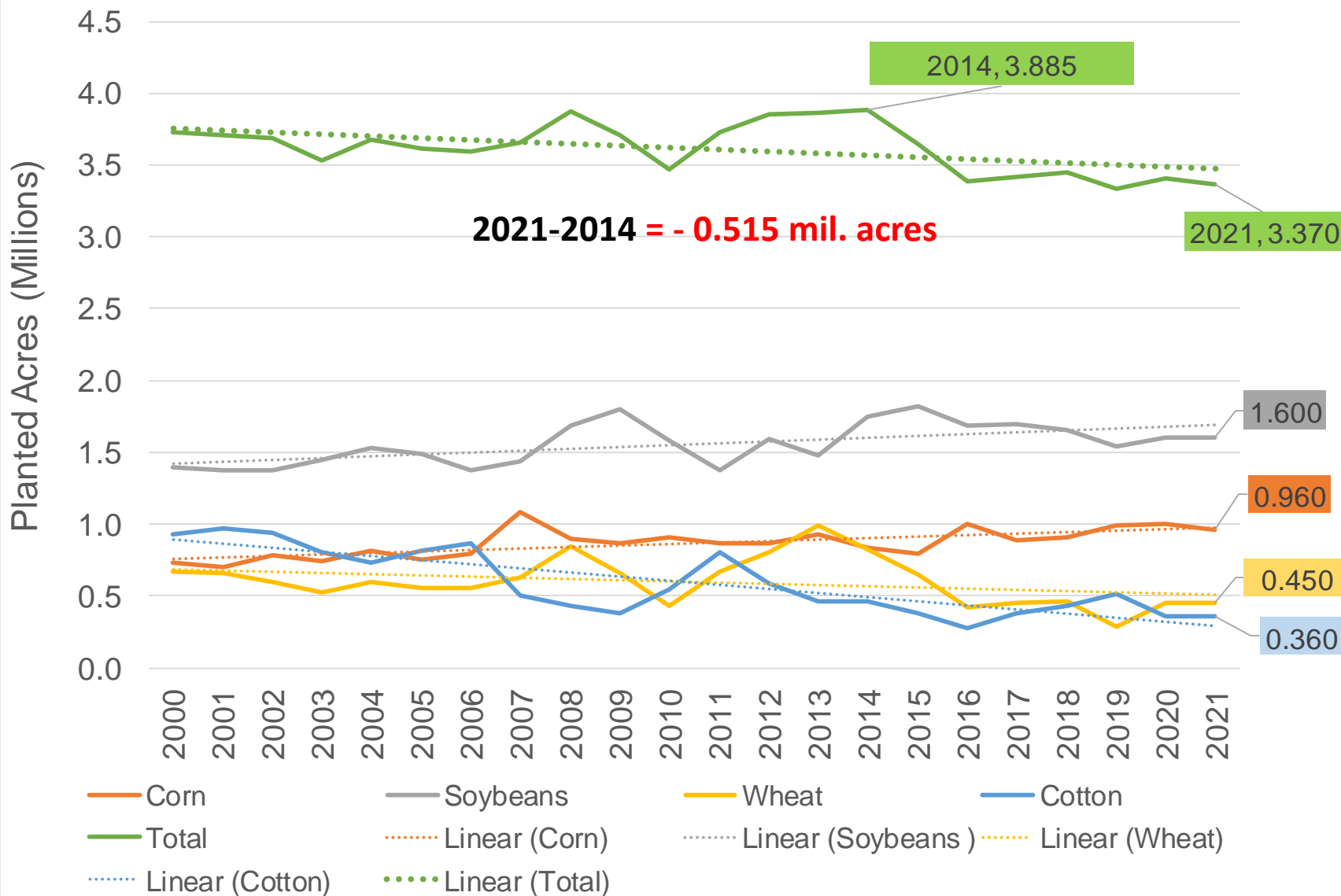


Changes (Δ) in US Corn, Soybean and Wheat Acres between 2021 and 2022P





NC Corn, Soybean, Wheat, and Cotton Acreage 2000-2021





NC Planted Row Crop Acres 2021 vs 2014 (previous 20-year record)

Year	Corn	Soybeans	Wheat	Cotton	Total
2021	960,000	1,600,000	450,000	360,000	3,370,000
2014	840,000	1,750,000	830,000	465,000	3,885,000
Δ	120,000	-150,000	-380,000	-105,000	-515,000
%	14%	-9%	-46%	-23%	-13%



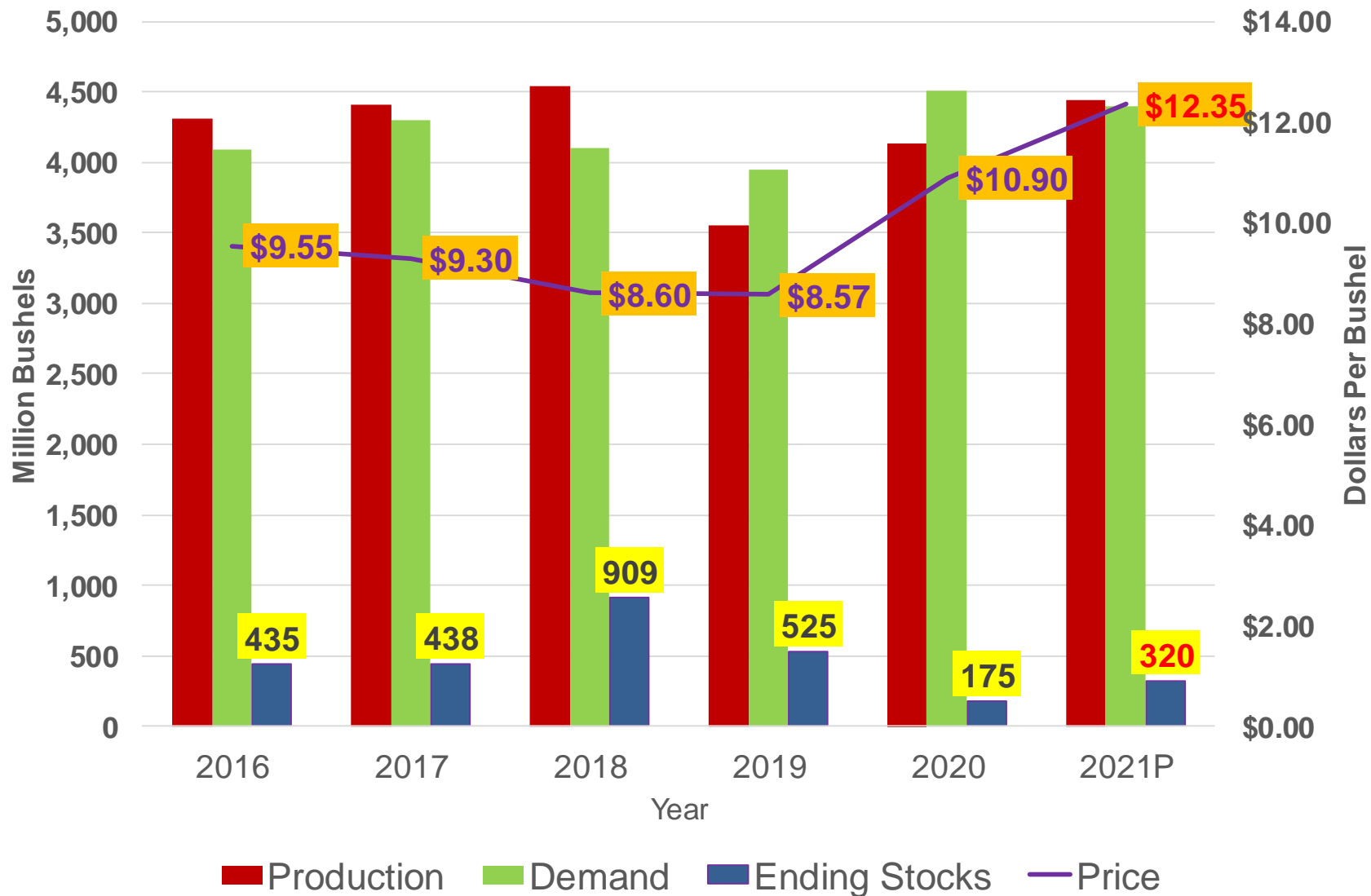
USDA SUPPLY/DEMAND BALANCE SHEET FOR SOYBEANS

	2019/20	2020/21 Est	2021/22 Proj	%Δ
Millions of Acres				
Acres Planted	76.1	83.1	87.2	4.9%
Acres Harvested	74.9	82.3	86.4	5.0%
Bu./Harvested Acre	47.4	50.2	51.5	2.6%
Millions of Bushels				
Beginning Stocks	909	525	256	-51.2%
Production	3,552	4,135	4,448	7.6%
Total Supply	4,476	4,680	4,719	0.8%
Use:				
Crushing	2,165	2,140	2,190	2.3%
Exports	1,682	2,260	2,090	-7.5%
Seed & Residuals	105	125	119	-4.8%
Total Use (Demand)	3,952	4,505	4,399	-2.4%
Ending Stocks	525	175	320	82.9%
Ending Stocks, % of Use	13.3%	3.9%	7.3%	87.3%
U.S. Season Average Farm Price, \$/ Bu.	\$8.57	\$10.90	\$12.35	13.3%

Source: WASDE, USDA, Oct 2021

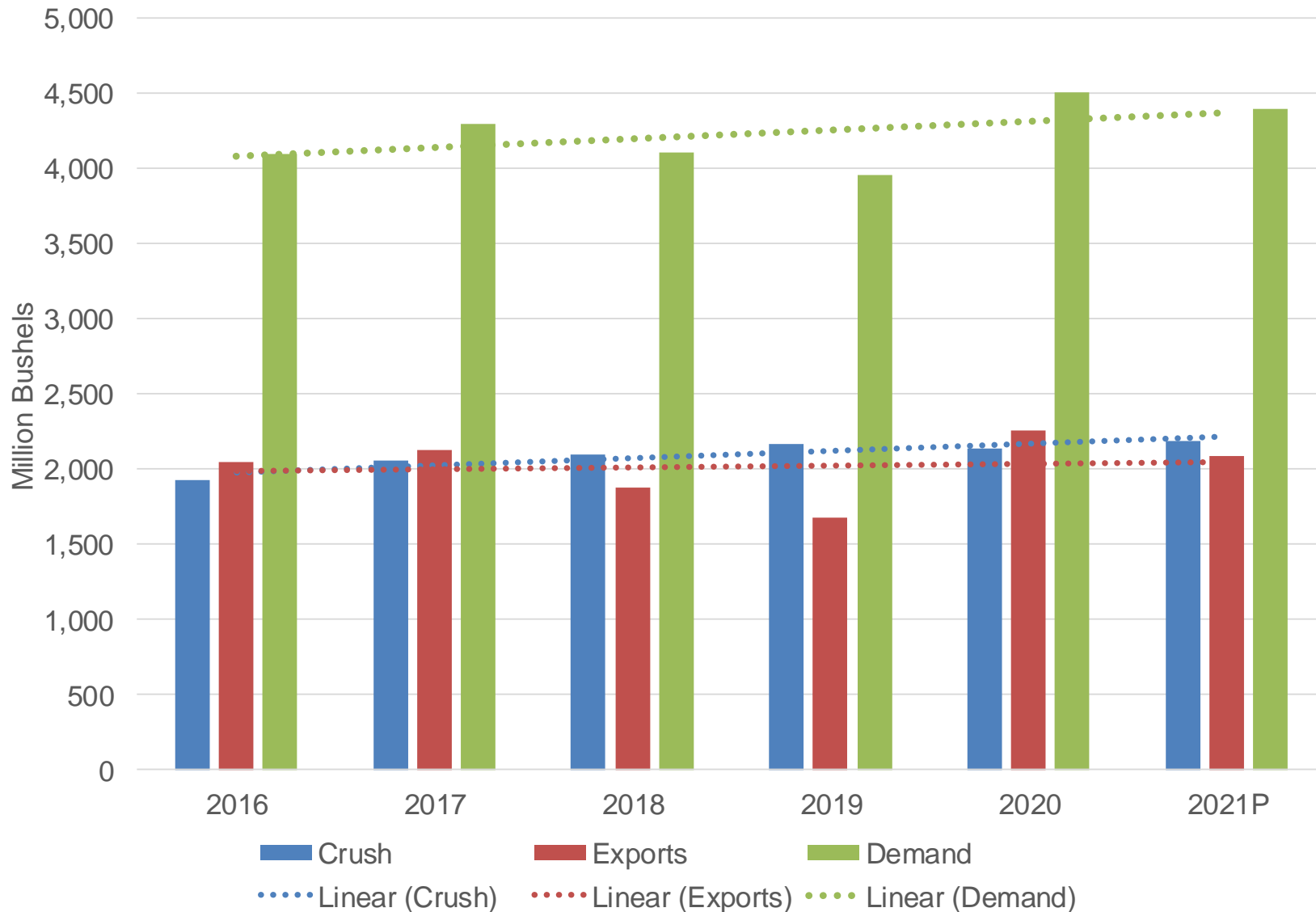


US Soybean Production, Demand, Ending Stocks and Price 2016-2021P



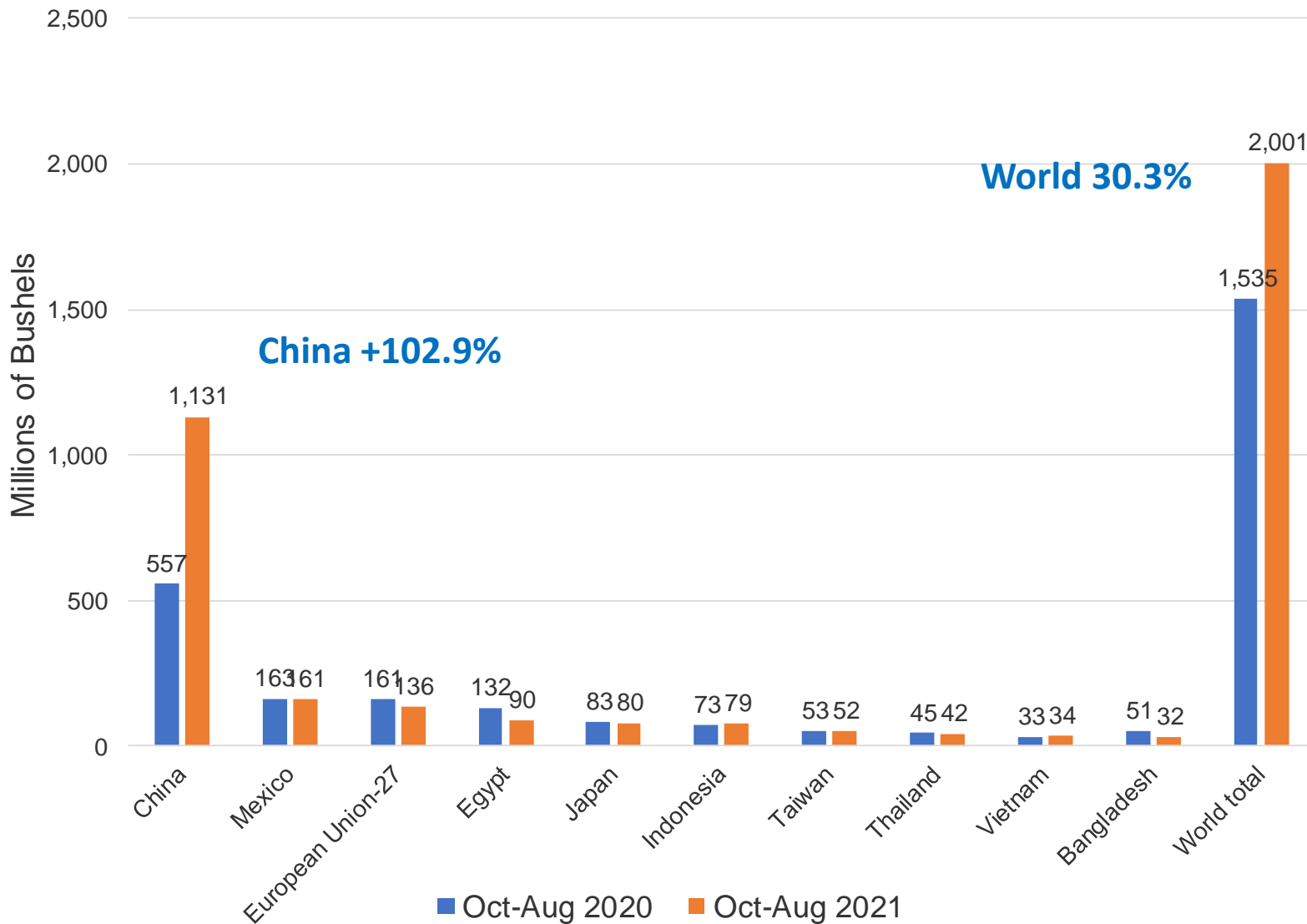


US Soybean Demand: Total, Crush, and Exports 2016-2021P





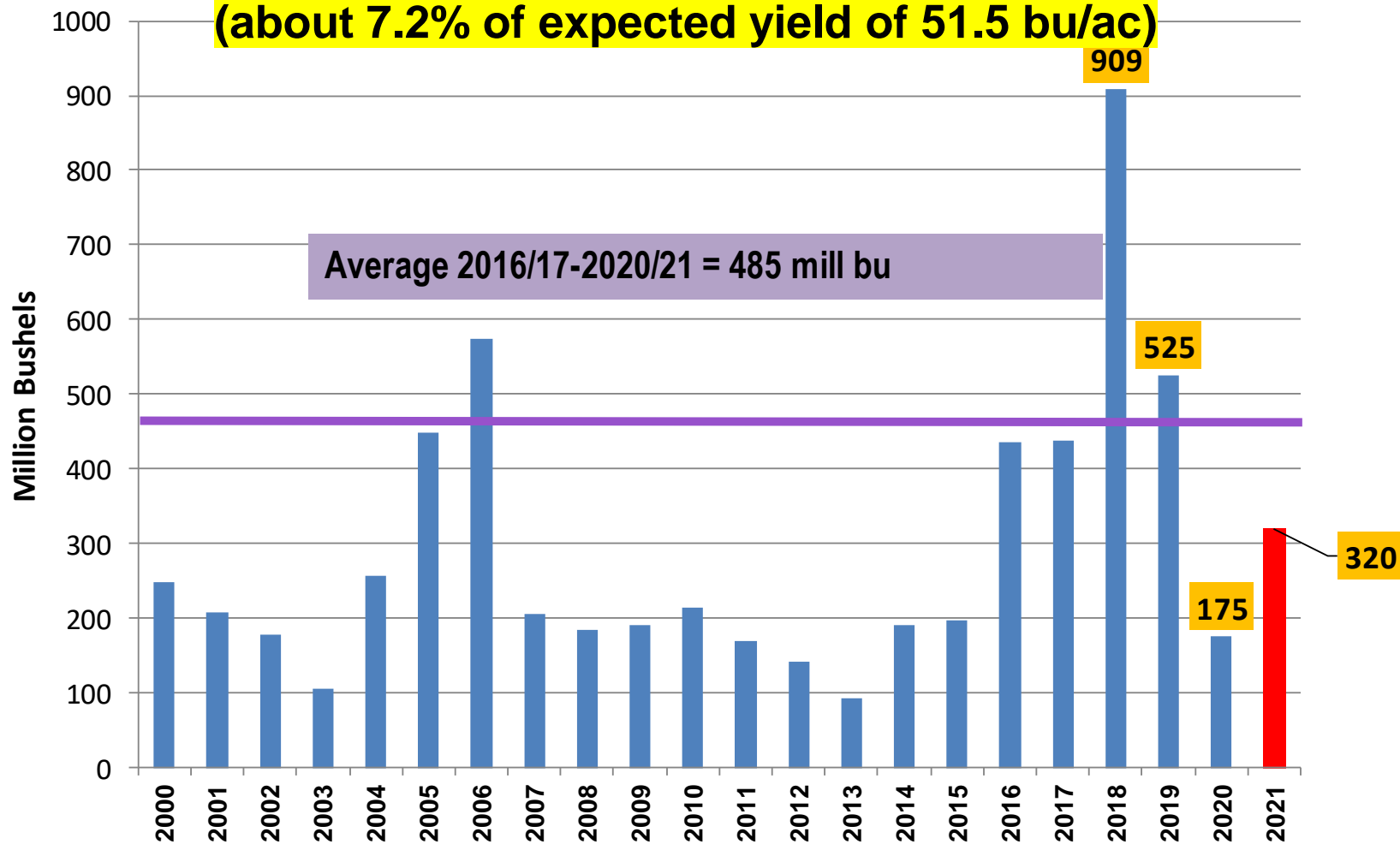
US Soybean Exports by Destination





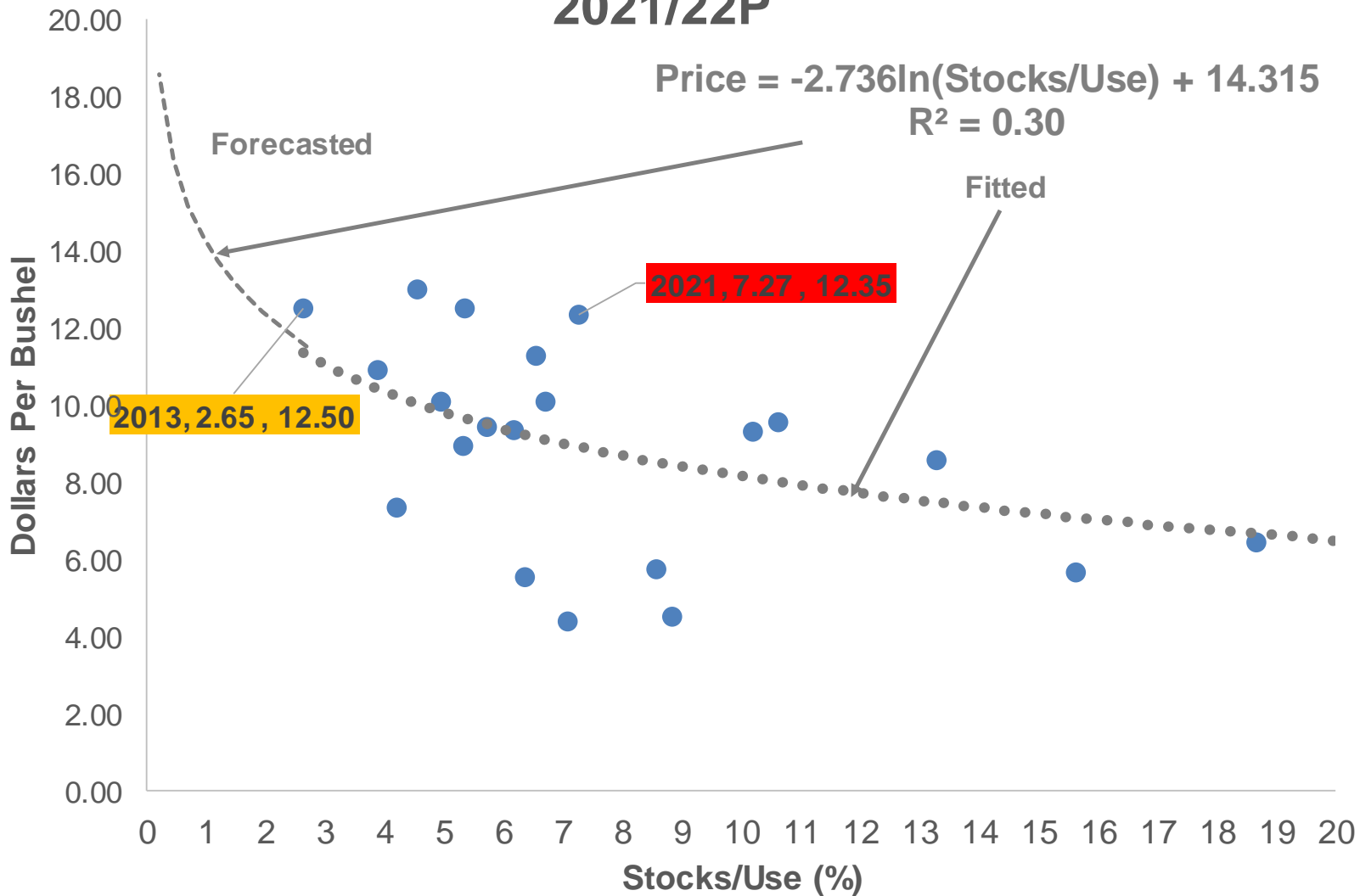
US Soybeans Ending Stocks 2000/01-2020/21F

**Zero Carryout if $320/86.4=3.7$ bu/ac yield loss
(about 7.2% of expected yield of 51.5 bu/ac)**





US Soybean Price and Stocks/Use 2000/01-2021/22P





S-NOV 2021

Published on TradingView.com, Oct 24, 2021 12:58 UTC-5

SOYBEAN FUTURES (NOV 2021), 1D, CBOT O1224'0 H1230'4 L1217'0 C1220'4 -3'4 (-0.29%)

Vol 92.237K

Rally on Prospective Planting Acres
\$14.75-\$11.80 = \$2.95 (25%)

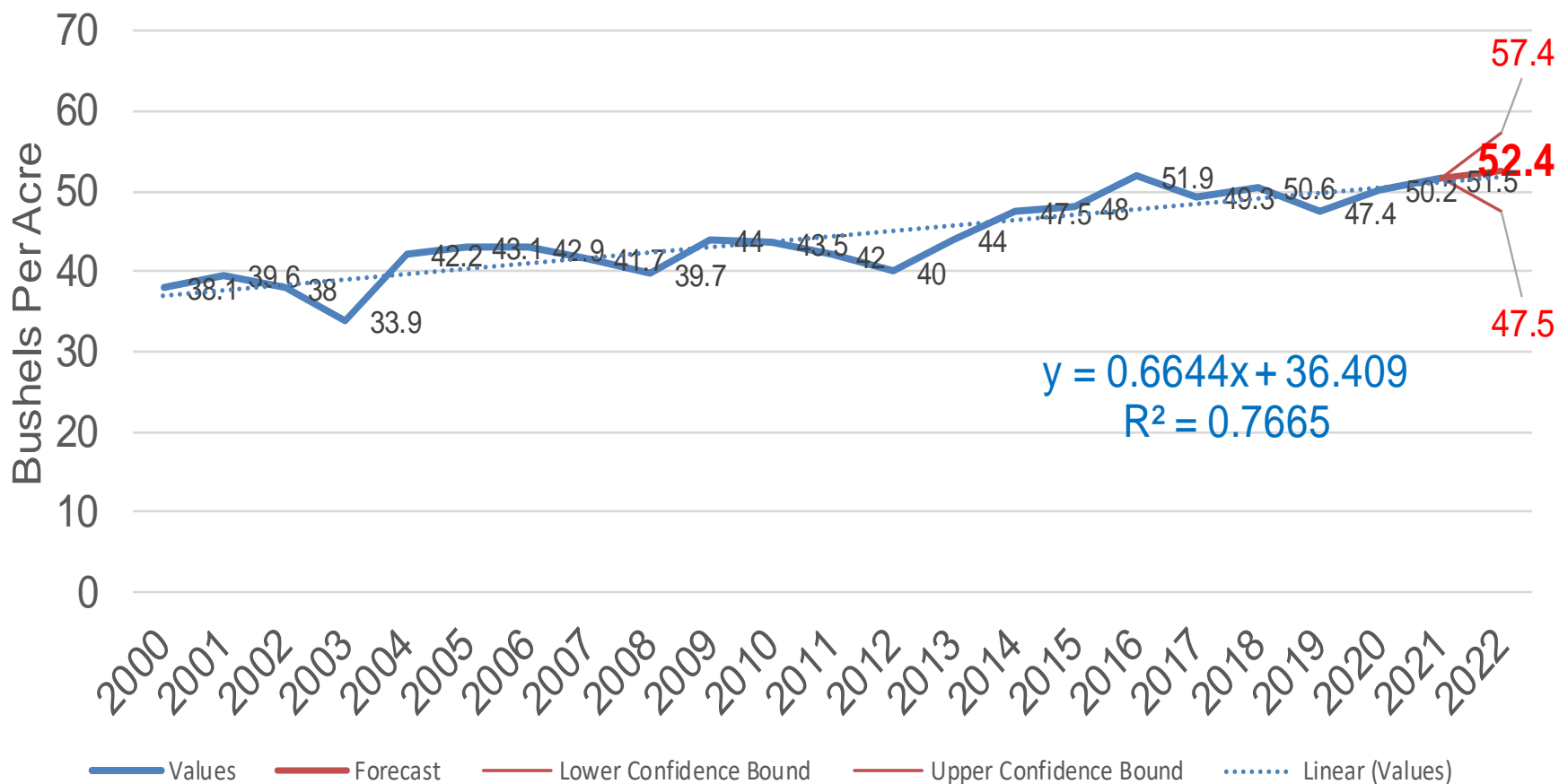
Downward trend with expected trend yields
\$14.25-\$12.00 = **-\$2.25**

Resistance at \$12.00





US Soybean Yields 2000-2022P (95% Confidence Interval)





2022 Soybean Acres Needed w/ Demand Constant at 2021 Levels to Replenish Ending Stocks to Previous 5-year Avg.

Soybeans	WASDE	Piggott Projections	
	2021/22 Proj. October	2022/23 Proj. Trend Yield	Difference
	Mil. Acres	Mil Acres	Mil Acres
Area Planted	87.2	88.2	1.0
Area Harvested	86.4	87.4	
	Bu/Ac	Bu/Ac	Bu/Ac
Yield per Harvested Acre	51.5	52.4	0.9
	Mil Bu.	Mil Bu.	Mil Bu.
Beginning Stocks	256	320	64
Production	4,448	4,579	131
Imports	15	15	0
Supply, Total	4,719	4,884	165
Demand			
Crush	2,190	2,190	0
Seed & Residual	119	119	0
Exports	2,090	2,090	0
Demand, Total	4,399	4,399	0
Ending Stocks (ES)	320	485	165
Stocks/Use	7.3%	11.0%	0
Avg Farm Price (\$/bu)	\$12.35	Below \$12.35 (↓)	?
Previous 5-year Avg. ES	485		



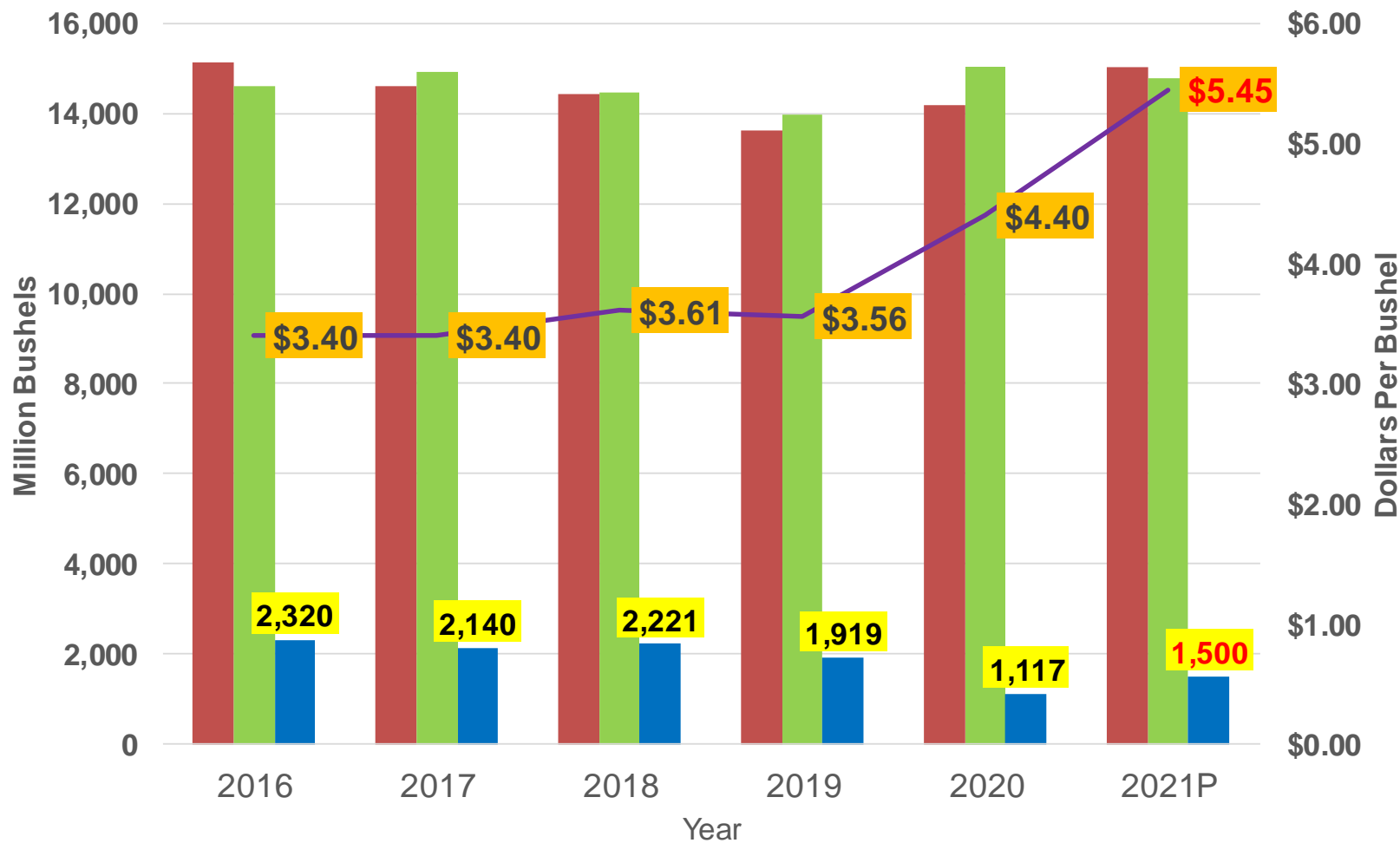
USDA SUPPLY/DEMAND BALANCE SHEET FOR CORN

	2019/2020	2020/21 Est	2021/22 Proj	%Δ
	Million Acres			
Acres Planted	89.7	90.8	93.3	2.8%
Acres Harvested	81.3	82.5	85.1	3.2%
Bu./Harvested Acre	167.5	172.0	176.5	2.6%
	Million Bushels			
Beginning Stocks	2,221	1,919	1,236	-35.6%
Production	13,620	14,182	15,019	5.9%
Total Supply	15,883	16,127	16,280	0.9%
Use:				
Feed and Residual	5,903	5,725	5,650	-1.3%
Ethanol for fuel	4,852	5,035	5,200	3.3%
Exports	1,778	2,745	2,500	-8.9%
Total Use (Demand)	13,963	14,940	14,780	-1.1%
Ending Stocks	1,919	1,187	1,500	26.4%
Ending Stocks, % of Use	13.7	7.9	10.1	27.7%
U.S. Season Avg. Farm Price, \$/ Bu.	\$3.56	\$4.45	\$5.45	22.5%

Source: USDA, WASDE Oct, 2021



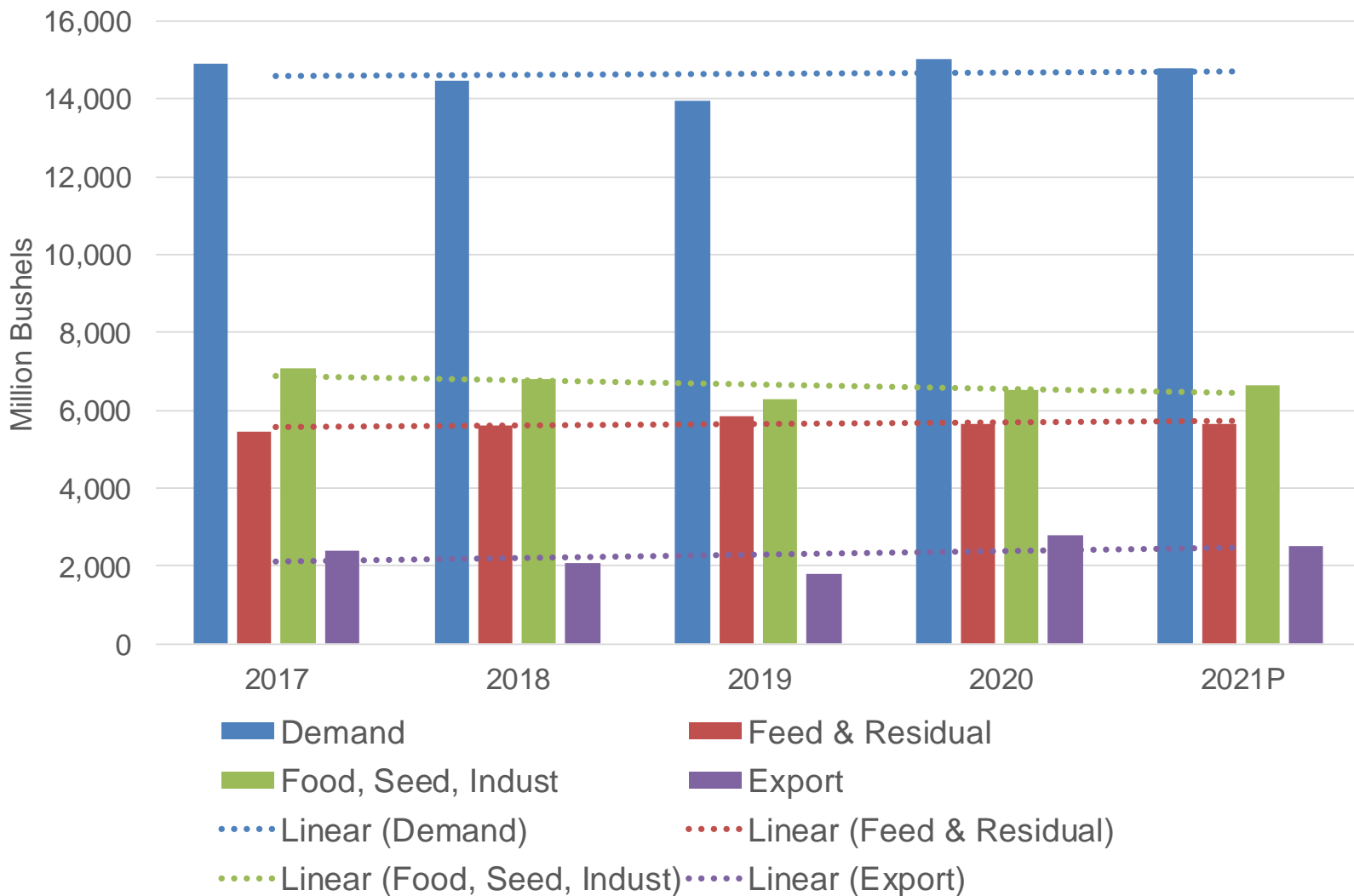
US Corn Production, Demand, Ending Stocks and Price 2017-2021P



■ Production ■ Demand ■ Ending Stocks — Price

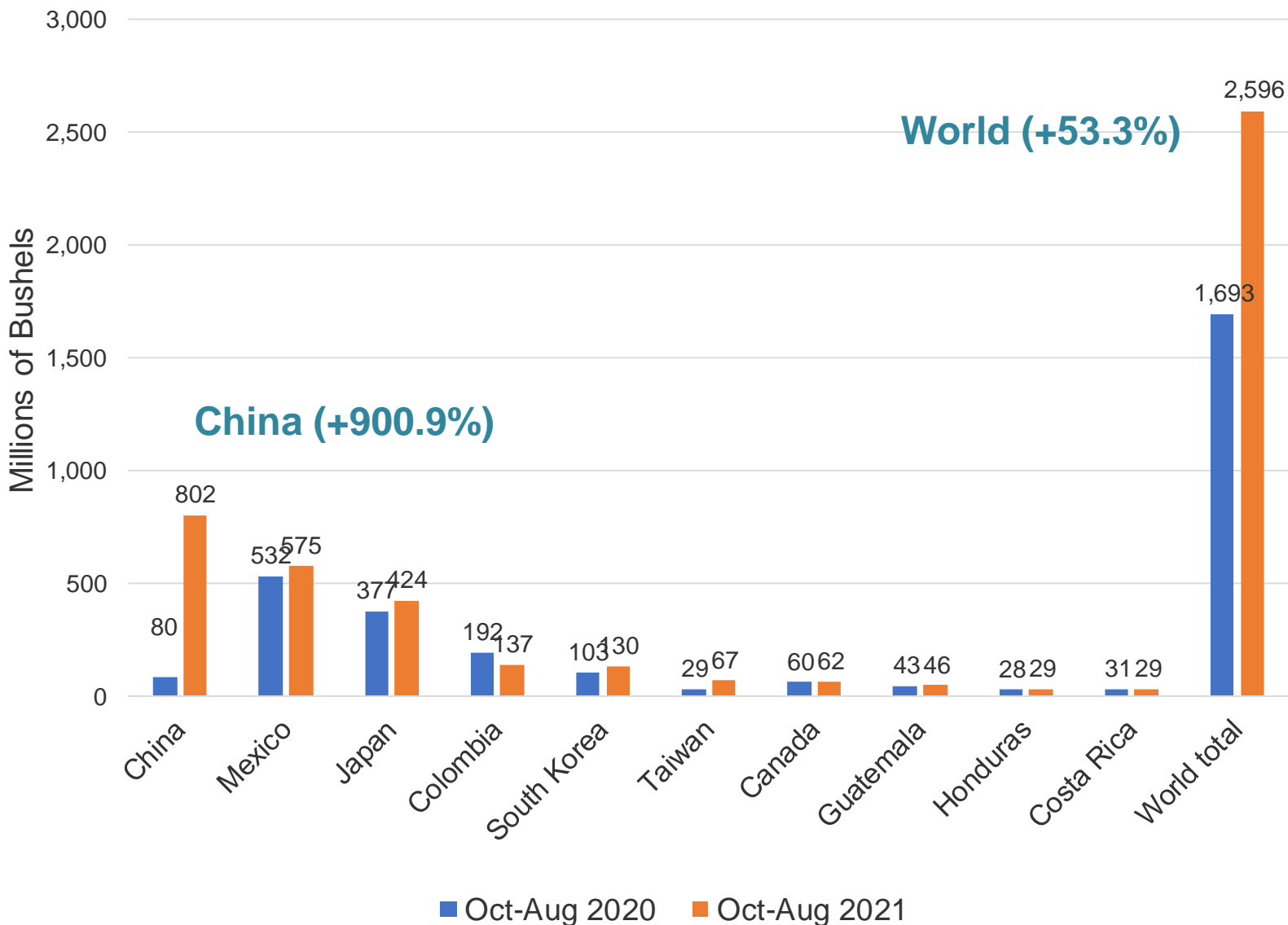


US Corn Demand: Total, Feed & Residual, Food Seed and Industrial, and Exports 2017-2021P



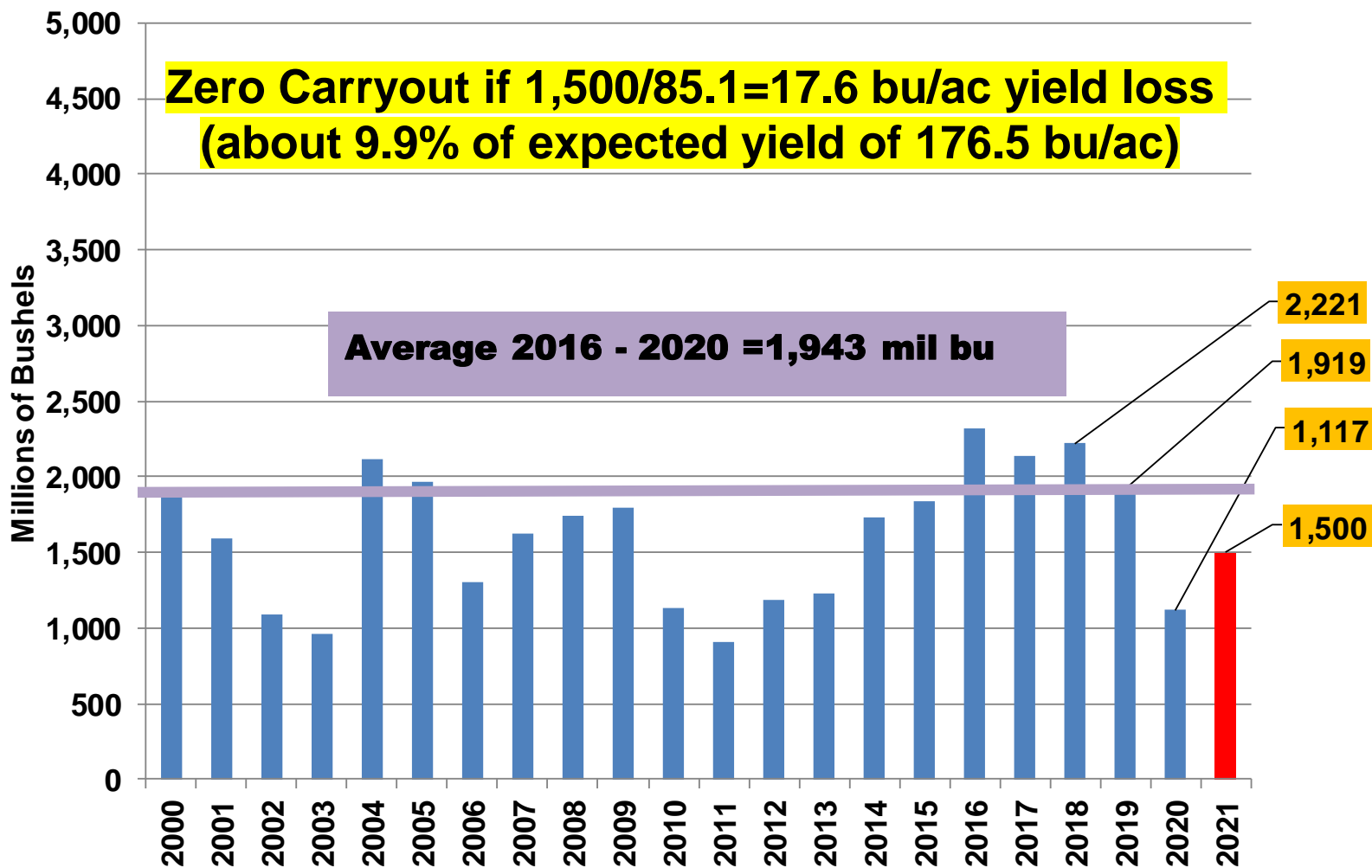


US Corn Exports by Destination



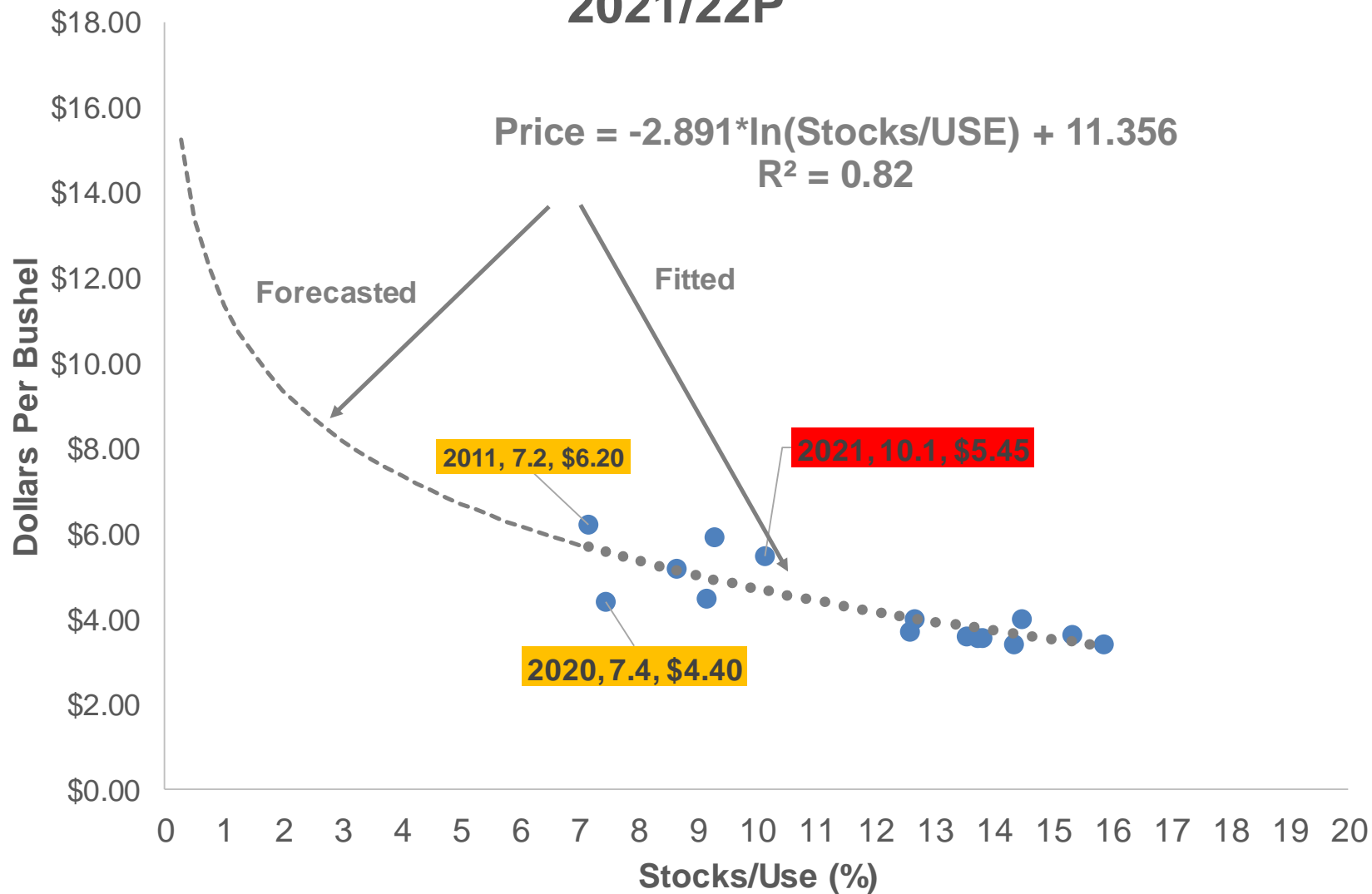


US Corn Ending Stocks 2000/01-2021/22F





US Corn Price and Stocks/Use 2007/08-2021/22P





C-DEC 2021

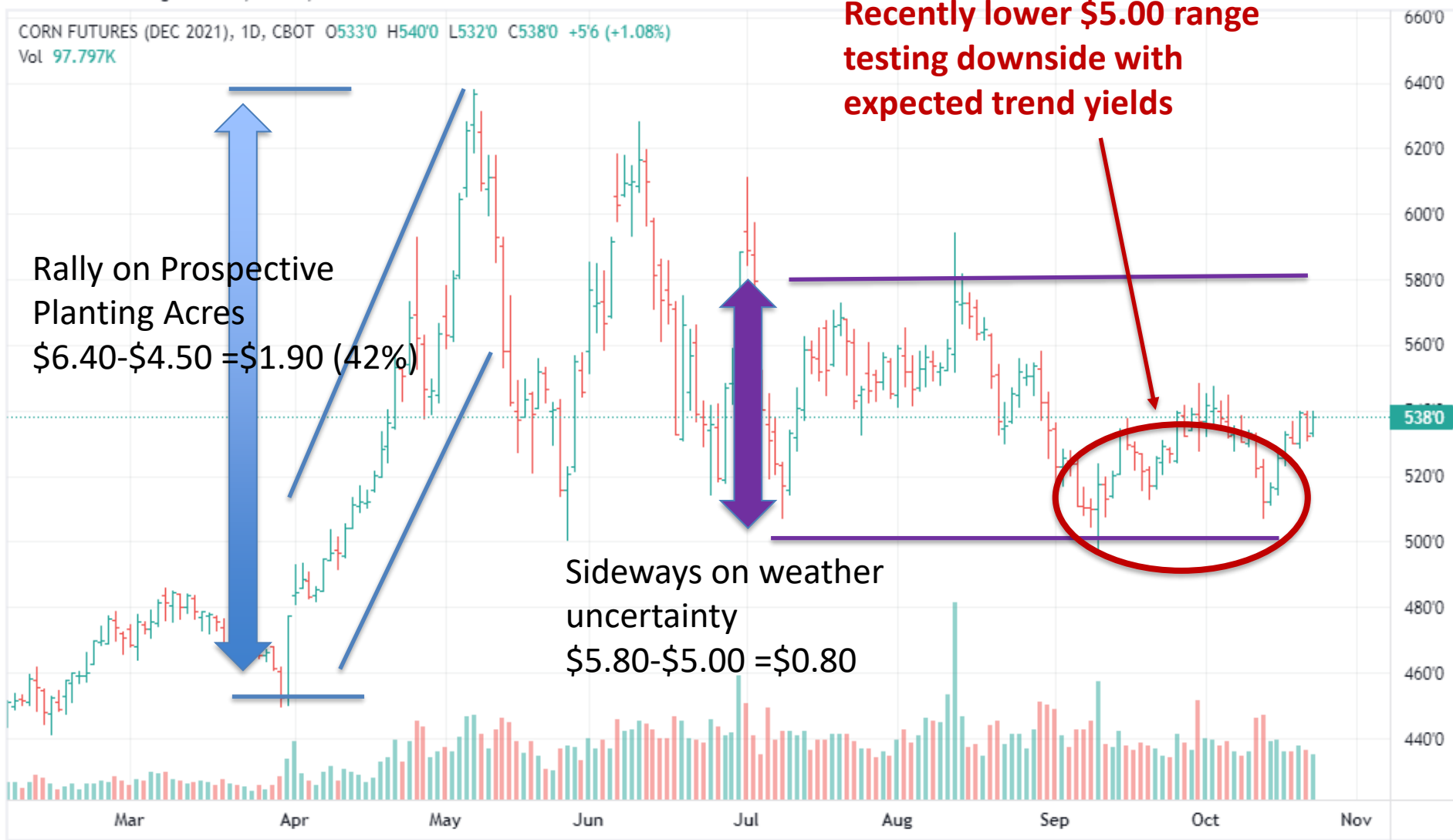
Published on TradingView.com, Oct 24, 2021 12:58 UTC-5

CORN FUTURES (DEC 2021), 1D, CBOT O533'0 H540'0 L532'0 C538'0 +5% (+1.08%)
Vol 97.797K

Recently lower \$5.00 range testing downside with expected trend yields

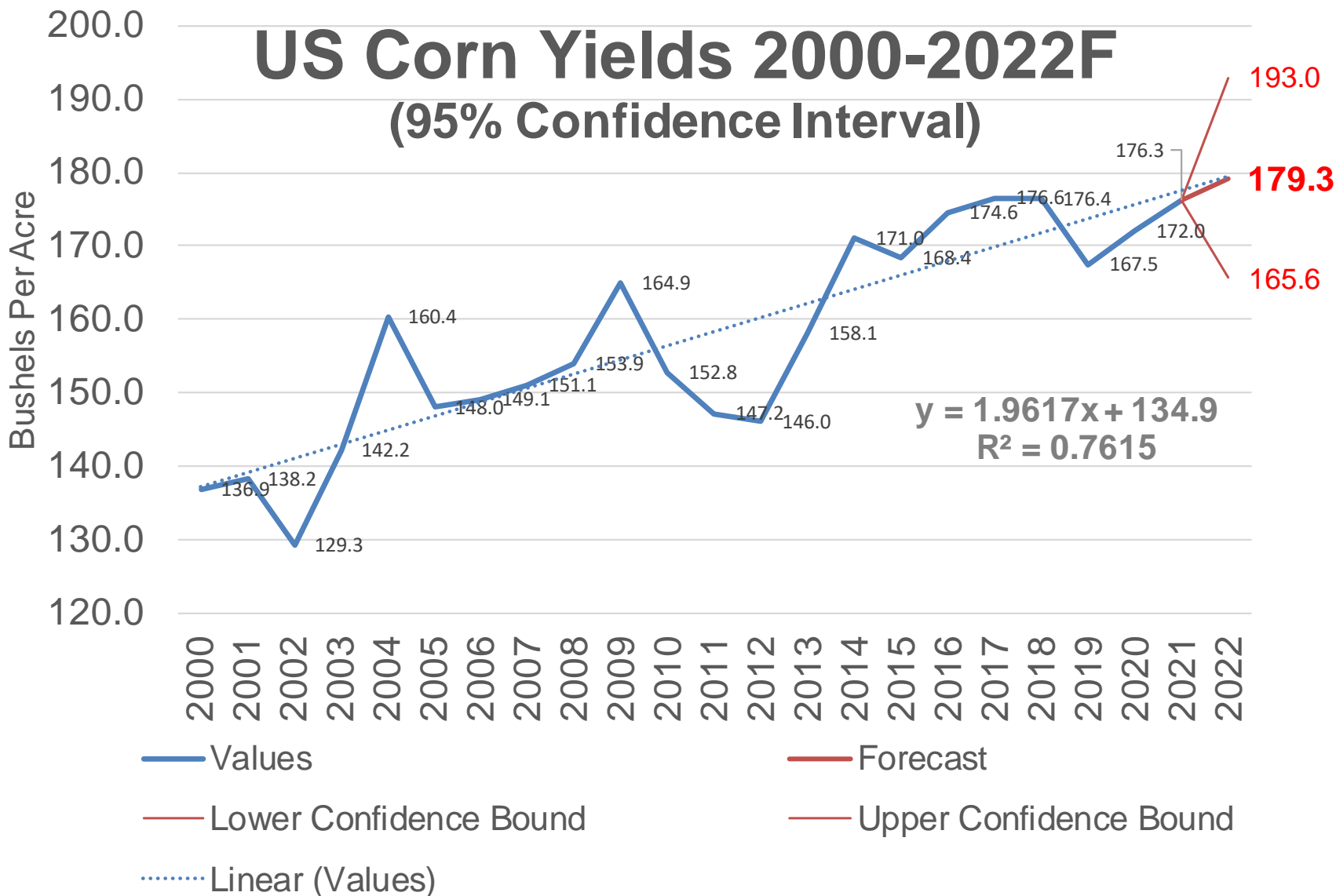
Rally on Prospective Planting Acres
\$6.40-\$4.50 = \$1.90 (42%)

Sideways on weather uncertainty
\$5.80-\$5.00 = \$0.80





US Corn Yields 2000-2022F (95% Confidence Interval)





2022 Corn Acres Needed w/ Demand Constant at 2021 Levels to Replenish Ending Stocks to Previous 5-year Avg.

CORN	WASDE	Piggott Projections	
	2021/22 Proj. Jul	2022/23 Proj.	Difference
		Trend Yield	
	Mil. Acres	Mil Acres	Mil Acres
Area Planted	93.3	93.2	-0.1
Area Harvested	85.1	85.0	
	Bu/Ac	Bu/Ac	Bu/Ac
Yield per Harvested Acre	176.5	179.3	2.8
	Mil Bu.	Mil Bu.	Mil Bu.
Beginning Stocks	1,236	1,500	264
Production	15,019	15,248	229
Imports	25	25	0
Supply, Total	16,280	16,723	443
Demand			
Feed and Residual	5,650	5,650	0
Food, Seed, & Industrial	6,630	6,630	0
Exports	2,500	2,500	0
Demand, Total	14,780	14,780	0
Ending Stocks (ES)	1,500	1,943	443
Stocks/Use	10.1%	13.1%	0
Avg Farm Price (\$/bu)	\$5.45	Below \$5.45 (↓)	?
Previous 5-year Avg. ES	1,943		



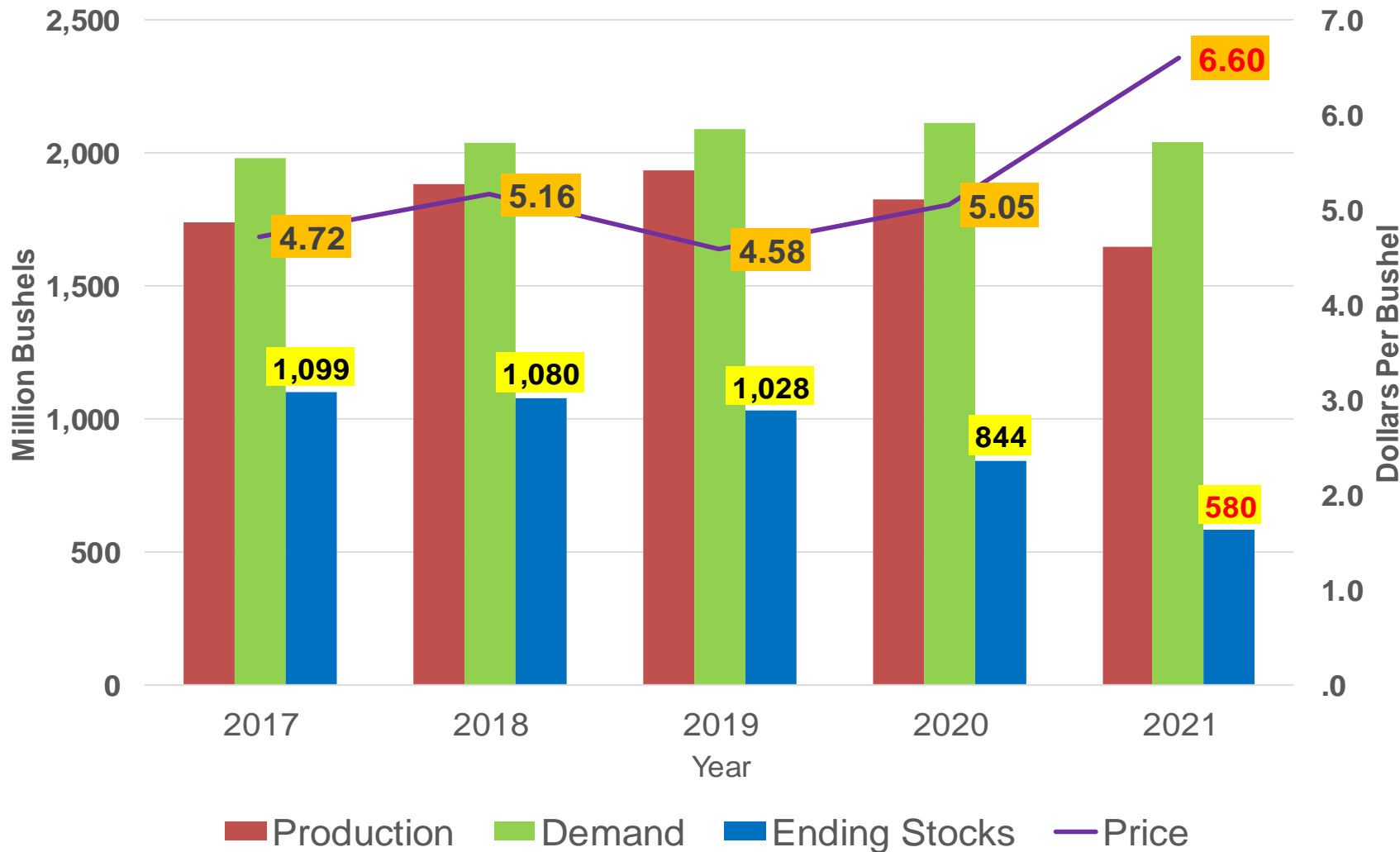
USDA SUPPLY/DEMAND BALANCE SHEET FOR WHEAT

	2019/20	2020/21 Est	2021/22 Proj	%Δ
Acres Planted	45.5	44.3	46.7	5.4%
Acres Harvested	37.4	36.7	37.2	1.4%
Bu./Harvested Acre	51.7	49.7	44.3	-10.9%
	Million Bushels			
Beginning Stocks	1,080	1,028	845	-17.8%
Production	1,932	1,826	1,646	-9.9%
Imports	104	100	125	25.0%
Total Supply	3,116	2,954	2,616	-11.4%
Use:				
Food	962	961	964	0.3%
Seed	60	61	62	1.6%
Feed & Residual	97	97	135	39.2%
Domestic, Total	1,118	1,119	1,161	3.8%
Exports	969	992	875	-11.8%
Total Use (Demand)	2,087	2,110	2,036	-3.5%
Ending Stocks	1,028	844	580	-31.3%
Ending Stocks, % of Use	49.3	40.0	28.5	-28.8%
U.S. Season Aver. Farm Price, \$/ Bu.	\$4.58	\$5.05	\$6.70	32.7%

Source: USDA, WASDE October 2021

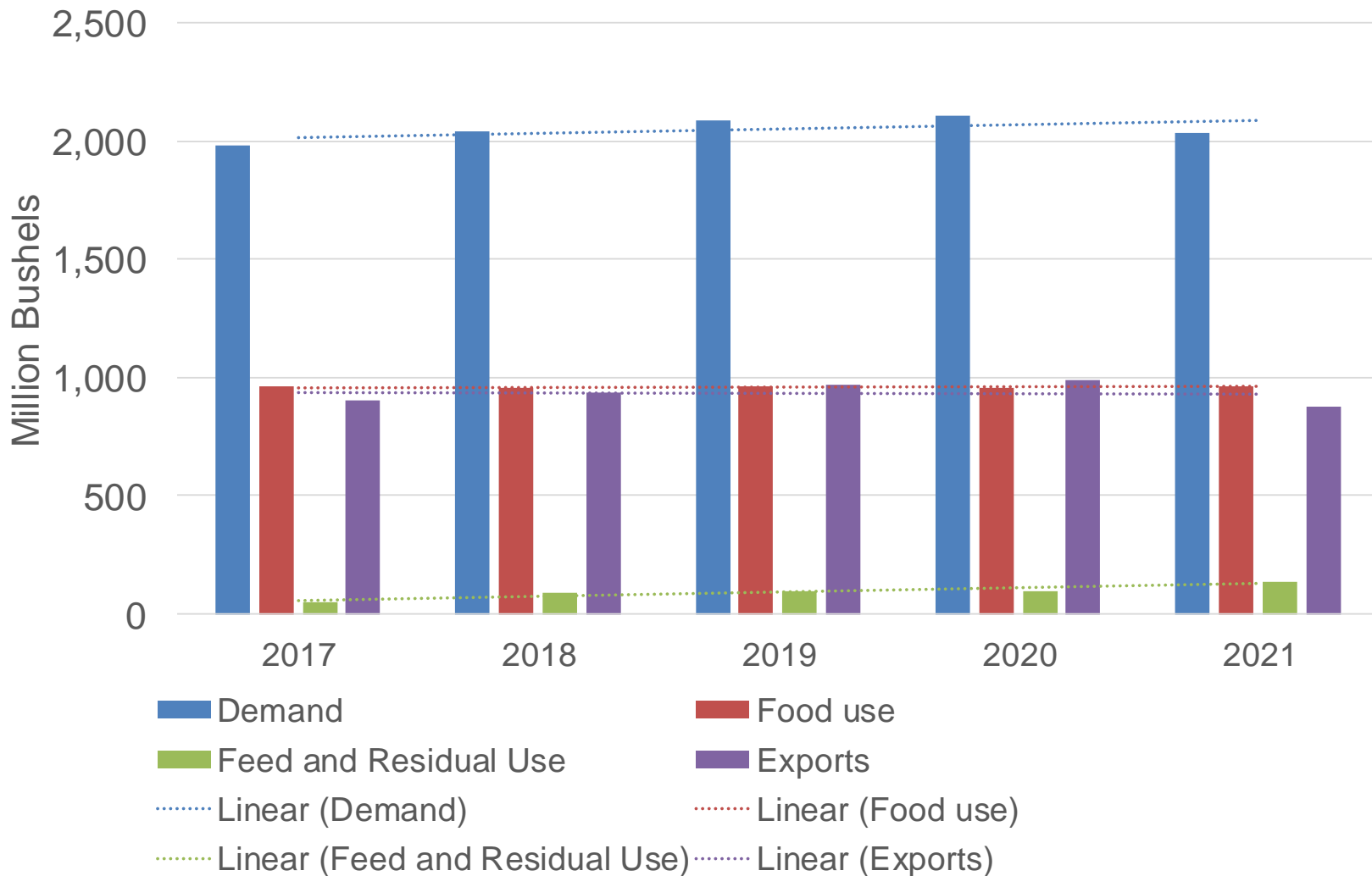


US Wheat Production, Demand, Ending Stocks and Price 2017-2021P



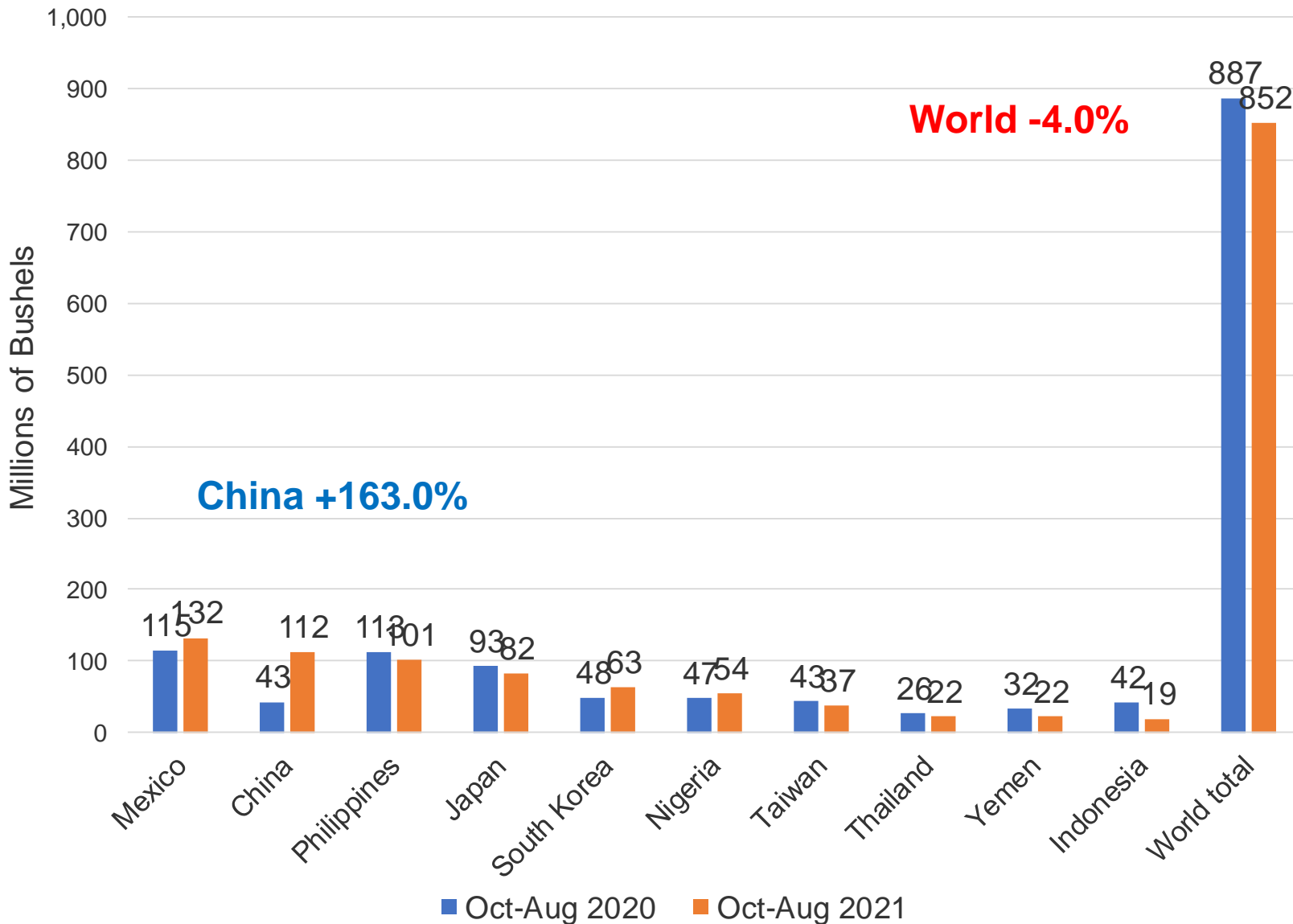


U.S. Wheat Demand: Food, Feed, and Exports 2017- 2021



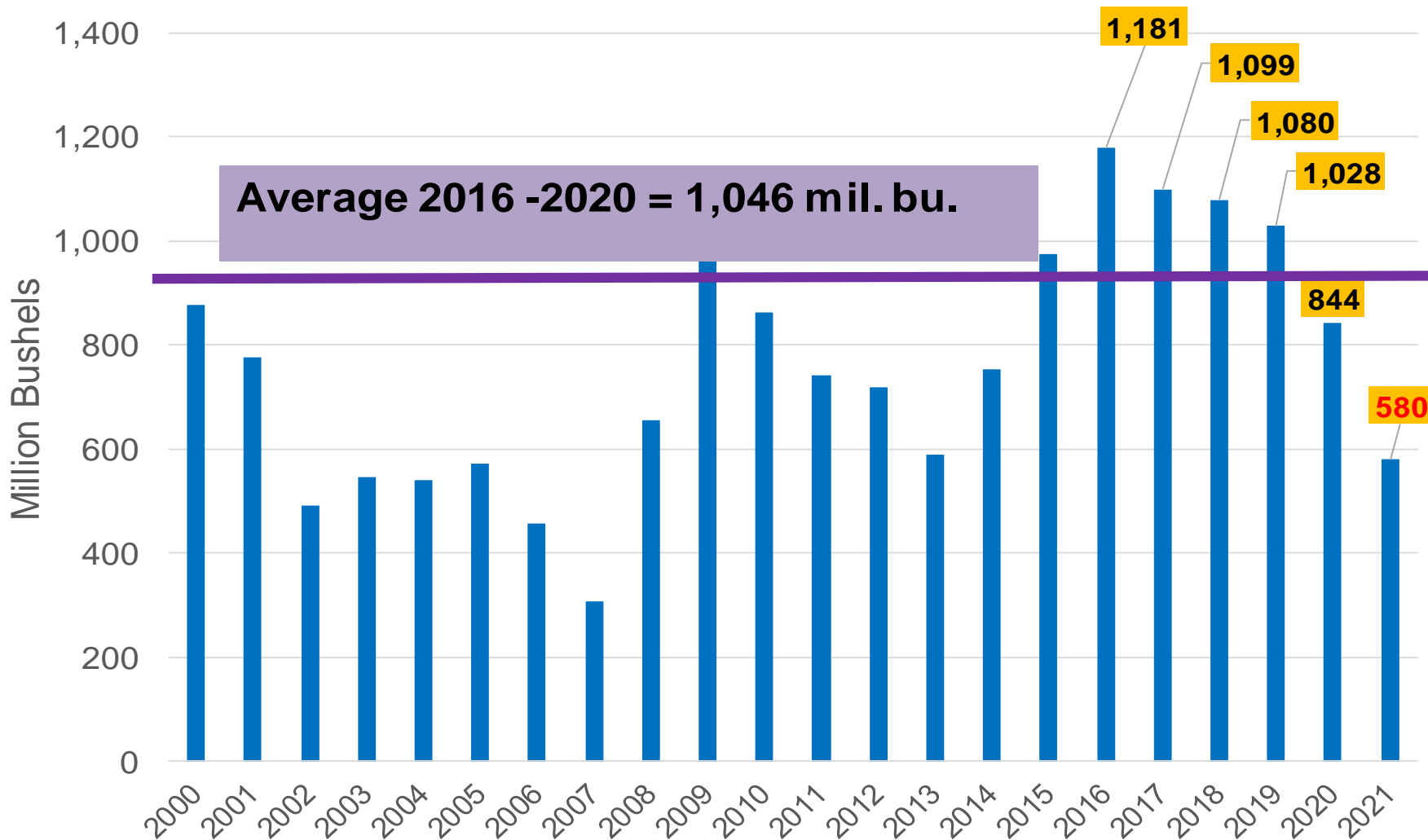


US Wheat (unmilled) Exports by Destination



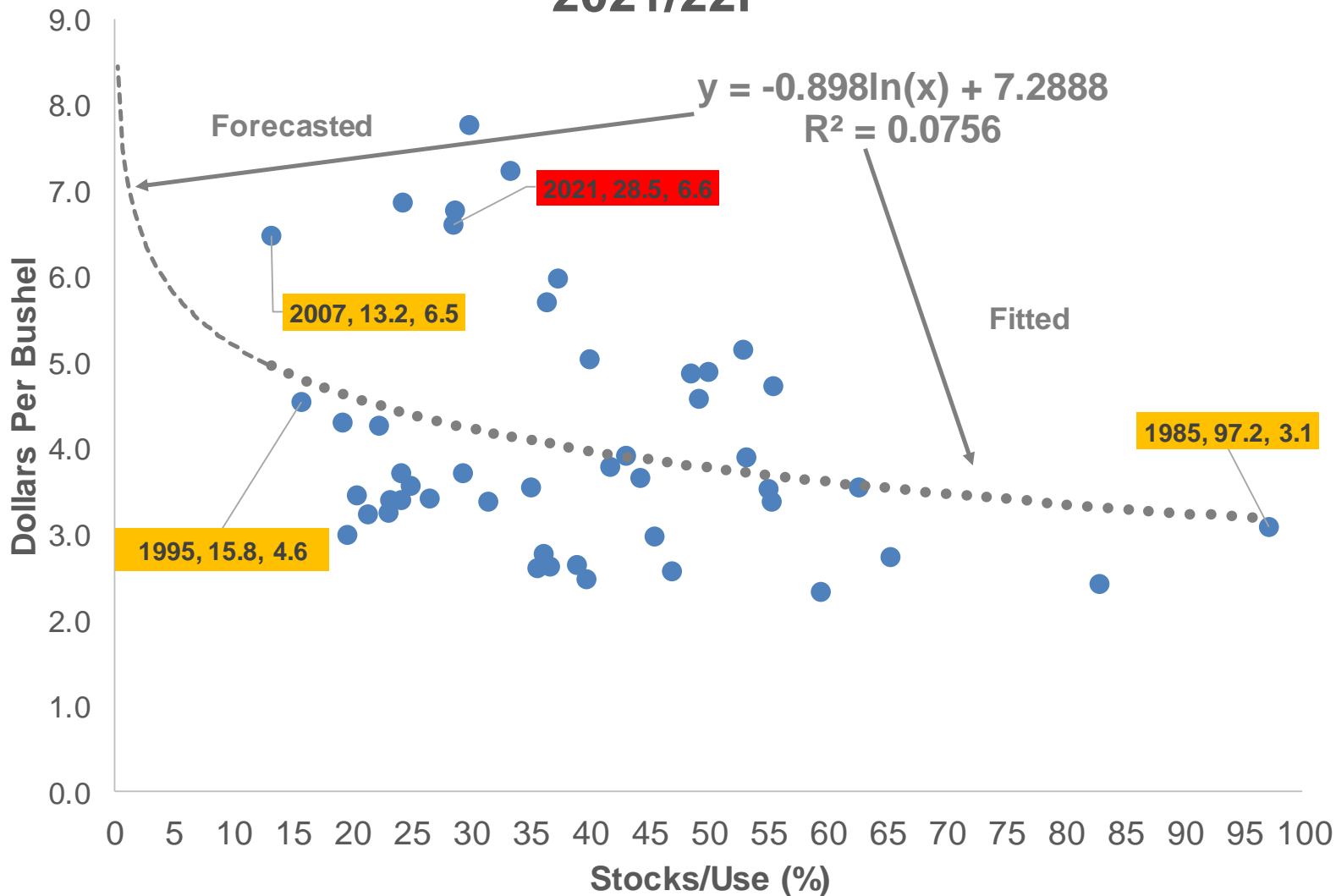


US Wheat Ending Stocks 2000/01-2021/22P





US Wheat Price and Stocks/Use 1975/76-2021/22P





W-JUL 2022

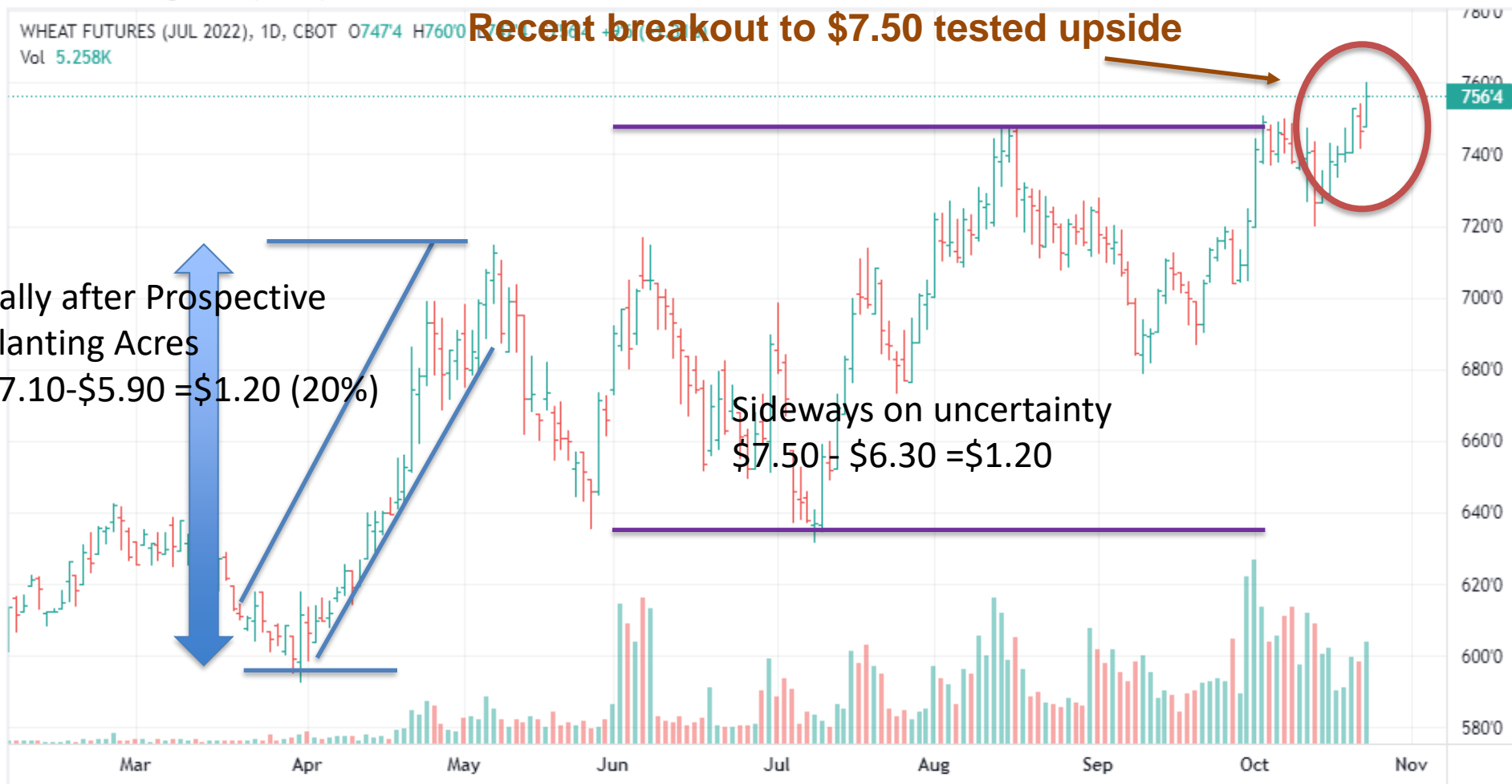
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WHEAT FUTURES (JUL 2022), 1D, CBOT O7474 H7600
Vol 5.258K

Recent breakout to \$7.50 tested upside

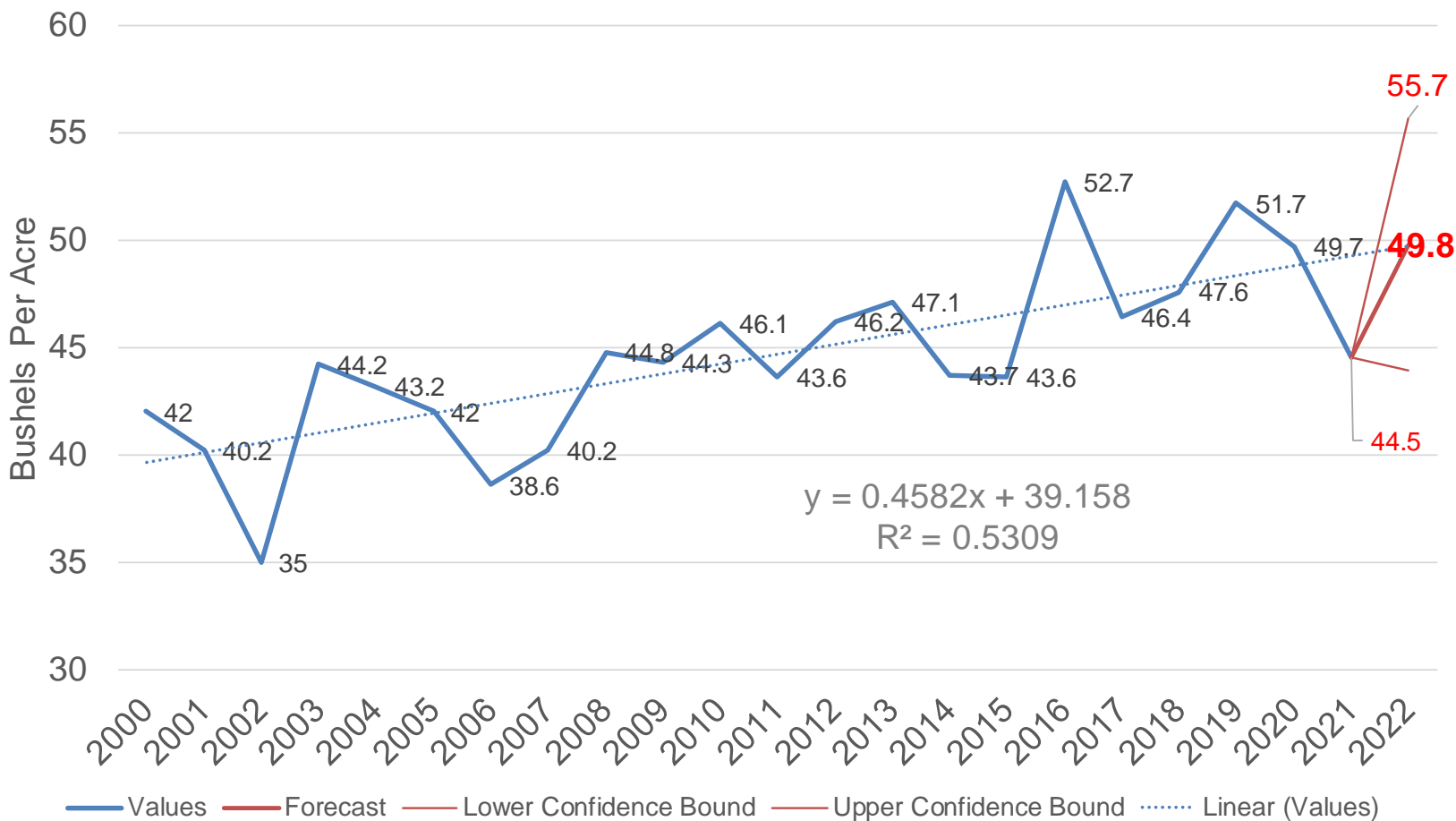
Rally after Prospective
Planting Acres
 $\$7.10 - \$5.90 = \$1.20$ (20%)

Sideways on uncertainty
 $\$7.50 - \$6.30 = \$1.20$





US Wheat Yields 2000-2022F (95% Confidence Interval)

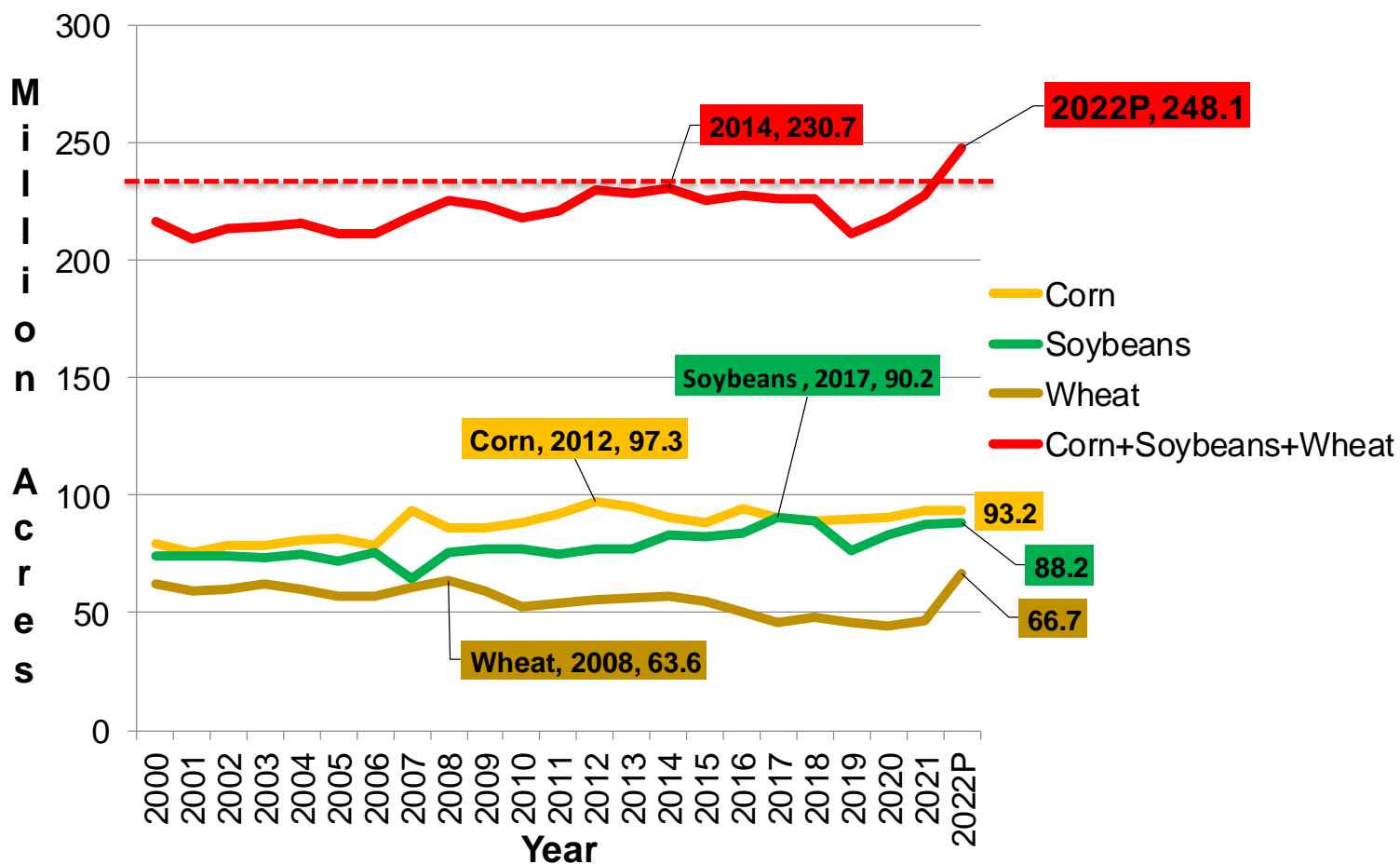




WHEAT	WASDE	Piggott Projections	
	2021/22 Proj. Jul	2022/23 Proj.	Difference
	Mil. Acres	Trend Yield	
	Mil. Acres	Mil Acres	Mil Acres
Area Planted	46.7	66.7	20.0
Area Harvested	37.2	53.2	
	Bu/Ac	Bu/Ac	Bu/Ac
Yield per Harvested Acre	44.3	49.8	5.5
	Mil Bu.	Mil Bu.	Mil Bu.
Beginning Stocks	844	580	-264
Production	1,646	2,647	1001
Imports	125	145	20
Supply, Total	2,616	3,082	466
Demand			
Food	964	964	0
Seed	62	62	
Feed and Residual	135	135	0
Exports	875	875	0
Demand, Total	2,036	2,036	0
Ending Stocks (ES)	580	1,046	466
Stocks/Use	28.5%	51.4%	0
Avg Farm Price (\$/bu)	\$6.70	Below \$6.70 (↓)	?
Previous 5-year Avg. ES	1,046		



US Major Corn, Soybean, and Wheat Acreage 2000-2022P--Projections Needed to Replenish Ending Stocks w/ Trend Yields and 2021 Demand Constant





Current and Historical North Carolina Corn, Soybean, and Wheat Price and Basis Data

https://agecon.ces.ncsu.edu/price_record/

Funded by the North Carolina Corn Growers

Team:

Nick Piggott (Faculty)

Heidi Schweizer (Faculty)

Robert Thompson (Graduate Student)

Robb Ladd (Extension IT)



Monthly Average for September 2021 of New Crop/ Harvest Prices and Basis Soybean

Location	Location Type	Commodity	Delivery	Prices	Basis
Fayetteville	Mills and Processors	Soybeans	Harvest	\$13.11	\$0.35
Selma	Mills and Processors	Soybeans	Harvest	\$12.91	\$0.15
Bladenboro	Country Elevators	Soybeans	Harvest	\$12.66	(\$0.10)
Whiteville	Country Elevators	Soybeans	Harvest	\$12.66	(\$0.10)
Clinton	Country Elevators	Soybeans	Harvest	\$12.63	(\$0.13)
Calypso	Country Elevators	Soybeans	Harvest	\$12.53	(\$0.23)
Lagrange	Country Elevators	Soybeans	Harvest	\$12.53	(\$0.23)
			Average	\$12.72	(\$0.04)
			Min	\$12.53	(\$0.23)
			Max	\$13.11	\$0.35



Monthly Average for September 2021 of New Crop/ Harvest Prices and Basis Corn

Location	Location Type	Commodity	Delivery	Price	Basis
Bladenboro	Country Elevators	Corn	Harvest	\$5.67	\$0.30
Bladenboro	Mills and Processors	Corn	Harvest	\$5.67	\$0.30
Cofield	Mills and Processors	Corn	Harvest	\$5.65	\$0.29
Creswell	Mills and Processors	Corn	Harvest	\$5.37	\$0.00
Elizabeth City	Country Elevators	Corn	Harvest	\$5.52	\$0.15
Laurinburg	Mills and Processors	Corn	Harvest	\$5.67	\$0.30
Monroe	Mills and Processors	Corn	Harvest	\$6.02	\$0.65
Nashville	Mills and Processors	Corn	Harvest	\$5.85	\$0.50
Roaring River	Mills and Processors	Corn	Harvest	\$6.22	\$0.85
Rose Hill	Mills and Processors	Corn	Harvest	\$5.87	\$0.50
Warsaw	Mills and Processors	Corn	Harvest	\$5.87	\$0.50
Whiteville	Country Elevators	Corn	Harvest	\$5.47	\$0.10
			Average	\$5.74	\$0.37
			Minimum	\$5.37	\$0.00
			Maximum	\$6.22	\$0.85
			Range	\$0.85	\$0.85



Crop Comparison Tool

Located at:

<https://cals.ncsu.edu/are-extension/crops-marketing-and-logistics/grain-marketing/>

Click on:

[Crop Comparison Tool](#)

Direct Link

https://cals.ncsu.edu/are-extension/wp-content/uploads/sites/27/2021/10/crop-comparison-tool_for_2022_with-cost-toggles-10-20-2021.xlsx

Developed by:

Nick Piggott

Derek Washburn

Department of Agricultural and Resource Economics



Budget Comparison 2021 Crop Year Cost & 2022 Market Conditions With Given Yields

2022 ESTIMATED GROSS RECEIPTS

Enter Average Land Rent Value Here	100							
	Corn	Soybean	Wheat	Sorghum	Cotton	Peanuts	Tobacco	Sweet Potatoes
Yield (bu/acre) ¹	180	60	70	65	--	--	--	400.00
Yield (lbs./acre)--Cotton, Peanuts and Tobacco	--	--	--	--	1,200	5,000	2,000	--
Yield (lbs./acre)--Cotton Seed	--	--	--	--	1,440	--	--	--
Price (New Crop Futures Price from CME & NYBOT 10/19/2021) or contract price	\$5.22	\$12.31	\$5.45	\$4.96	\$0.90	\$0.22	\$1.90	\$9.00
Cotton Seed	--	--	--	--	\$0.09	--	--	--
Current New Crop Basis	\$0.85	\$0.20	\$0.85	\$0.85	(\$0.02)	\$0.00	\$0.00	\$0.00
EXPECTED NET PRICE (New Crop Futures + Basis) ²	\$6.07	\$12.51	\$6.30	\$5.81	\$0.88	\$0.22	\$1.90	\$9.00
Gross Revenue	\$1,092.60	\$750.60	\$441.00	\$377.59	\$1,185.60	\$1,100.00	\$3,800.00	\$3,600.00
Budgeted Yield/5yr State Aver	144%	162%	123%	113%	136%	123%	104%	108%

2021 ESTIMATED VARIABLE EXPENSES¹

Total Variable Costs	\$510.55	\$322.01	\$320.06	\$299.18	\$677.46	\$800.87	\$3,120.61	\$2,589.34
Return above Variable Costs	\$582.05	\$428.59	\$120.94	\$78.41	\$508.14	\$299.13	\$679.39	\$1,010.66

2021 ESTIMATED FIXED EXPENSES

*TRACTOR/MACHINERY	\$49.75	\$54.67	\$42.11	\$61.85	\$117.75	\$123.33	\$405.12	\$88.53
Bulk Barn, Tobacco Loading system, Bailer, H2A overhead (for tobacco only)				-	-	-	\$309.58	-

-----FARM OVERHEAD IS INCLUDED ON THE CROP AND FARM SUMMARY SHEET-----

Total Fixed Costs	\$49.75	\$54.67	\$42.11	\$61.85	\$117.75	\$123.33	\$714.70	\$88.53
Total Cost	\$560.30	\$376.68	\$362.17	\$361.03	\$795.21	\$924.20	\$3,835.31	\$2,677.87
NET RETURNS TO FARMER AND RISK:	\$532.30	\$373.92	\$78.83	\$16.55	\$390.39	\$175.80	(\$35.31)	\$922.13

Break Even Yield	92	30	57	62	920	4201	2019	298
Break Even Price	\$3.11	\$6.28	\$5.17	\$5.55	\$0.54	\$0.18	\$1.92	\$6.69
Break Even Yield % of 5 yr. aver.	73.8%	81.4%	101.2%	N/A	104.5%	103.6%	104.7%	80.0%



Enter the % Increase In Cost for the Featured Input

	SEED or	Corn	Soybean	Wheat	Sorghum	Cotton	Peanuts
		0.0%	5.0%	28.1%	0.0%	0.0%	0.0%
Other Input Cost							
NITROGEN 30%	206.7%						
DAP (18-46-0)	0.0%						
PHOSPHATE (0-46-0)	0.0%						
POTASH (0-0-60)	80.1%						
LIME (PRORATED)	0.0%						
HERBICIDES	15.0%						
INSECTICIDES	0.0%						

CROP COMPARISON SUMMARY NO INCREASE

	Corn	Soybean	Wheat	Sorghum	Cotton	Peanuts
Gross Revenue	\$1,092.60	\$750.60	\$441.00	\$377.59	\$1,185.60	\$1,100.00
Total Variable Costs	\$510.55	\$322.01	\$320.06	\$299.18	\$677.46	\$800.87
Total Fixed Costs	\$49.75	\$54.67	\$42.11	\$61.85	\$117.75	\$123.33
Total Cost	\$560.30	\$376.68	\$362.17	\$361.03	\$795.21	\$924.20
NET RETURNS TO FARMER AND RISK:	\$532.30	\$373.92	\$78.83	\$16.55	\$390.39	\$175.80

Projected Input Costs Using % Increase from Yellow Cells

SEED or TRANSPLANTS	\$79.68	\$46.20	\$57.66	\$15.00	\$88.62	\$106.25
NITROGEN 30%	\$133.09		\$100.19	\$71.27	\$64.40	
DAP (18-46-0)	\$33.75				\$25.00	
PHOSPHATE (0-46-0)		\$18.09	\$15.83	\$18.31		\$12.48
POTASH (0-0-60)	\$22.69	\$37.31	\$13.23	\$11.34	\$18.91	\$37.81
LIME (PRORATED)	\$17.99	\$17.99	\$17.99	\$17.99	\$17.99	\$17.99
HERBICIDES	\$37.63	\$36.33	\$13.12	\$22.34	\$72.53	\$58.70
INSECTICIDES			\$6.72	\$9.31	\$65.79	\$29.51
Total Featured Input Costs	\$324.83	\$155.92	\$224.74	\$165.57	\$353.24	\$262.74
Additional Input Costs	\$104.69	\$23.53	\$90.76	\$60.13	\$90.52	\$37.59
% Increase in Featured Input Costs	147.6%	117.8%	167.7%	157.0%	134.5%	116.7%
Projected NET RETURNS TO FARMER AND RISK	\$427.61	\$350.39	-\$11.93	-\$43.57	\$299.87	\$138.21

Net Return Difference (Row 19 - Row 48) -\$104.69 -\$23.53 -\$90.76 -\$60.13 -\$90.52 -\$37.59



Final Thoughts

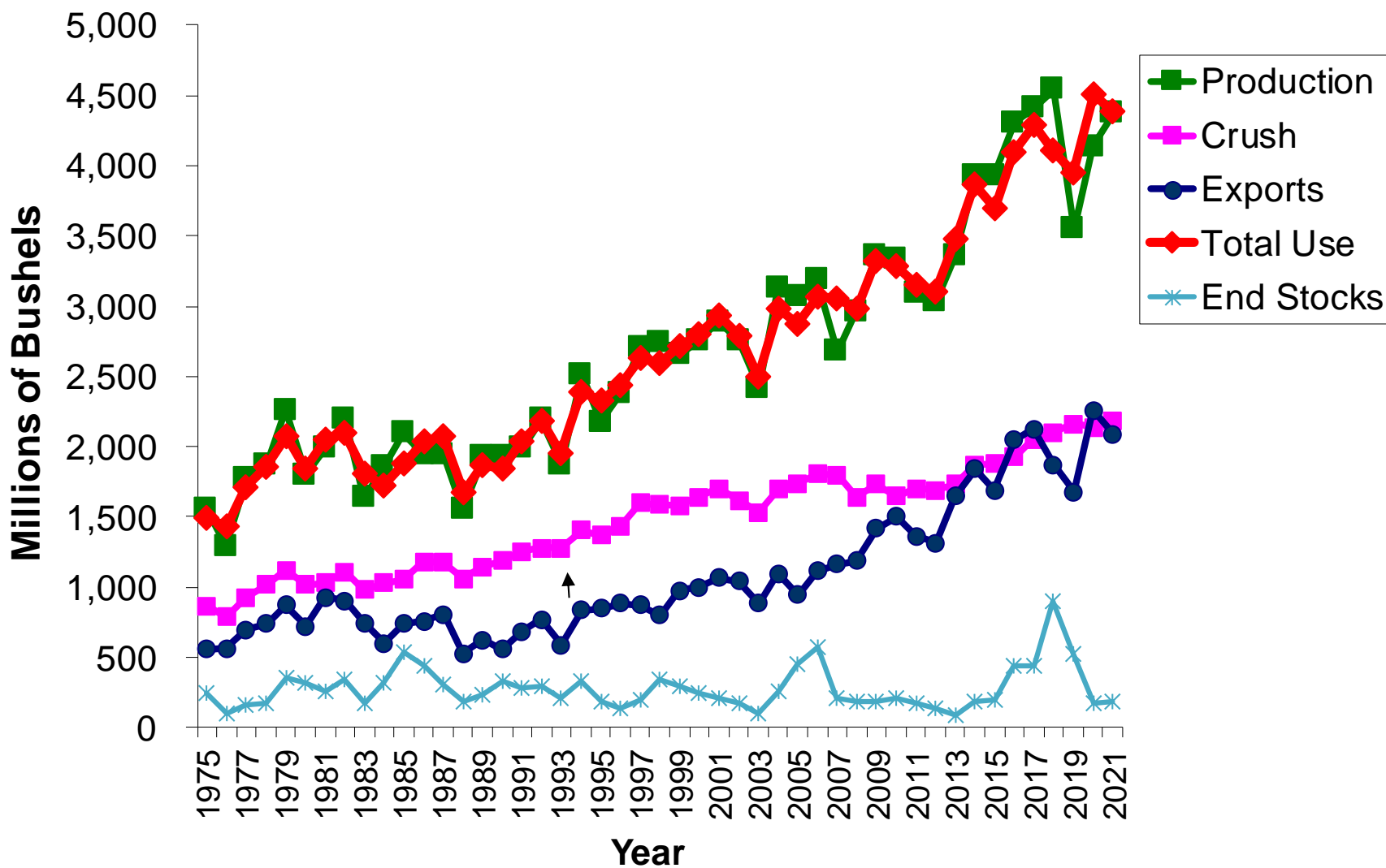
- Current price levels make for profitable sales of corn and soybeans in 2021
- Markets will tend to trade lower as expected trend yields or further improvements are realized for 2021
- Below average ending stocks in soybeans and corn should provide support above previous lows with momentum to the upside for 2022
- Increasing costs of inputs (seed, fertilizer, herbicides, insecticides) for 2022 will impact planting decisions and profitability and could lead to a reduction in acreage providing support for prices
- Prospective Planting report in March 2022 will be **crucial** in setting price levels moving forward especially with the headwinds from increasing input prices going into planting



THE END

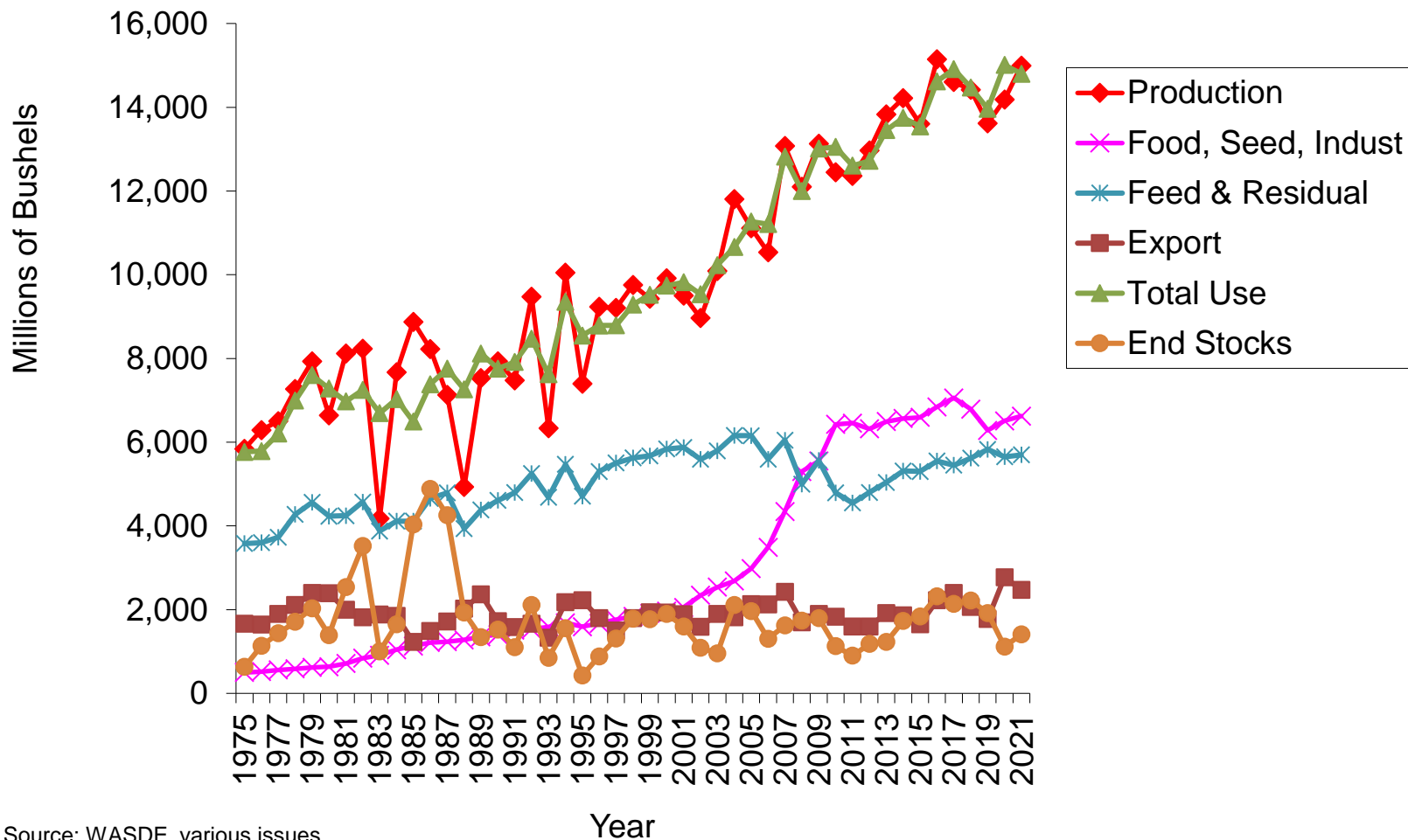


US Soybean Supply and Disappearance 1970/71-2021/22F





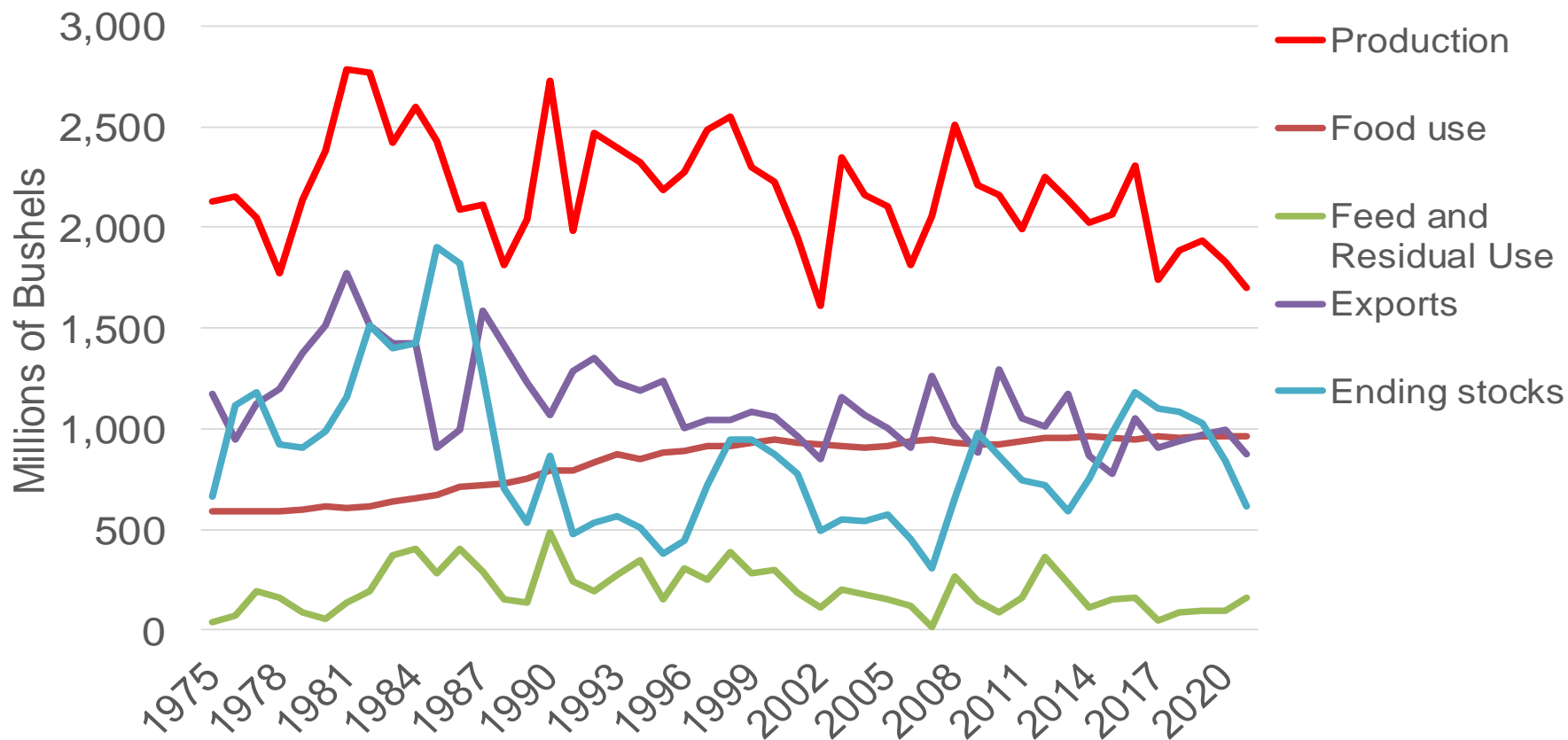
U.S. Corn Supply and Disappearance 1975/76-2021/22F



Source; WASDE, various issues

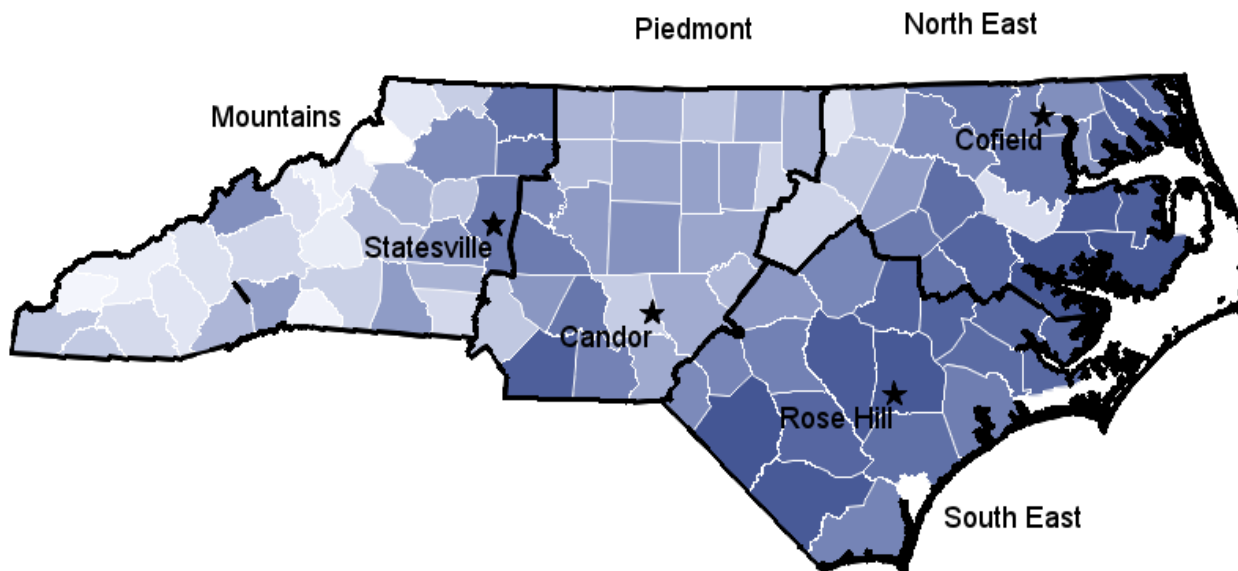


U.S. Wheat Supply and Disappearance 1975/76-2021/22F



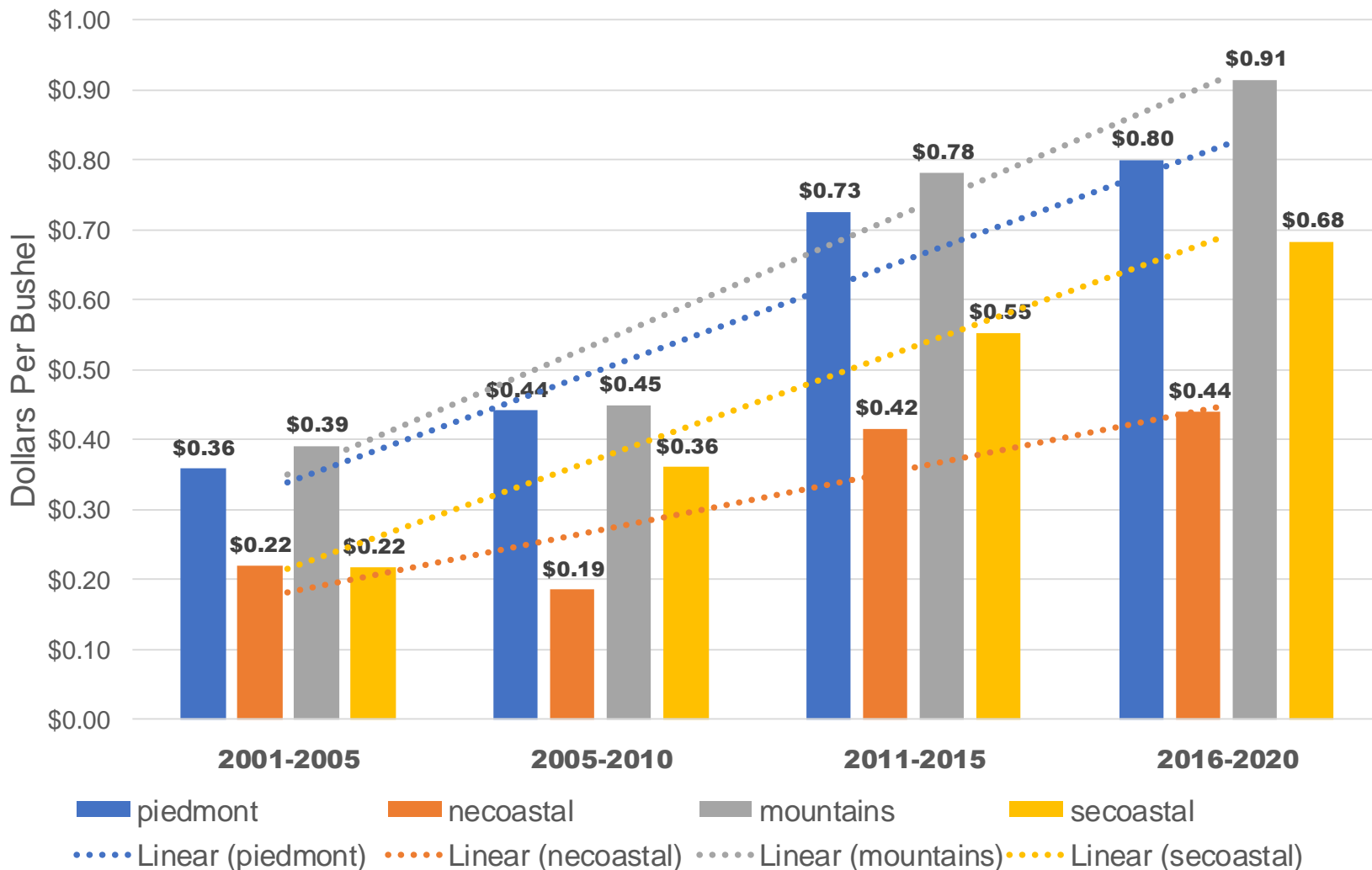


Corn Production by Regions and Markets





NC Corn Monthly Immediate Basis 5-Year Averages by Regions 2001(3)-2020(12)





North Carolina Average "Basis Carry" by Month and Regions for 2001(3) - 2021(4)

