



# US and NC Outlook for Corn, Soybeans, and Wheat

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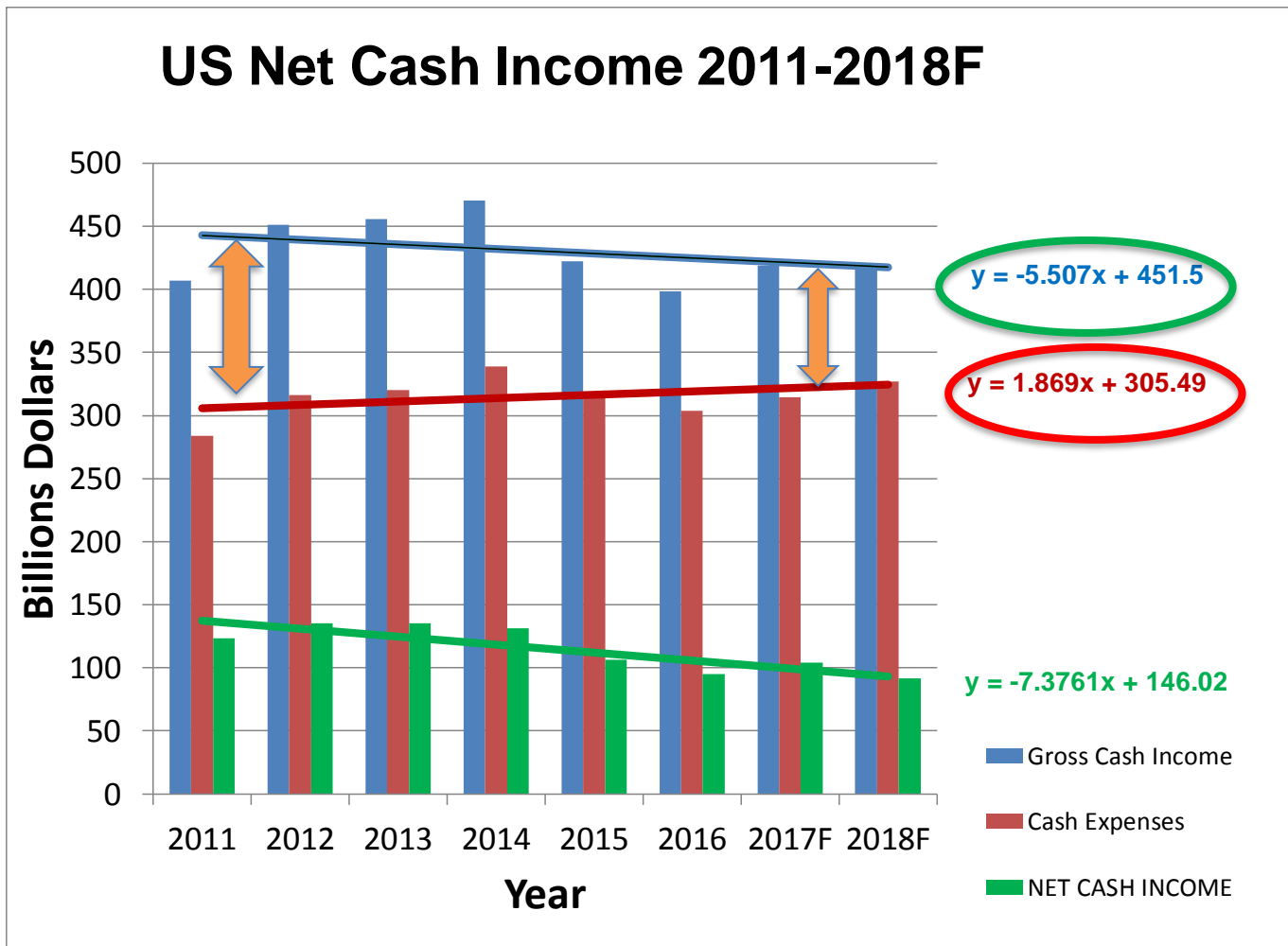
# 2018F U.S. agricultural economy setting new lower levels from historical highs

## Income Statement U.S. Farm Sector 2011-2018F

	2011	2012	2013	2014	2015	2016	2017F	2018F	2018F v. 2017F	2018F v. 2013
	\$ billion									
Cash Receipts	365.9	401.4	403.6	424.2	377.1	357.9	374.3	374.0	-0.1%	-7.3%
Crops	201.0	231.6	220.8	211.4	187.6	195.0	198.3	197.6	-0.3%	-10.4%
Livestock	164.9	169.8	182.7	212.8	189.5	162.8	176.0	176.2	0.1%	-3.5%
Direct Govt. Pay	10.4	10.6	11.0	9.8	10.8	13.0	11.5	9.5	-17.4%	-13.5%
Farm-related income	30.8	39.3	41.0	36.6	34.4	27.9	32.9	34.7	5.6%	-15.3%
Gross Cash Income	407.1	451.3	455.5	470.6	422.3	398.7	418.7	418.2	-0.1%	-8.2%
Cash Expenses	283.9	316.1	320.0	339.0	315.9	303.8	314.8	326.7	3.8%	2.1%
<b>NET CASH INCOME</b>	<b>123.2</b>	<b>135.3</b>	<b>135.6</b>	<b>131.6</b>	<b>106.3</b>	<b>94.9</b>	<b>104.0</b>	<b>91.5</b>	<b>-12.0%</b>	<b>-32.5%</b>
	Percent									
Selected ratios:										
Debt-to-equity	14.5	12.7	12.8	13.3	14.0	14.5	15.1	15.5	2.7%	21.1%
Debt-to-asset	12.7	11.3	11.4	11.7	12.3	12.7	13.1	13.4	2.3%	18.3%



US agriculture is now experiencing a **cost-price squeeze**--a period of increasing **costs** and simultaneous decreasing **prices**.



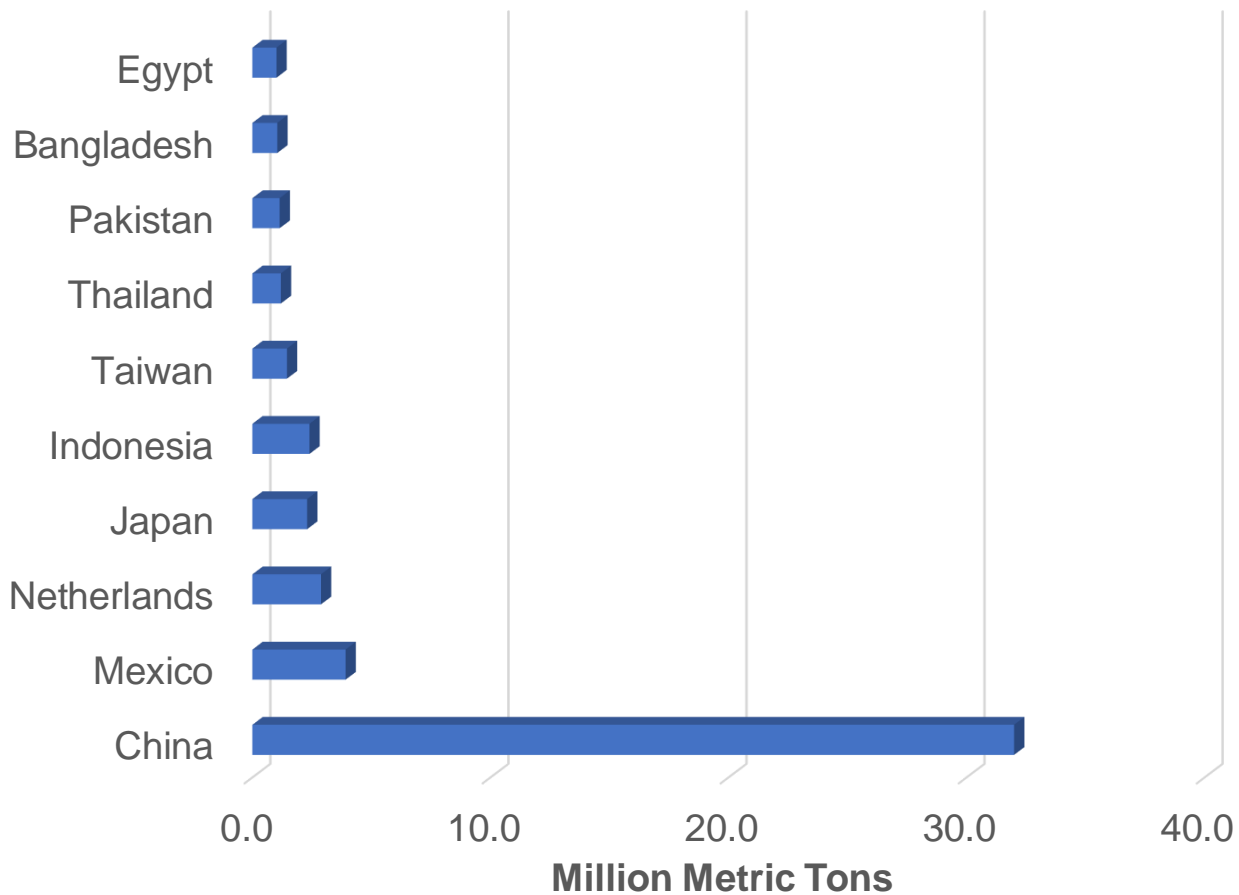


# Trade Wars Implications for Agriculture

- ❑ In March 2018, U.S. imposes tariffs to protect U.S. manufacturing jobs (25% tariff on steel and 10% on aluminum)
- ❑ The response from the rest of the world has been tit-for-tat tariff increases on U.S. exports. A focus has been on the retaliation tariffs from China.
  - U.S. agriculture in the spotlight for tariff retaliation
- ❑ China has threatened to impose a 25% tariff on 128 U.S. products in response to a U.S. proposal to impose a 25% tariff on imported products from China
  - The Chinese list includes soybeans, wheat, corn, sorghum, and beef.
  - Soybeans is the largest agricultural export from the United States to China.
- ❑ US soybean exports account for approximately 48% of total use annually. More than 60% of these exports are destined to China so the Chinese tariff on U.S. soybeans alone could generate major economic consequences for U.S. agriculture.
- ❑ China also imports significant quantities of wheat, sorghum, and corn from the United States. Extending the coverage of Chinese tariffs on these products could amplify the economic implications of China's retaliation policy for U.S. agriculture.

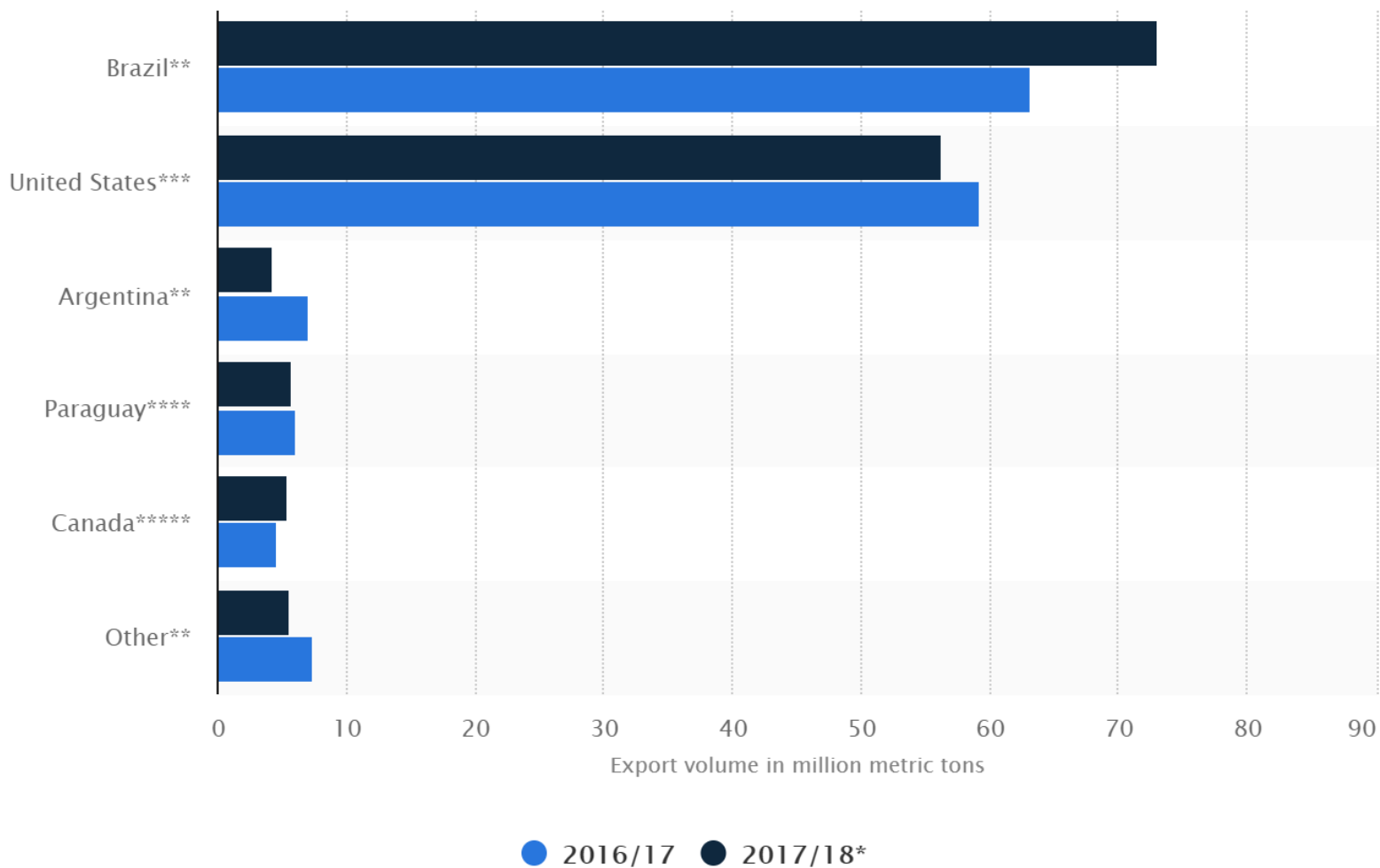


## US Soybean Exports By Destination for 2017--Total 55.5 MMT





# Soybean Export Volume by Country





# What is a Tariff? Why Use Them?

- ❑ A tariff is a tax levied on an imported good. There are two types:
  - A **per unit** tariff is a fixed charge for each unit—\$90 per metric ton of imported soybeans
  - A **proportion** tariff (“ad valorem”) is levied as a proportion of the value of imports—25% tariff on imported soybeans
- ❑ Why do countries impose tariffs?
  - To raise revenues—more prominent historically
  - To alter the balance of trade. Tariffs make imports more expensive.
    - To protect and develop infant industries
    - To protect domestic employment from more competitive foreign products
    - Retaliation when a country thinks a trading partner has not played by the rules



# Tariffs: Winners and Losers

## ❑ Beneficiaries:

- Governments receive increased revenues
- Producers and workers in domestic industries enjoy reduced competition (inflated prices)

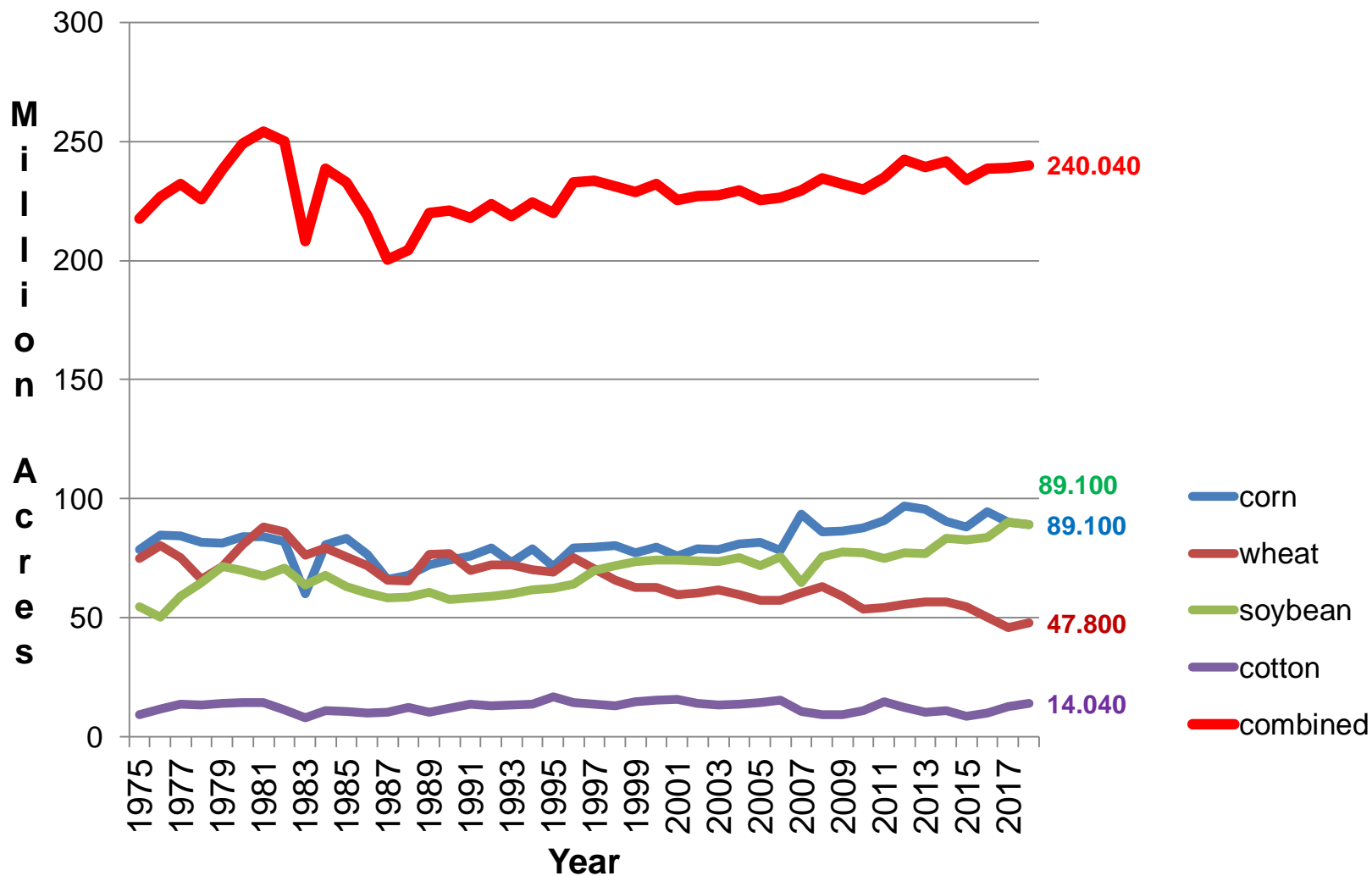
## ❑ Losers:

- Domestic consumers—individuals and businesses because of higher priced goods.
- Domestic exporters who experience retaliatory tariffs
- Economic welfare—there are deadweight losses from tariffs in the form of production and consumption efficiencies





# US Major Corn, Soybean, Wheat, and Cotton Acreage 1975-2018F





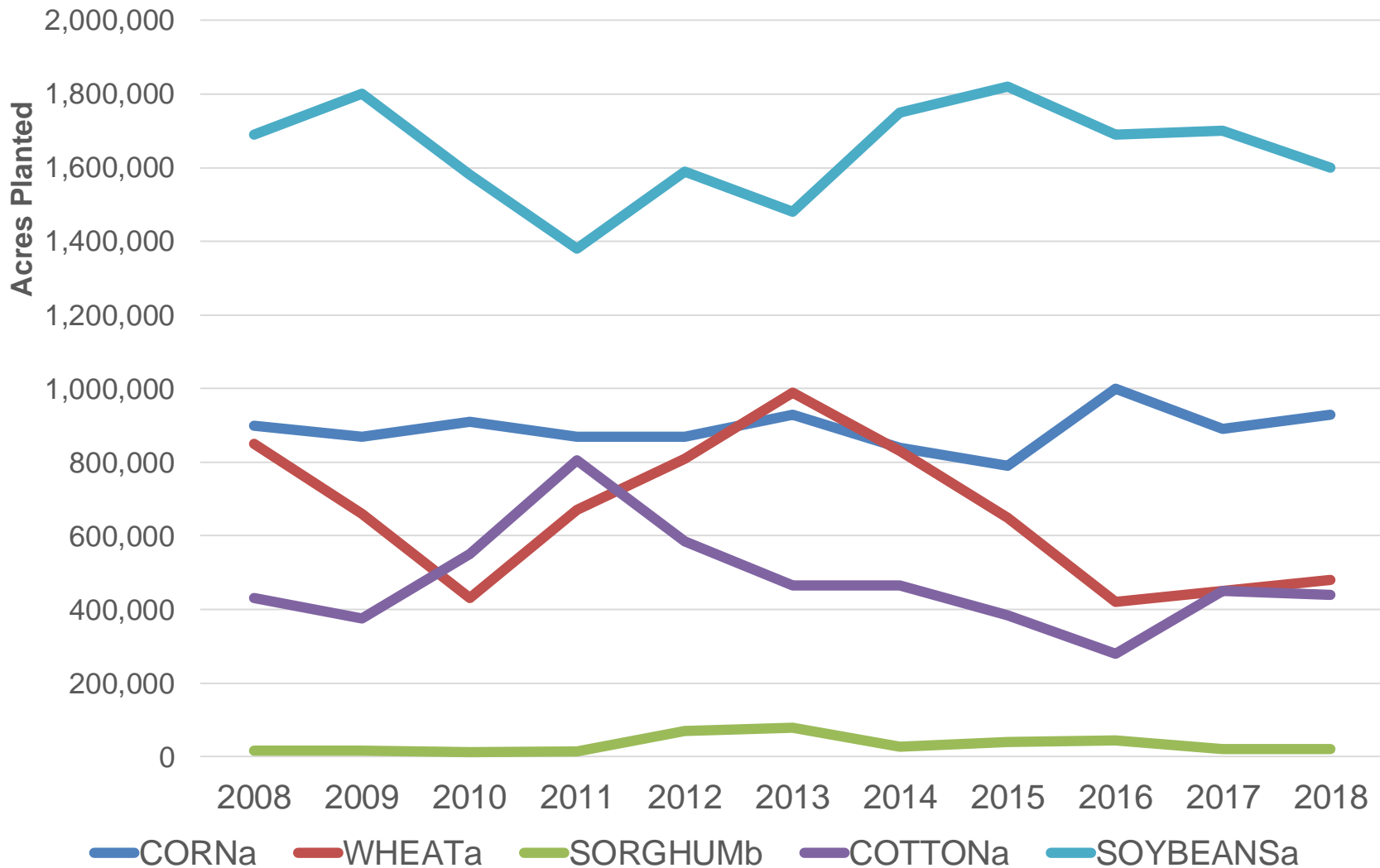
# NC Major Row Crop Acreage: 2008-2018

- ❑ Past 11 years reveals, over the pre- and post- feed grain initiative, a decline in total acres of **10.7%**, with a decline in feed grain acres (**19%**).
- ❑ Corn acres have slightly increased **3.3%**
- ❑ Wheat acreage has declined by **43.5%** but this masks a significant run-up between 2010 and 2013 when wheat acres more than doubled but then significantly declined back to 2010 levels by 2017. Projections for 2018 show slight increase.
- ❑ Sorghum acreage increased by **25%** this also masks that acreage spiked to 70K and 80K in 2012 and 2013 in the initial two years of the feed grain initiative
- ❑ Feed grain acres projected to increase by **5.1%** in 2017 over 2018 levels

NC Acres Planted 2008-2018												
Crop	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2008 vs 2018
<b>CORN<sup>a</sup></b>	900,000	870,000	910,000	870,000	870,000	930,000	840,000	790,000	1,000,000	890,000	930,000	<b>3.3%</b>
<b>WHEAT<sup>a</sup></b>	850,000	660,000	430,000	670,000	810,000	990,000	830,000	650,000	420,000	450,000	480,000	<b>-43.5%</b>
<b>SORGHUM<sup>b</sup></b>	16,000	16,159	13,262	14,936	70,366	79,187	26,640	39,516	45,000	20,000	20,000	<b>25.0%</b>
<b>COTTON<sup>a</sup></b>	430,000	375,000	550,000	805,000	585,000	465,000	465,000	385,000	280,000	450,000	440,000	<b>2.3%</b>
<b>SOYBEANS<sup>a</sup></b>	1,690,000	1,800,000	1,580,000	1,380,000	1,590,000	1,480,000	1,750,000	1,820,000	1,690,000	1,700,000	1,600,000	<b>-5.3%</b>
<b>Total</b>	<b>3,886,000</b>	<b>3,721,159</b>	<b>3,483,262</b>	<b>3,739,936</b>	<b>3,925,366</b>	<b>3,944,187</b>	<b>3,911,640</b>	<b>3,684,516</b>	<b>3,435,000</b>	<b>3,510,000</b>	<b>3,470,000</b>	<b>-10.7%</b>
<b>Feed Grains</b>	<b>1,766,000</b>	<b>1,546,159</b>	<b>1,353,262</b>	<b>1,554,936</b>	<b>1,750,366</b>	<b>1,999,187</b>	<b>1,696,640</b>	<b>1,479,516</b>	<b>1,465,000</b>	<b>1,360,000</b>	<b>1,430,000</b>	<b>-19.0%</b>
<b>% Feed Grains</b>	<b>45.4%</b>	<b>41.6%</b>	<b>38.9%</b>	<b>41.6%</b>	<b>44.6%</b>	<b>50.7%</b>	<b>43.4%</b>	<b>40.2%</b>	<b>42.6%</b>	<b>38.7%</b>	<b>41.2%</b>	<b>-9.3%</b>
			Pre-Feed Grain Initiative				During Feed Grain Initiative					



# NC Major Row Crop Acreage 2010-2018





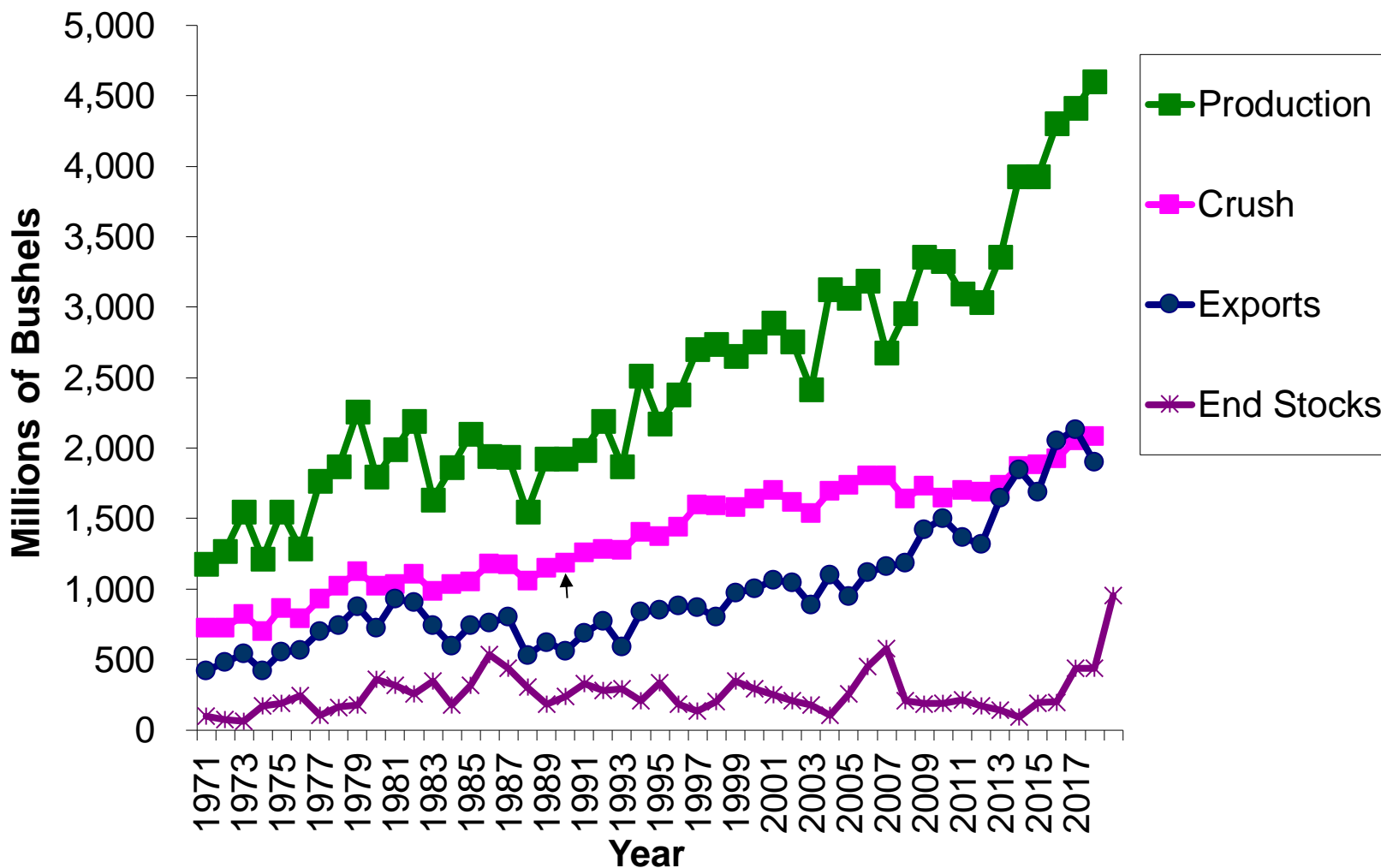
## USDA SUPPLY/DEMAND BALANCE SHEET FOR SOYBEANS

	2016/17	2017/18	2018/19 Proj	%Δ
Millions of Acres				
Acres Planted	83.4	90.1	89.1	-1.1%
Acres Harvested	82.7	89.5	88.3	-1.3%
Bu./Harvested Acre	52.0	49.3	52.1	5.7%
Millions of Bushels				
Beginning Stocks	197	302	438	45.0%
Production	4,296	4,111	4,600	11.9%
<b>Total Supply</b>	<b>4,515</b>	<b>4,734</b>	<b>5,063</b>	<b>6.9%</b>
Use:				
Crushing	1,899	2,055	2,080	1.2%
Exports	2,174	2,129	1,900	-10.8%
Seed & Residuals	141	112	96	-14.0%
<b>Total Use (Demand)</b>	<b>4,213</b>	<b>4,296</b>	<b>4,107</b>	<b>-4.4%</b>
Ending Stocks	302	438	955	118.0%
Ending Stocks, % of Use	7.2%	10.2%	23.3%	128.1%
U.S. Season Average Farm Price, \$/ Bu.	\$9.47	\$9.33	\$8.60	-7.8%

Source: WASDE, USDA, November 2018

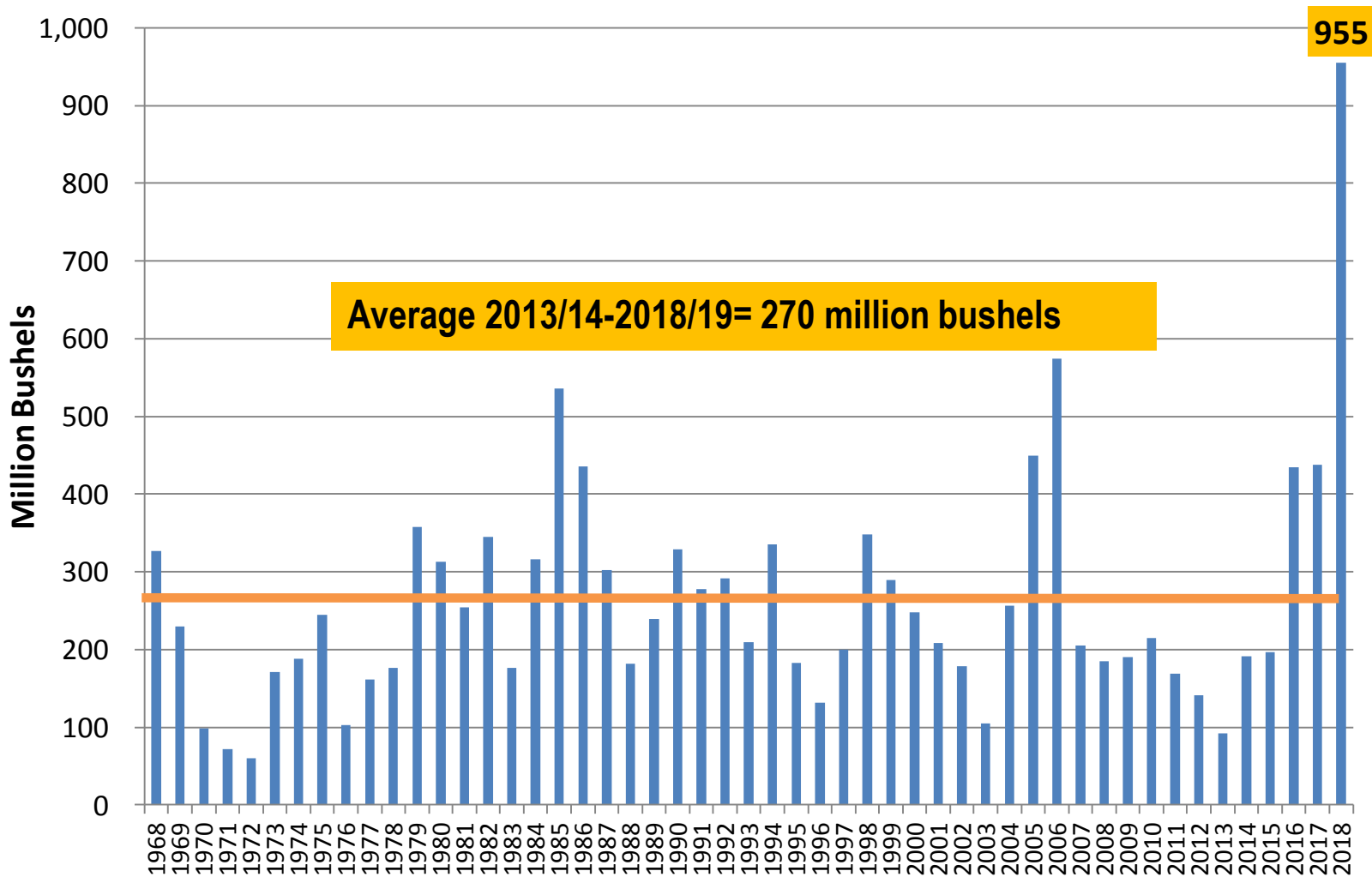


# U.S. Soybean Supply and Disappearance 1971/72-2018/19F



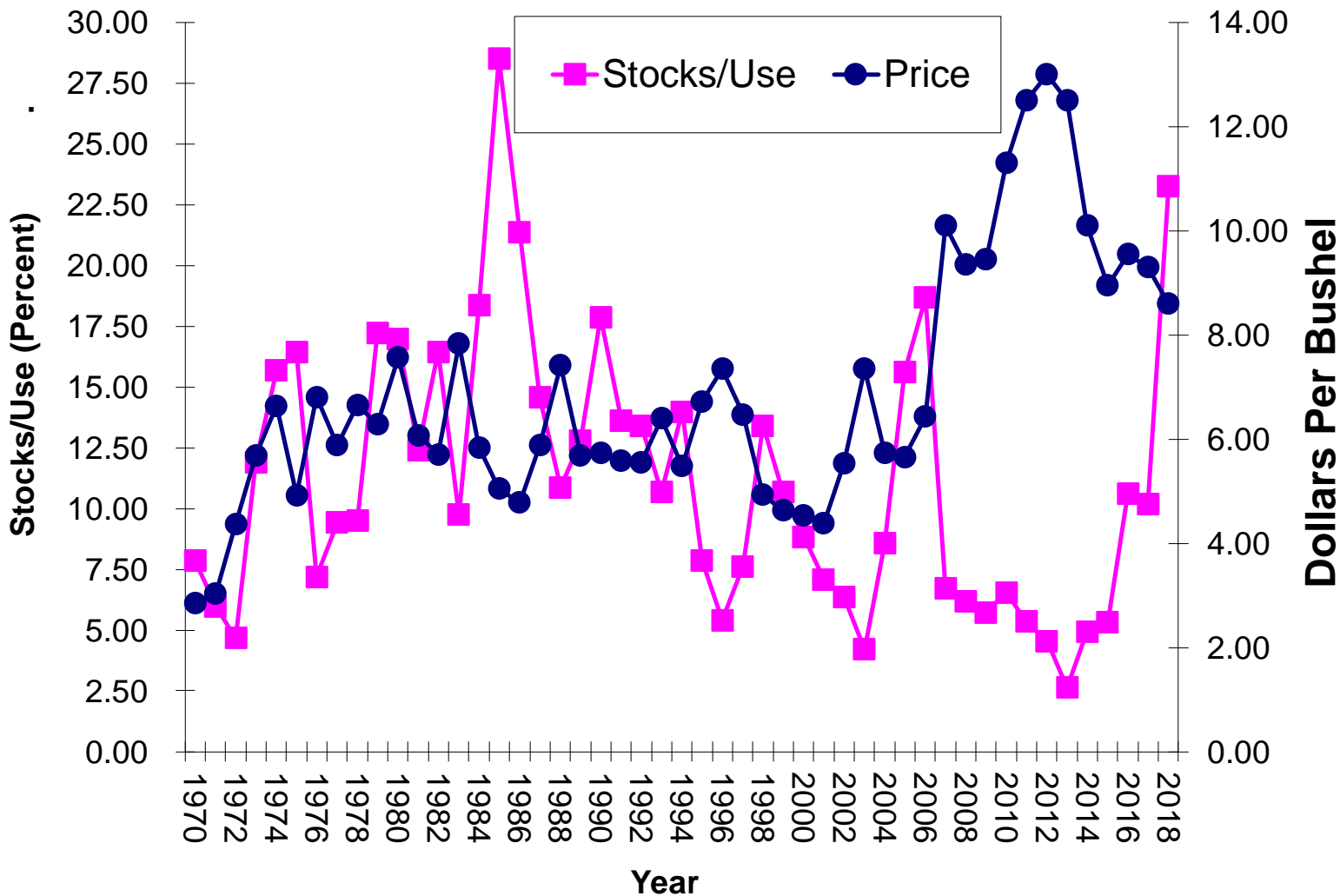


# US Soybeans Ending Stocks 1968/69-2018/19





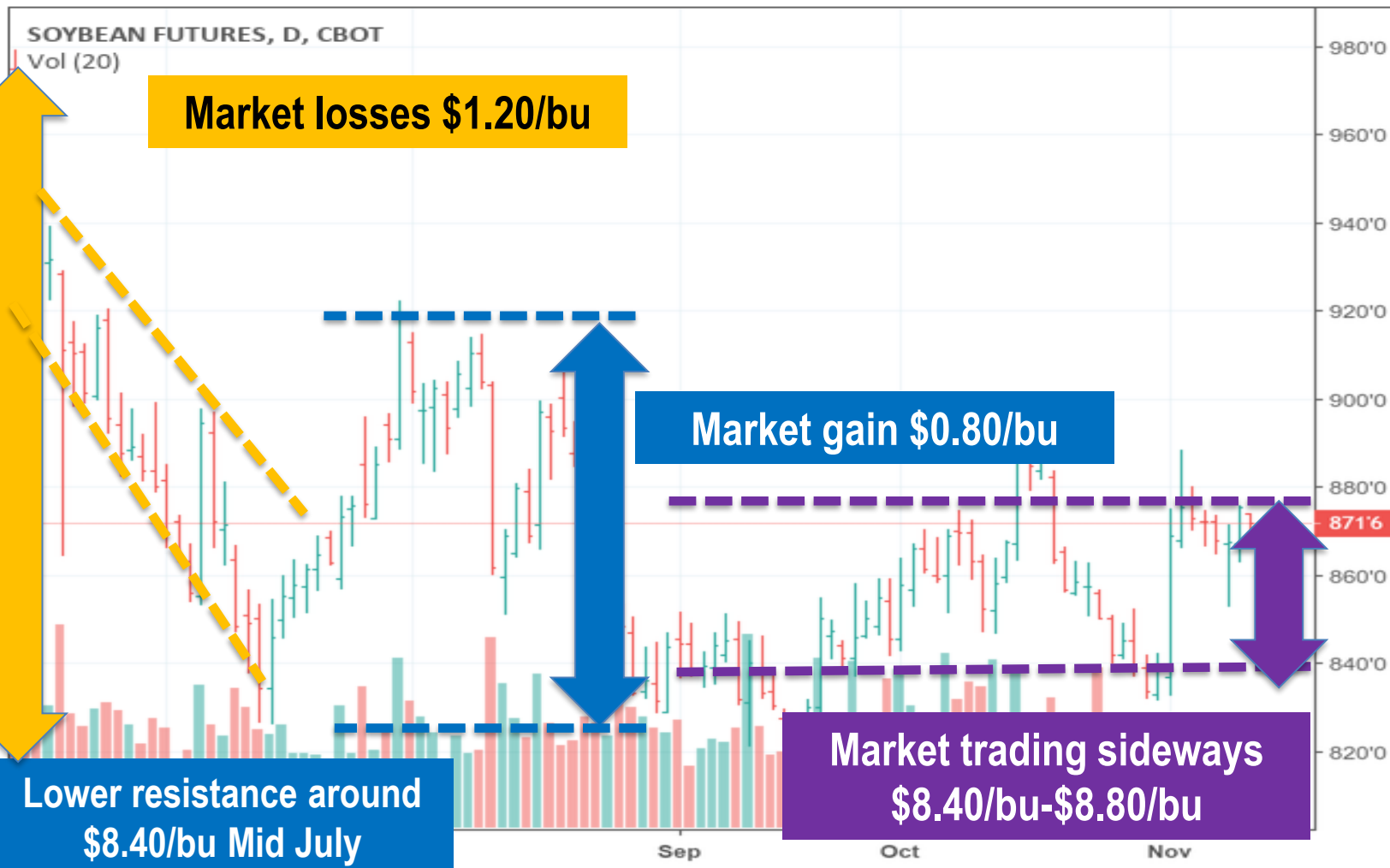
# U.S. Soybean Stocks/Use and Average Farm Price 1970/71-2018/19





# Soybean Futures S-Nov18

CBOT:ZSX2018, D 871'6 ▼ -3'4 (-0.4%) O:874'0 H:874'0 L:868'2 C:871'6







# Soybean Futures S-Nov19

CBOT:ZSX2019, D 932'4 ▼ -4'0 (-0.43%) O:933'0 H:936'0 L:930'4 C:932'4




















# Final Thoughts

- Tariffs are trade distorting. Farmers are better off with trade not aid. Retaliator tariffs can be lose-lose as trade relationships that take years to establish can be decimated and are hard to rebuild.**
- Lost agricultural exports to China will mostly be rerouted to other destinations limiting export impacts. World demand has not declined.**
- Recent announcement of \$12 billion aid package to offset tariffs is a short-term fix. Returning to free trade is a long term fix.**
- Cost-price squeeze is impacting US agricultural economy**
- Current and new crop futures charts reveal corn, soybean, and wheat markets are general trading sideways. As we approach planting early next year, look for upside breakouts in Jan-Mar, as corn and soybeans bid for acres. The massive soybean endingstocks will weigh on soybean prices.**



# New Enterprise Budgets Posted

- Current Budgets:

-  Corn Coastal Plain, Conventional.p...
-  Corn Coastal Plain, No Till.pdf
-  Corn Tidewater, Conventional.pdf
-  Corn Tidewater, No Till.pdf
-  Corn Tidewater, Strip Till.pdf
-  Sorghum-2018.pdf
-  Sorghum-NT-2018.pdf
-  Soybean Coastal Plain, Convention...
-  Soybean Coastal Plain, Strip Till.pdf
-  Soybean Tidewater, Conventional....
-  Soybean Tidewater, No Till.pdf
-  Soybean Tidewater, Strip Till.pdf
-  Soybean Wheat.pdf
-  Soybean-Wheat old.pdf
-  Wheat-2018-TW.pdf



# Planting Decision Tool

Budget Comparison 2018 Crop Year of Crop Choices Given Current Market Conditions and Expected Yields					
Enter Average Land Rent Value Here	80				
	Corn	Soybean	Wheat	Sorghum	Cotton
Yield (bu/acre) <sup>1</sup>	135	40	50	55	
Yield (lbs./acre)--Cotton	--	--	--	--	775
Yield (lbs./acre)--Cotton Seed	--	--	--	--	1,294
Price (New Crop Futures Price from CME & NYBOT 3/7/2018)	\$4.06	\$10.43	\$4.04	\$3.86	\$0.78
Cotton Seed	--	--	--	--	\$0.08
Current New Crop Basis	\$0.50	(\$0.29)	\$0.80	\$0.27	(\$0.02)
<b>EXPECTED NET PRICE (New Crop Futures + Basis)<sup>2</sup></b>	<b>\$4.56</b>	<b>\$10.15</b>	<b>\$4.84</b>	<b>\$4.13</b>	<b>\$0.76</b>
<b>Gross Revenue</b>	<b>\$615.60</b>	<b>\$405.80</b>	<b>\$242.00</b>	<b>\$226.99</b>	<b>\$692.54</b>
<b>VARIABLE EXPENSES<sup>1</sup></b>					
SEED	\$90.30	\$44.00	\$45.00	\$15.00	\$88.62
FERTILIZER					
LIME (PRORATED)	\$15.18	\$15.18	\$15.18	\$15.18	\$15.18
HERBICIDES	\$34.00	\$31.59	\$11.41	\$19.43	\$63.52
FUNGICIDES	\$25.05	\$17.65	\$7.06	\$0.00	\$0.00
INSECTICIDES	\$0.00	\$3.73	\$3.73	\$5.17	\$17.13
GROWTH REG. & DEFOLIANTS	\$0.00	\$0.00	\$0.00	\$0.00	\$21.30
SURFACTANT	\$2.95	\$2.65	\$0.00	\$0.00	\$5.10
AERIAL APPLICATION	\$0.00	\$0.00	\$9.00	\$0.00	\$0.00
DRYING (3 POINTS)	\$29.60	\$0.00	\$0.00	\$24.00	\$0.00
HAULING	\$38.48	\$10.40	\$12.50	\$20.80	\$0.00
TRACTOR/MACHINERY	\$47.70	\$47.70	\$28.15	\$46.98	\$73.58
LABOR	\$16.45	\$16.45	\$10.71	\$16.45	\$38.77
SCOUT	\$12.00	\$12.00	\$0.00	\$0.00	\$16.00
LAND RENT	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00
GINNING	\$0.00	\$0.00	\$0.00	\$0.00	\$103.54
CROP INSURANCE	\$15.00	\$15.00	\$10.00	\$9.00	\$12.00
INTEREST ON OP. CAP.	\$11.74	\$8.62	\$4.20	\$4.03	\$29.61
<b>Total Variable Costs</b>	<b>\$516.32</b>	<b>\$346.97</b>	<b>\$285.58</b>	<b>\$296.43</b>	<b>\$702.68</b>
<b>Return above Variable Costs</b>	<b>\$99.28</b>	<b>\$58.83</b>	<b>-\$43.58</b>	<b>-\$69.44</b>	<b>-\$10.14</b>
<b>FIXED EXPENSES</b>					
*TRACTOR/MACHINERY	\$82.63	\$82.63	\$39.65	\$76.18	\$87.47
**OVERHEAD	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Total Fixed Costs</b>	<b>\$82.63</b>	<b>\$82.63</b>	<b>\$39.65</b>	<b>\$76.18</b>	<b>\$87.47</b>
<b>Total Cost</b>	<b>\$598.95</b>	<b>\$429.60</b>	<b>\$325.23</b>	<b>\$372.61</b>	<b>\$790.15</b>
<b>NET RETURNS TO FARMER AND RISK:</b>	<b>\$16.65</b>	<b>(\$23.80)</b>	<b>(\$83.23)</b>	<b>(\$145.62)</b>	<b>(\$97.61)</b>

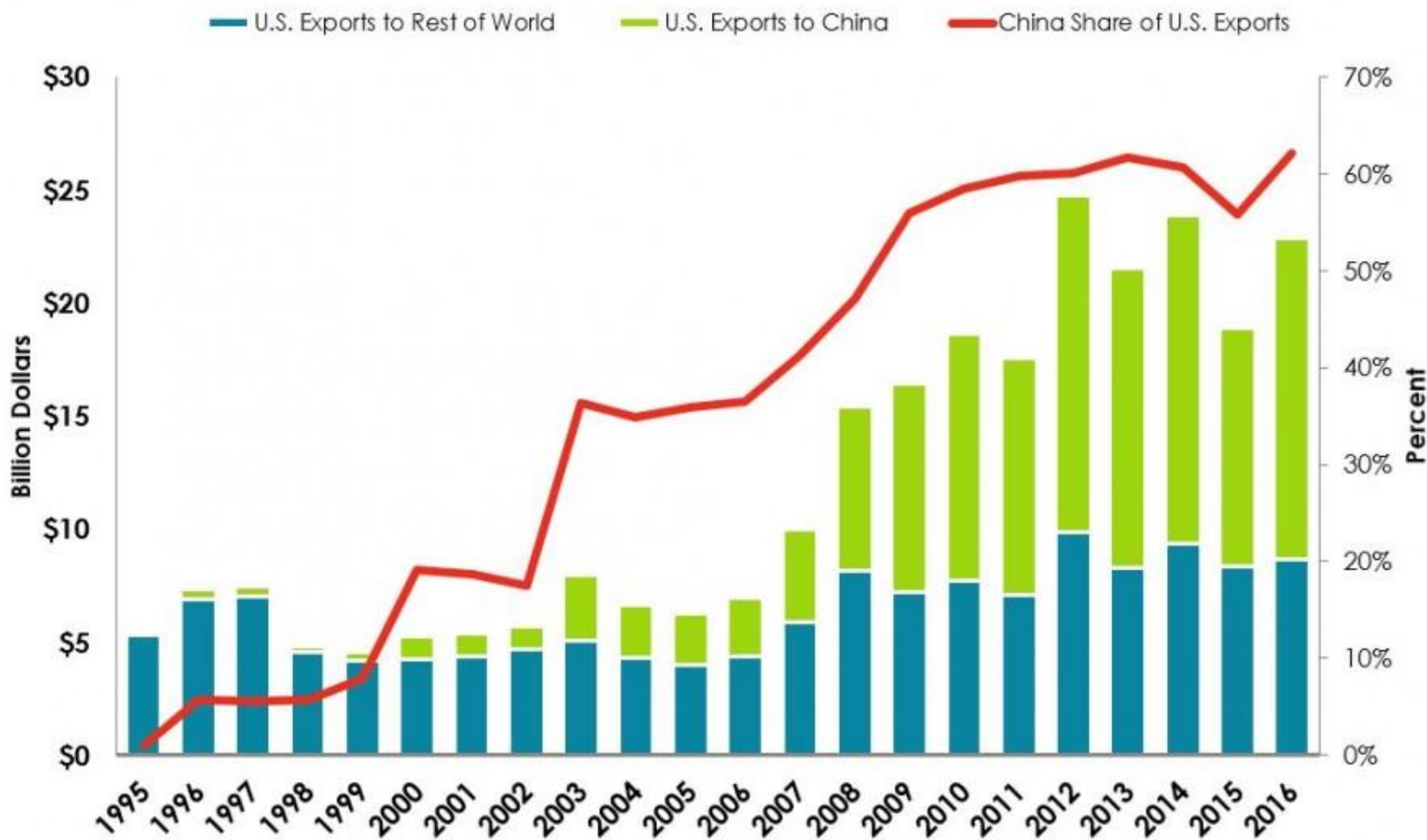


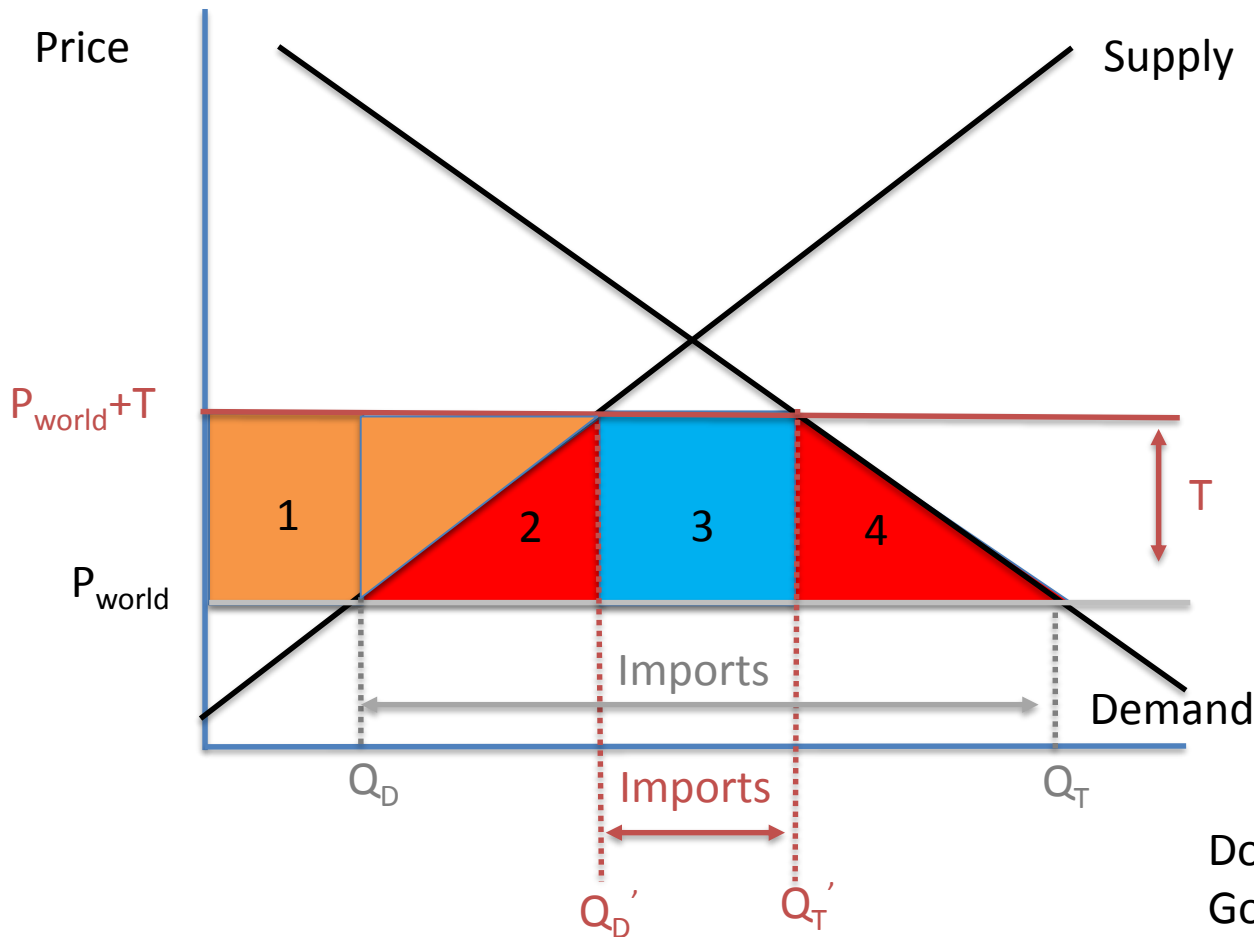
**THANK YOU**

**QUESTIONS?**



### Figure 1. Value for U.S. Soybean Exports to World and China 1995 to 2016 Calendar Year





# Welfare Impact of a Tariff

## Welfare Impacts

Domestic Producers= +1

Government= +3

Consumers= -(1+2+3+4)

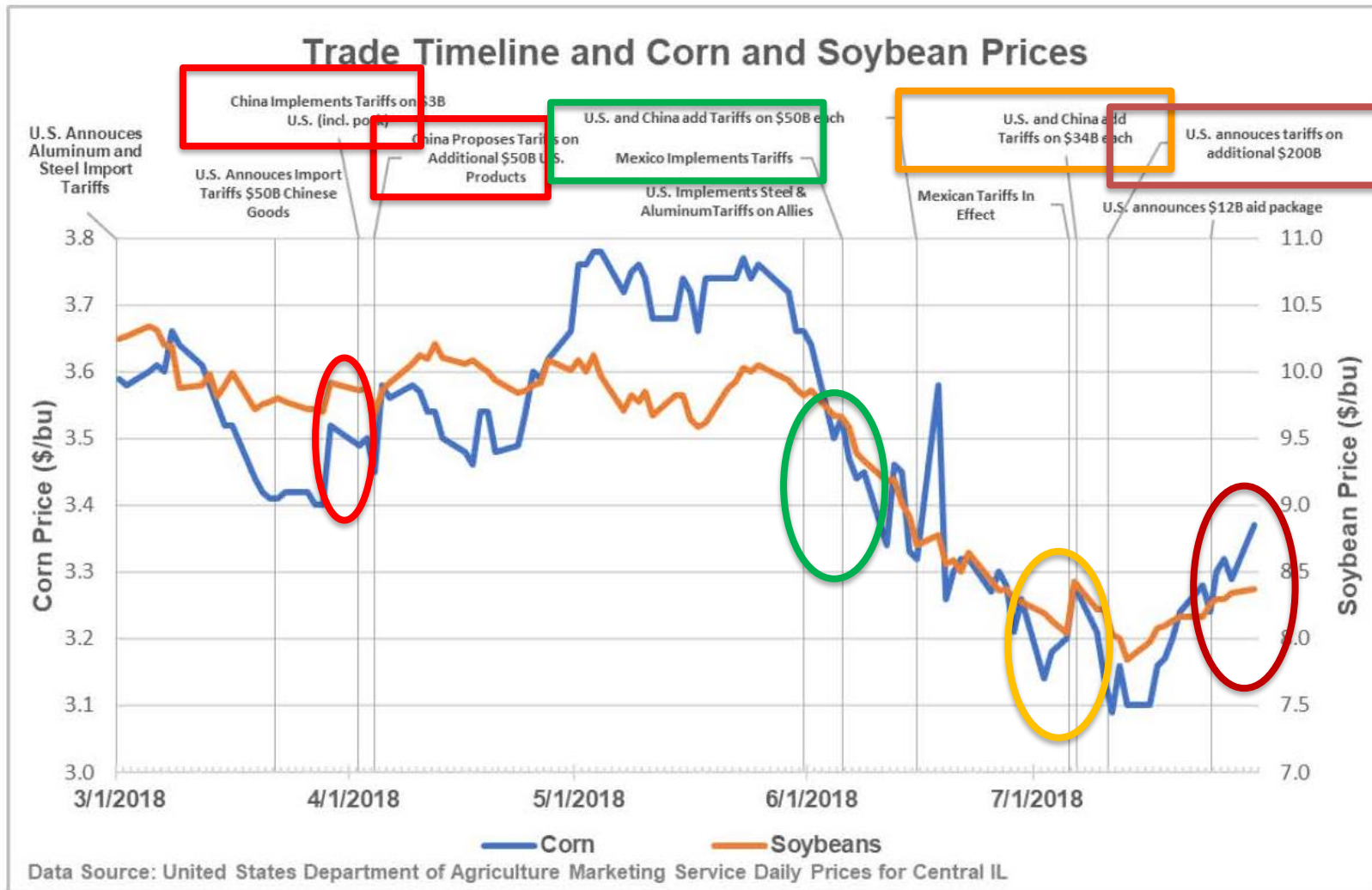
Net Welfare= (1+3)- (1+2+3+4)  
= -(2+ 4)

$$\text{Tariff} = (P_{\text{world}+T}) - P_{\text{world}} = T$$

$$\text{Decline in Imports} = (Q_T - Q_D) - (Q_T' - Q_D') = (Q_T - Q_T') + (Q_D' - Q_D)$$



# Timeline for Corn and Soybeans



Source: Swanson, K, J. Coppess, and G. Schnitkey. "Trade Timeline and Corn and Soybean Prices." farmdoc daily (8): 141 , Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, July 31, 2018.