Fertilizer Outlook and Technology Conference

Agriculture Outlook

Martyn Foreman
Doane Advisory Services

November 16, 2016

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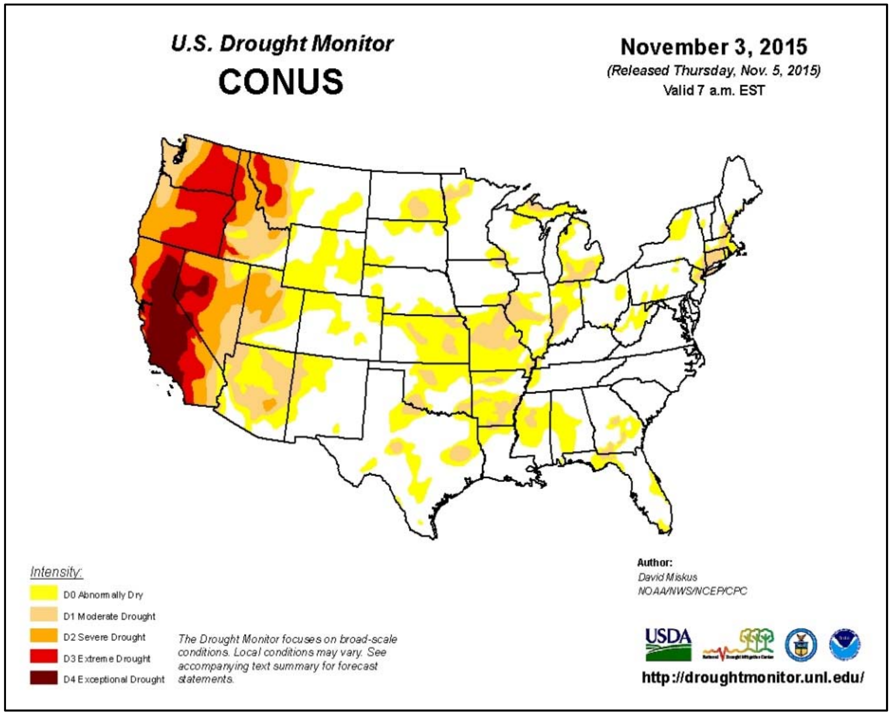
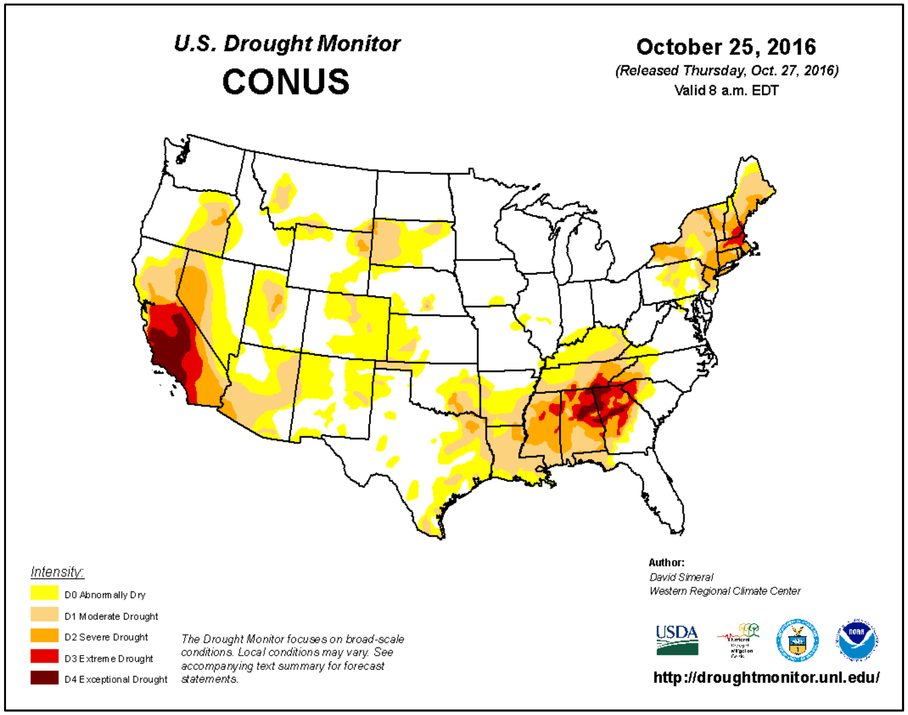
General Outline

- A few comments about the weather
  - Possible transition to “mild” La Niña
- Key factors for major crops
  - Corn, Soybeans, Wheat and Cotton
- Livestock situation
- The financial situation for the farm sector
- Questions

Drought Monitor Fall 2015 vs. Fall 2016





La Niña Probability

National Weather Service Forecast

CPC/IRI Early-Month Official ENSO Forecast Probabilities

Season	La Niña	Neutral	El Niño
OND 2016	75%	25%	0%
NDJ 2016	64%	35%	1%
DJF 2017	55%	44%	1%
JFM 2017	43%	54%	3%
FMA 2017	30%	63%	7%
MAM 2017	21%	65%	14%

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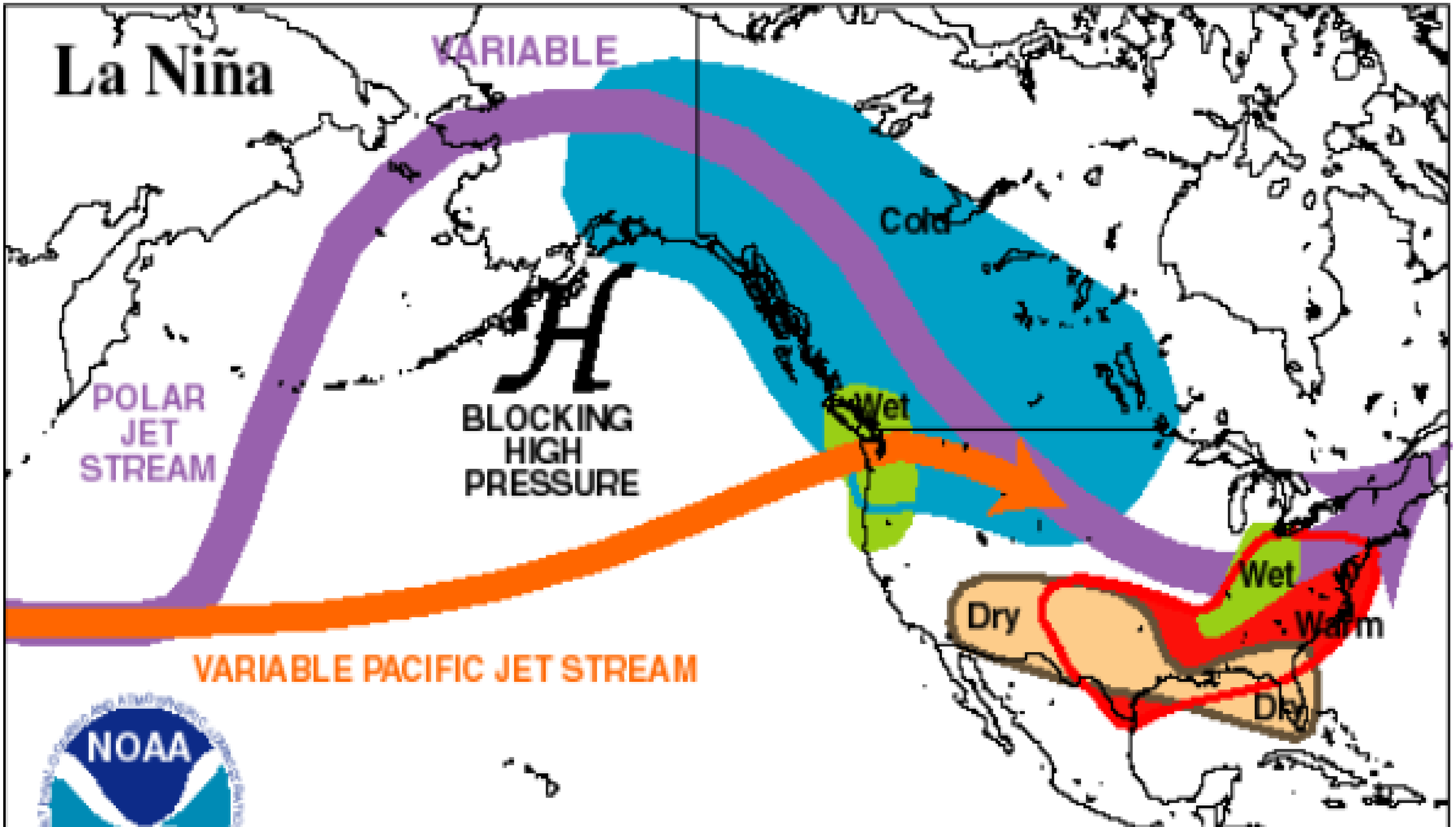
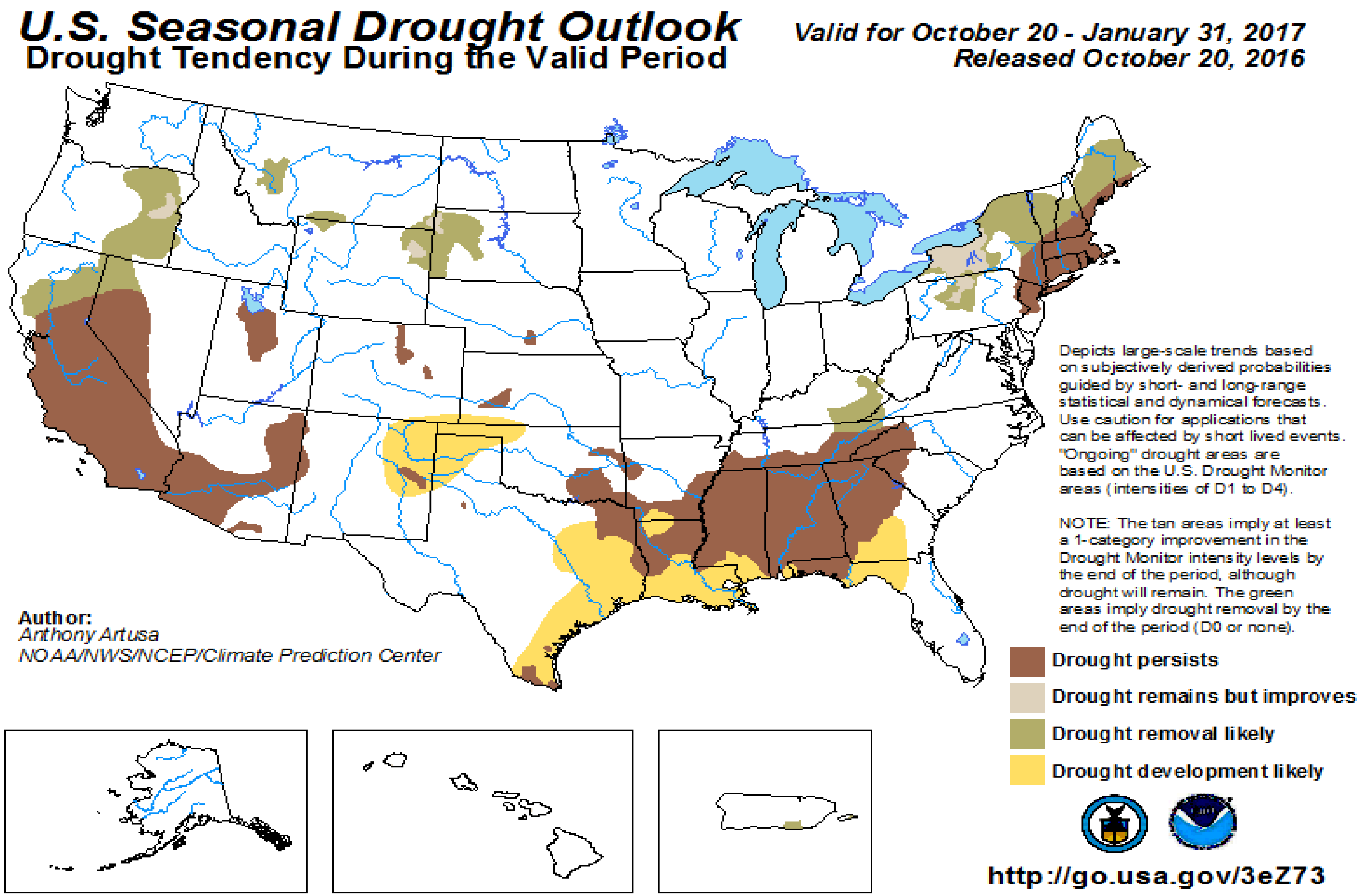


Climate Prediction Center/NCEP/NWS


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for October 20 - January 31, 2017
Released October 20, 2016
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).
Drought persists
Drought remains but improves
Drought removal likely
Drought development likely
Author:
Anthony Artusa
NOAA/NWS/NCEP/Climate Prediction Center
http://go.usa.gov/3eZ73

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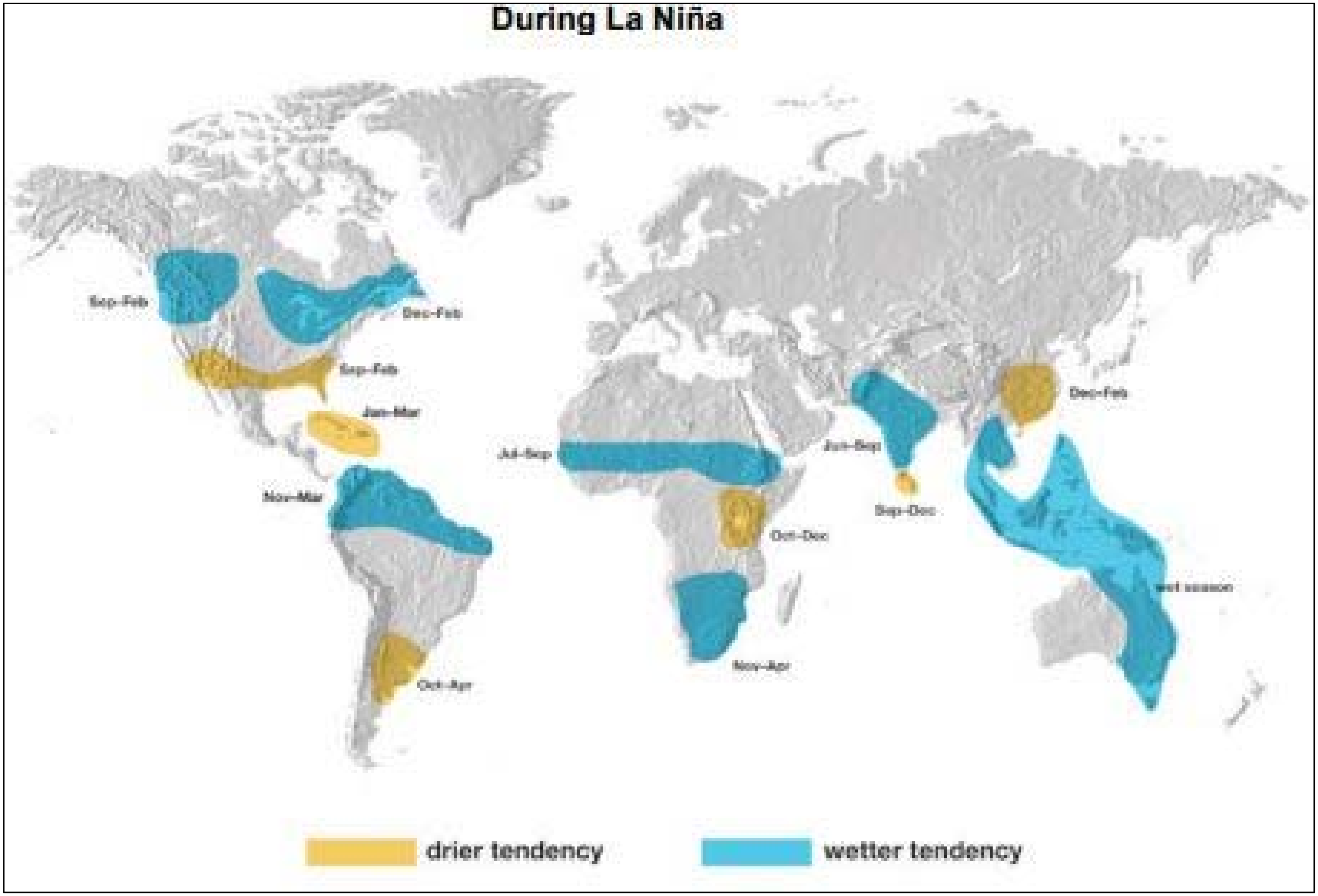
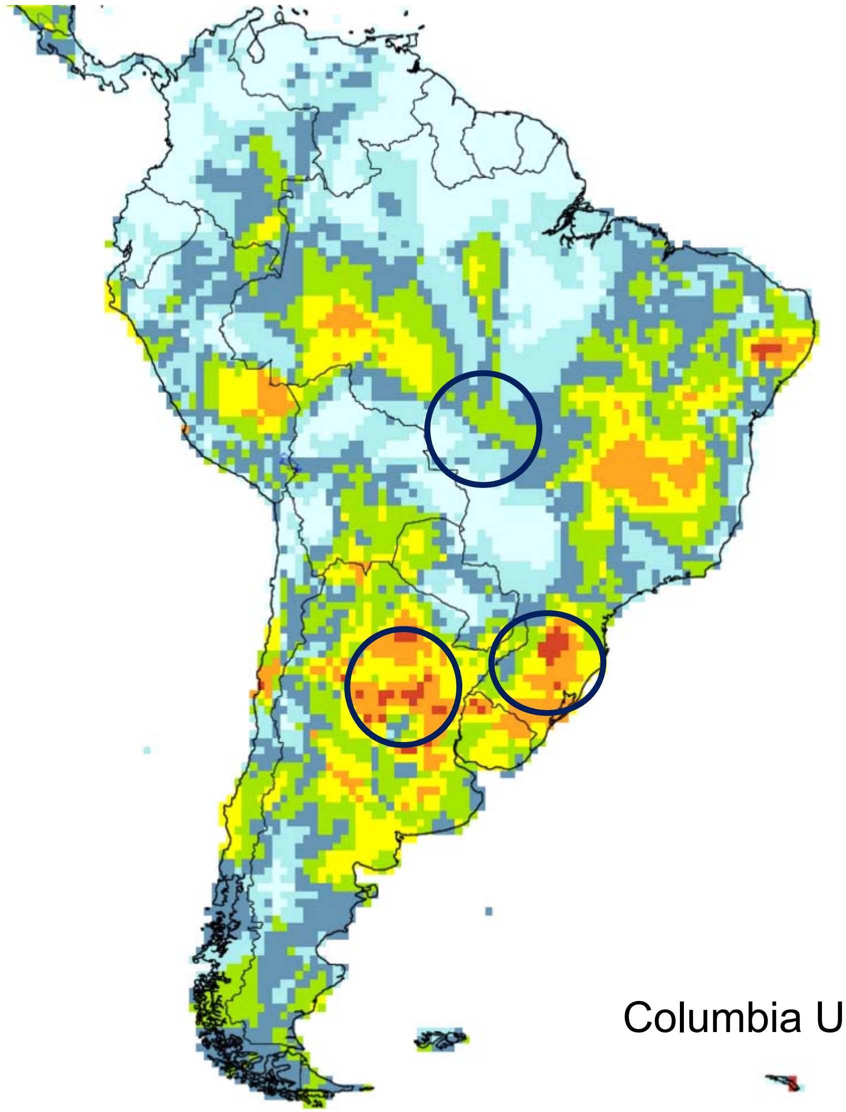

During La Niña
Sep-Feb
Dec-Feb
Sep-Feb
Jan-Mar
Nov-Mar
Oct-Apr
Jul-Sep
Oct-Dec
Nov-Apr
Jun-Sep
Sep-Dec
Dec-Feb
wet season
drier tendency
wetter tendency

South America's past probabilities for drier than normal weather during La Niñas for 3-month period November to January



Columbia University Website

Crop Sector Outlook

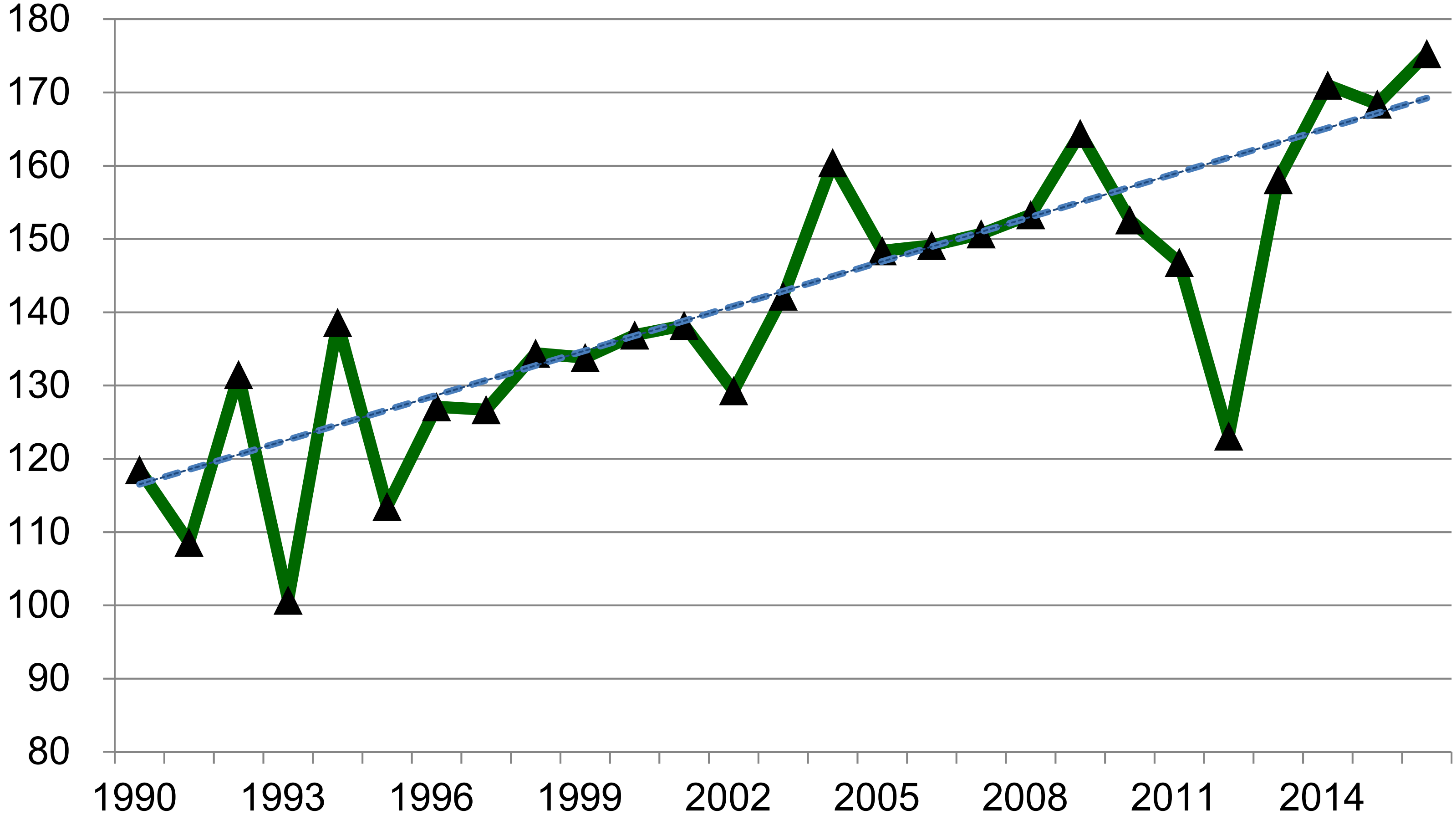
Corn

Key Points for the Corn Sector

- Record U.S. corn supply
- U.S. export and feed use improving – LT export competition
- Corn for ethanol – "blend wall" is a limiting factor
- Production increases expected for South America – La Niña risk
- Expect U.S. corn acreage to decline next year

U.S. Corn Yield

(bu/ac)



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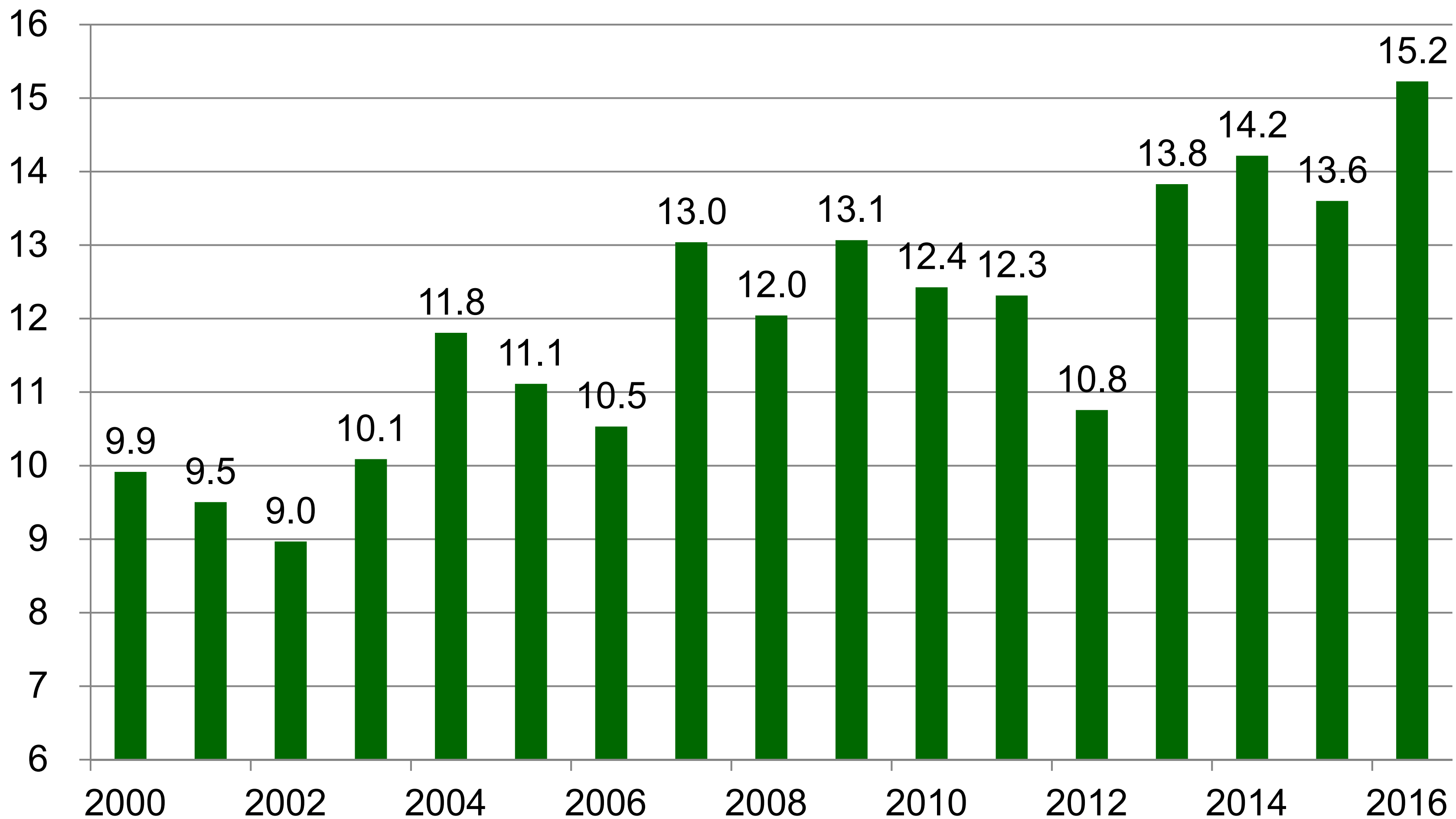
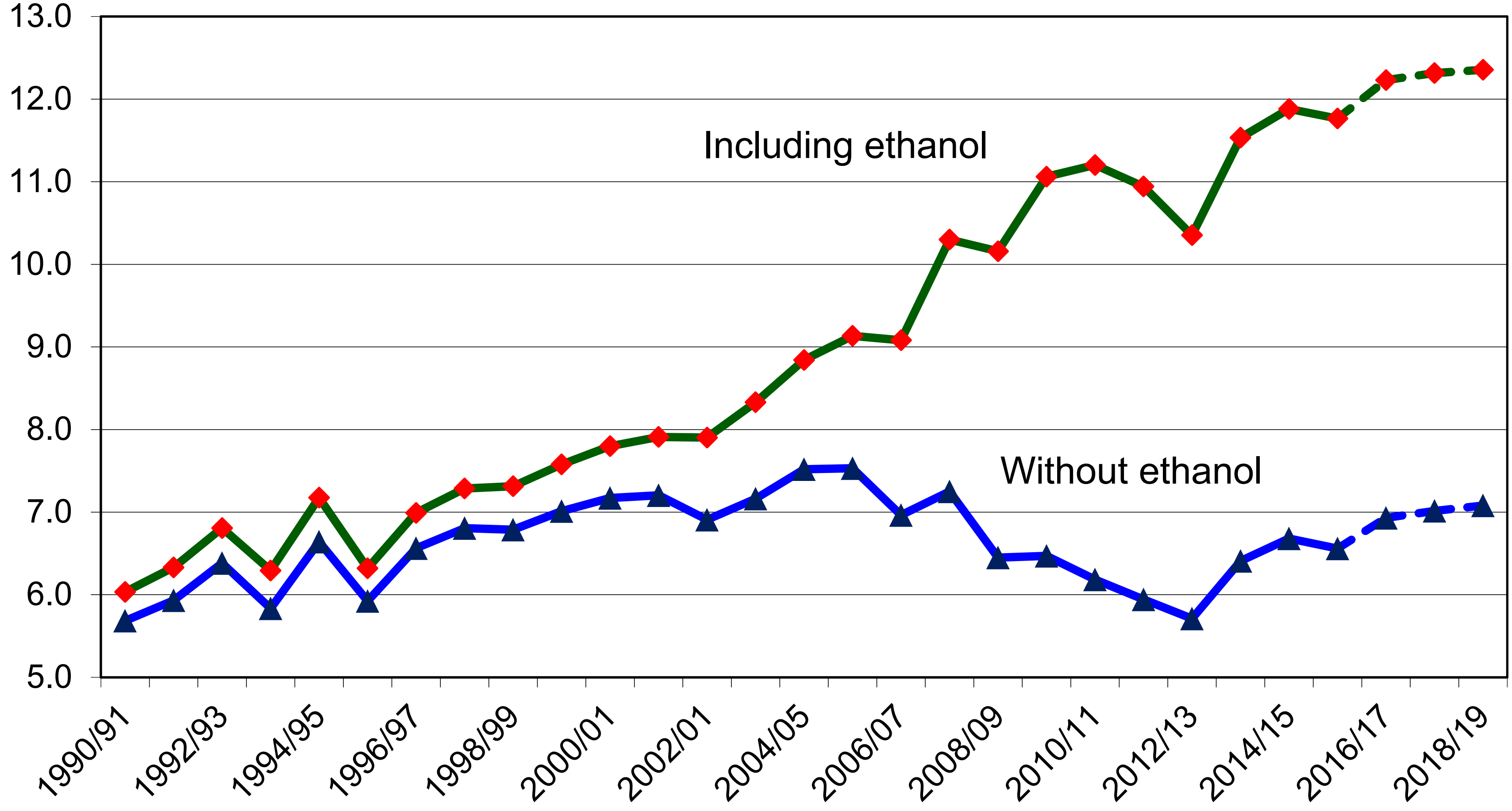
Corn Production

(billion bushels)

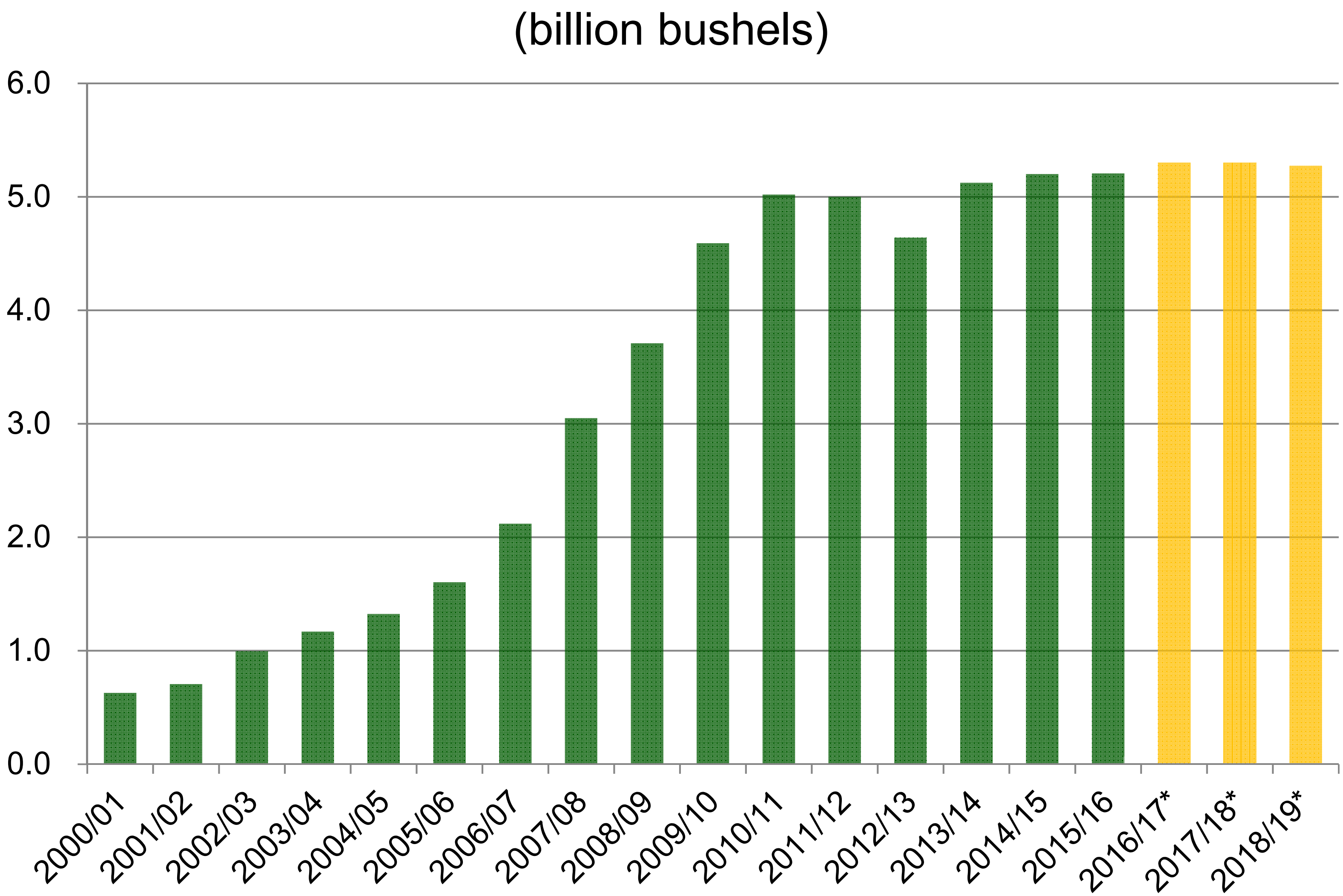


Domestic Corn Use

(billion bushels)

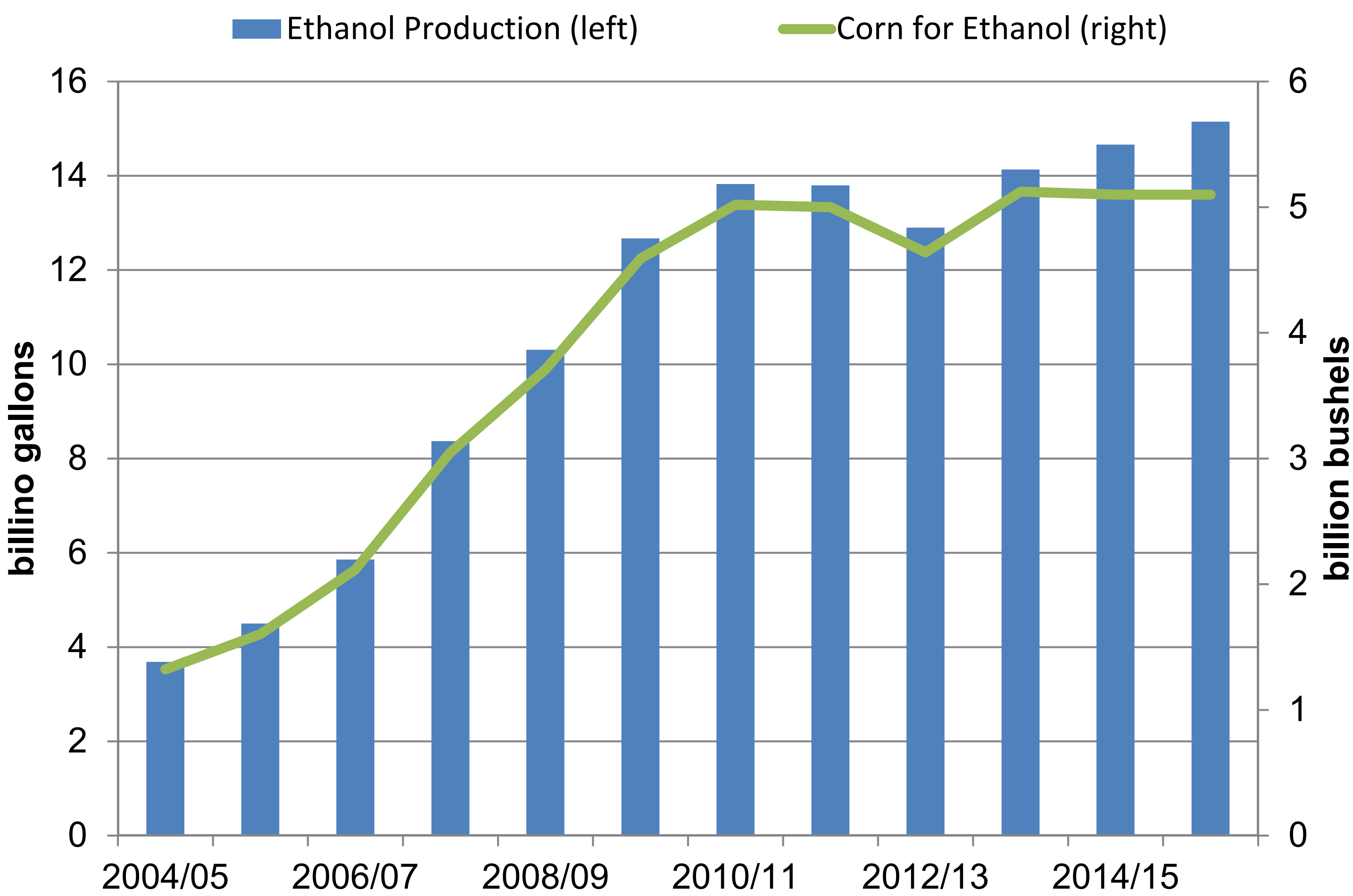


U.S. Corn For Ethanol



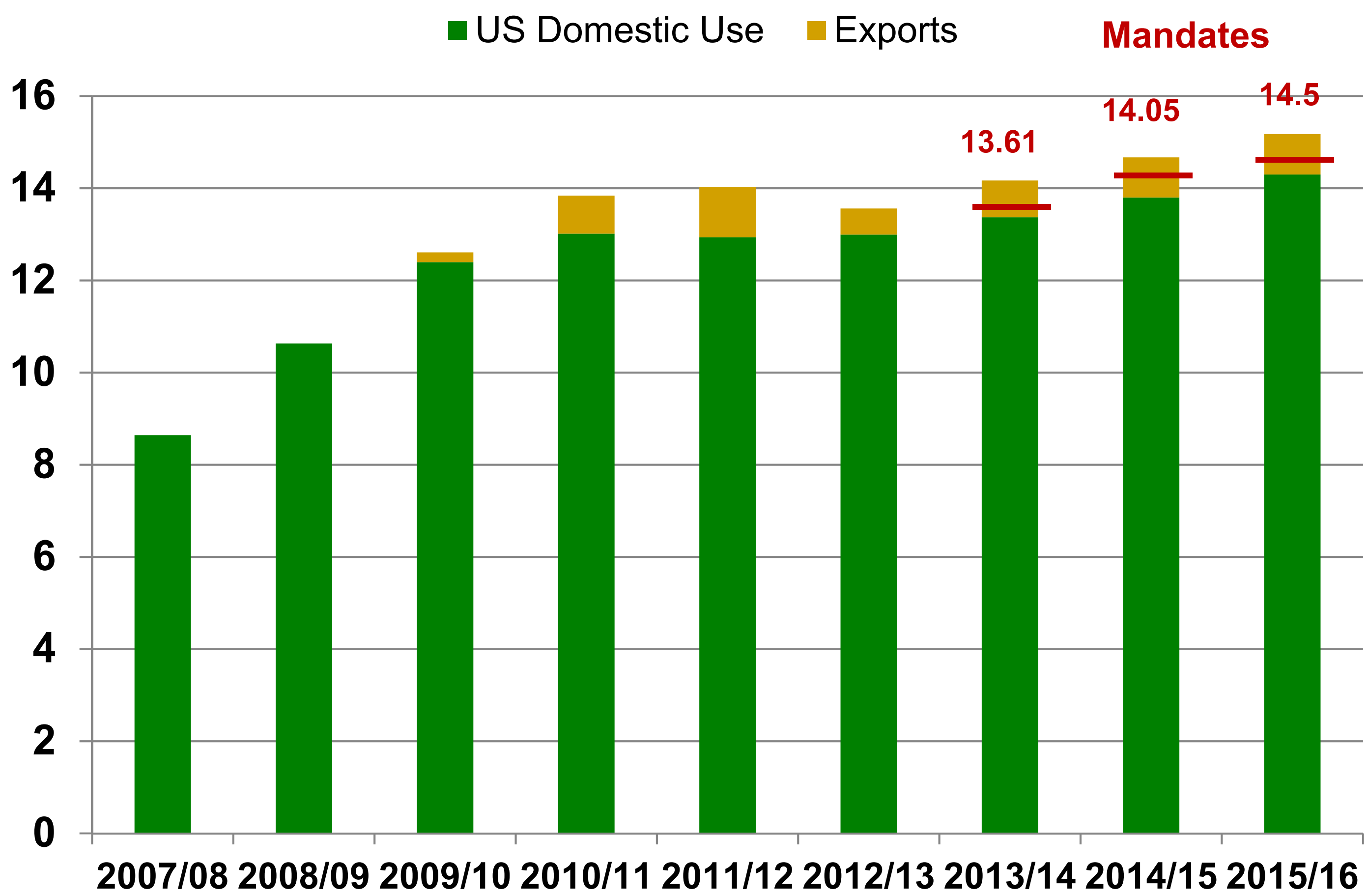
U.S. Ethanol Production and Corn for Ethanol

(Sep-Aug Mkt Yr)



U.S. Ethanol Domestic Use and Exports

(billion gallons)



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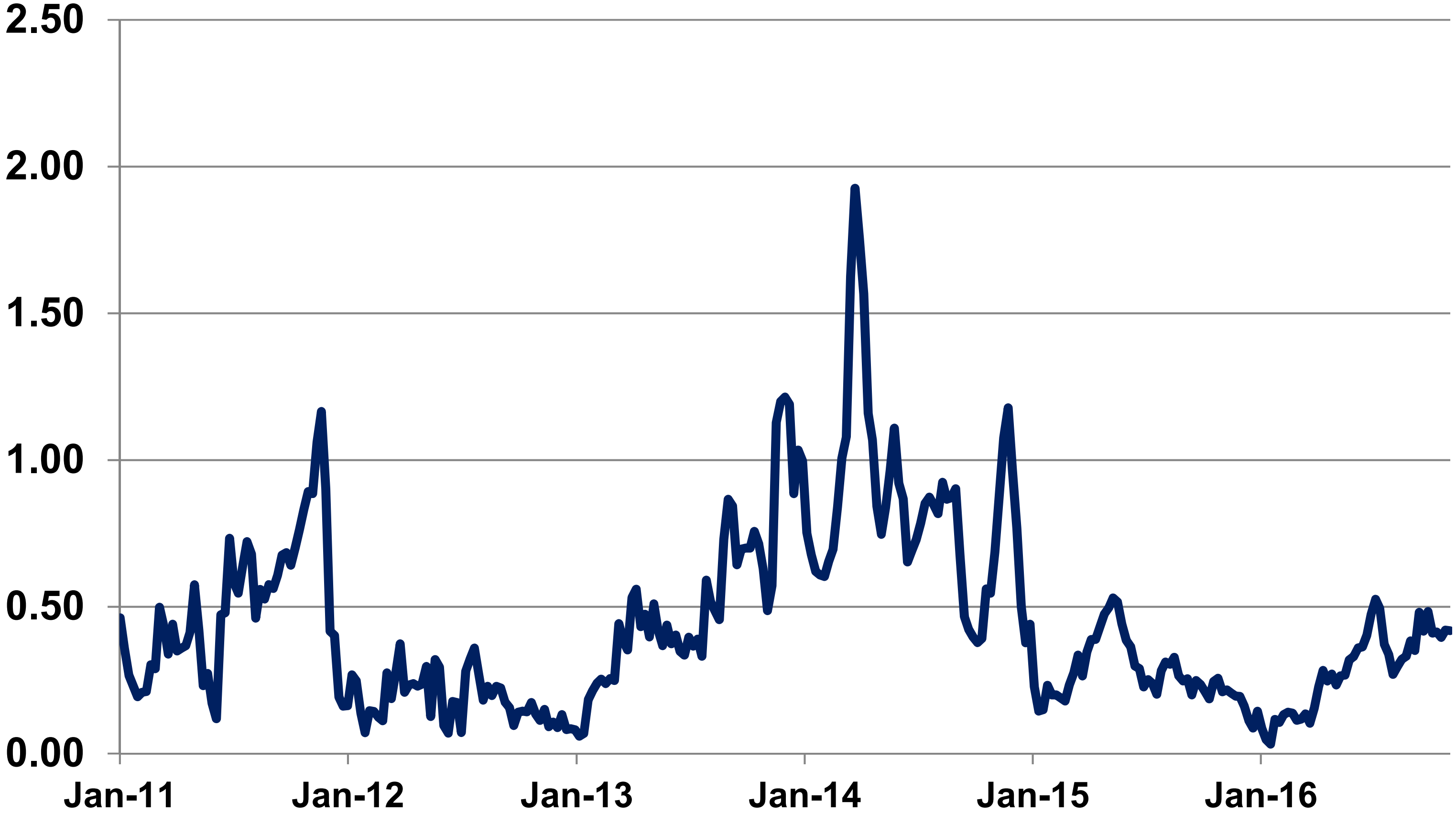
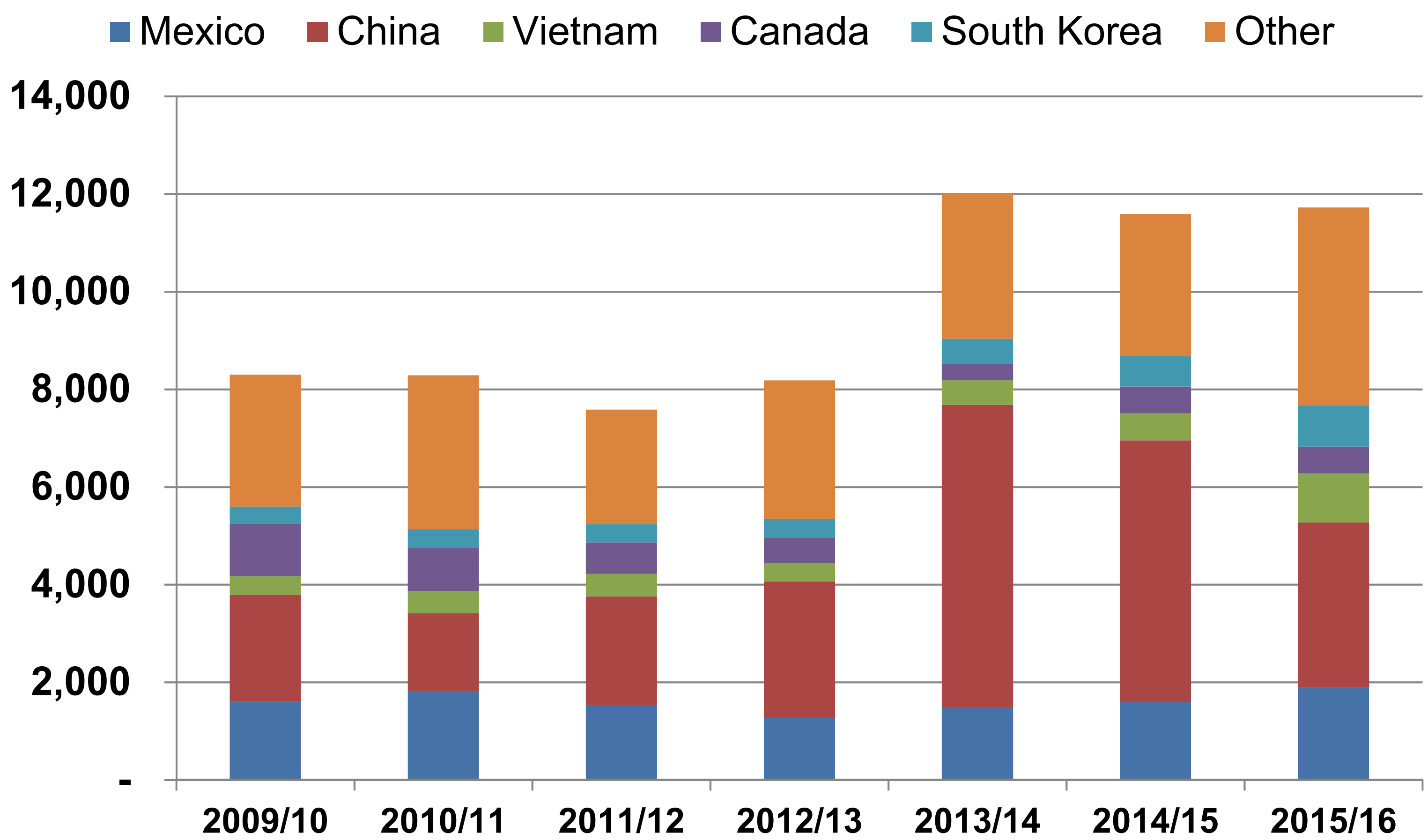
Weekly Ethanol Production Operating Margin (IA Plants)

($ per gallon)



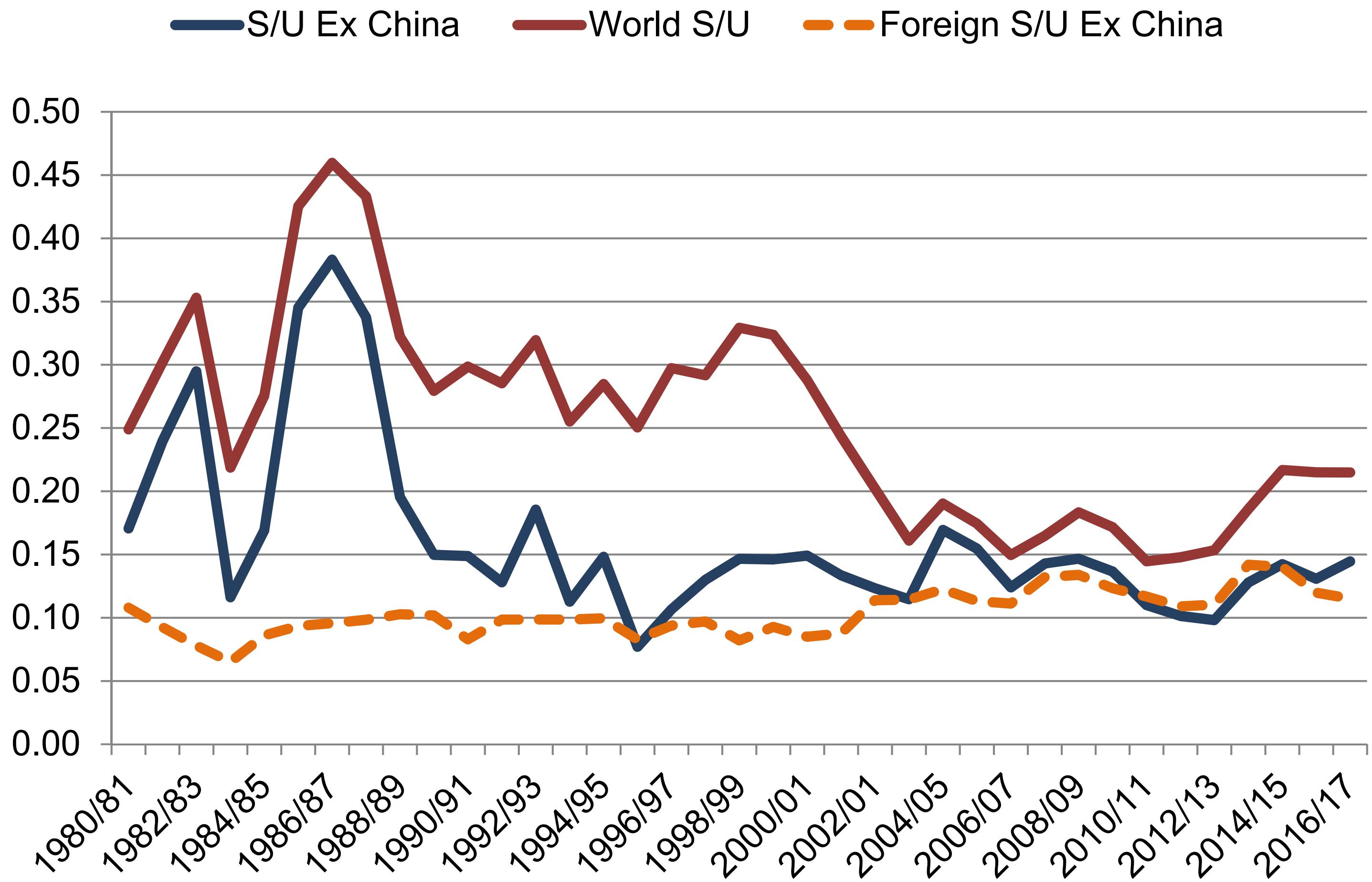
U.S. DDG Exports (Sep-Aug)

(1,000 MT)



World Corn Ending Stocks-to-Use Ratio

(S/U ratio)



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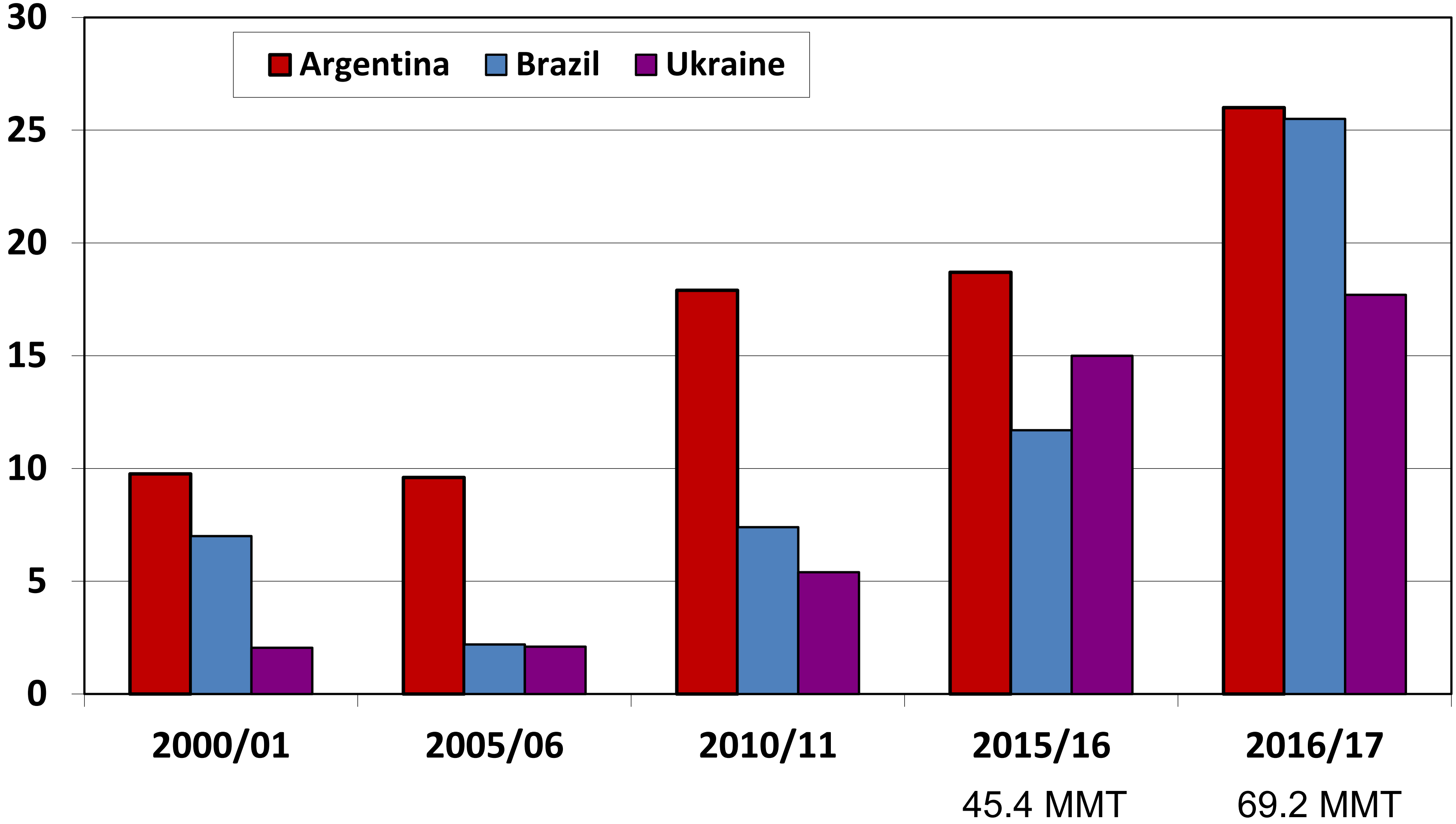
Corn Surplus - U.S. Export Competitors

(billion bushels)



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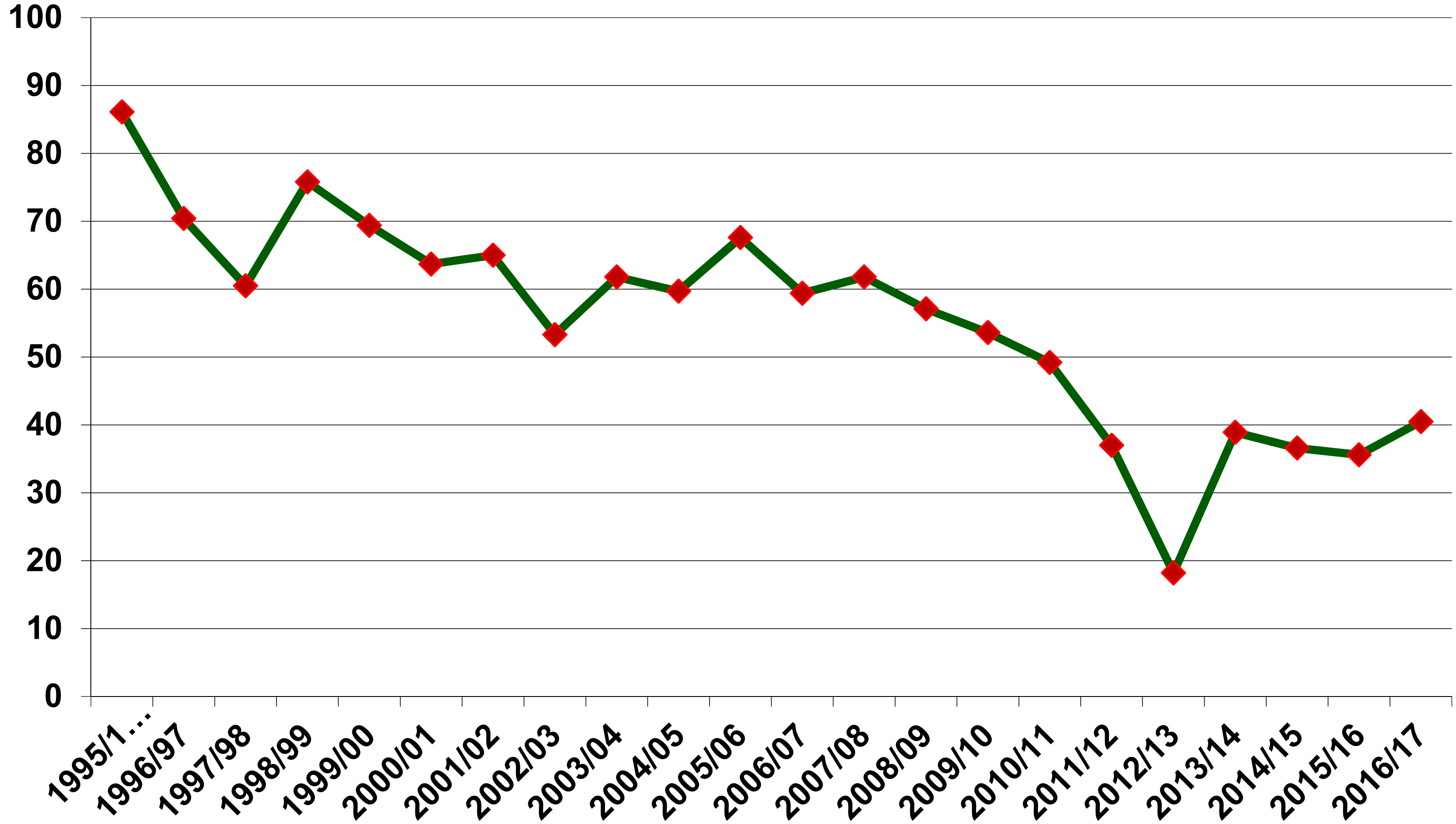
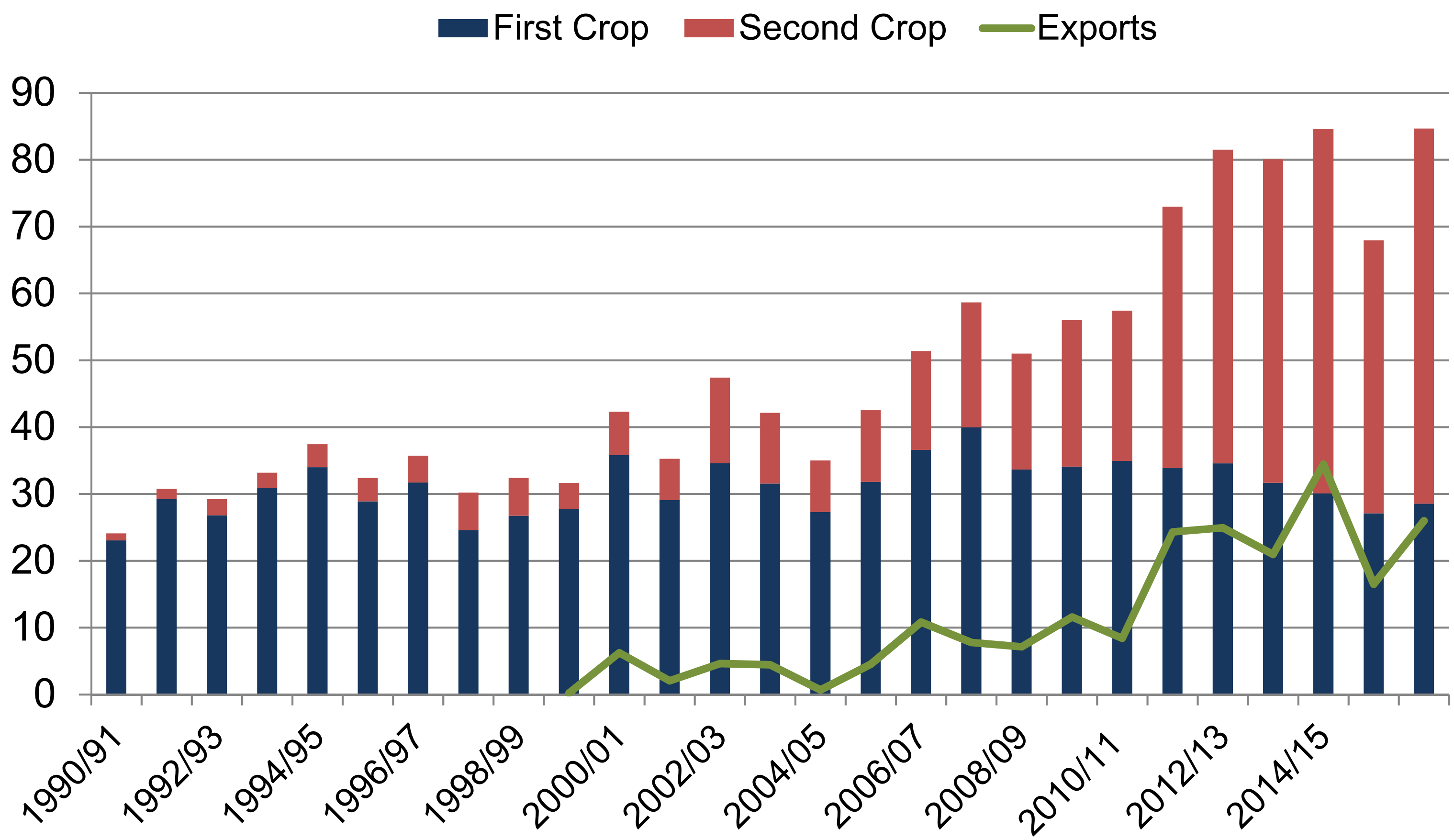
U.S. Share of World Corn Trade

(percent)



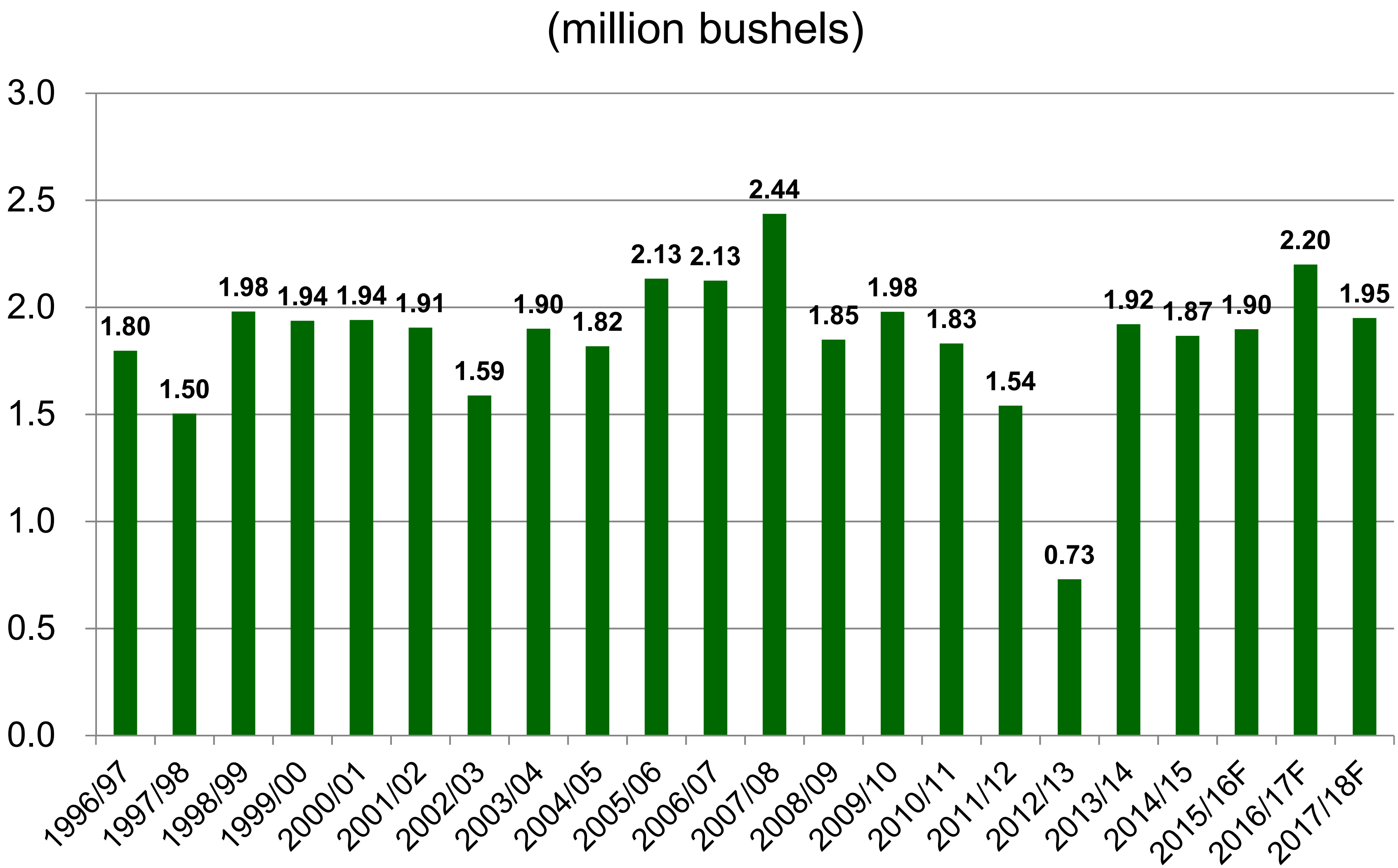
Brazil's Corn Production and Exports

Million tonnes



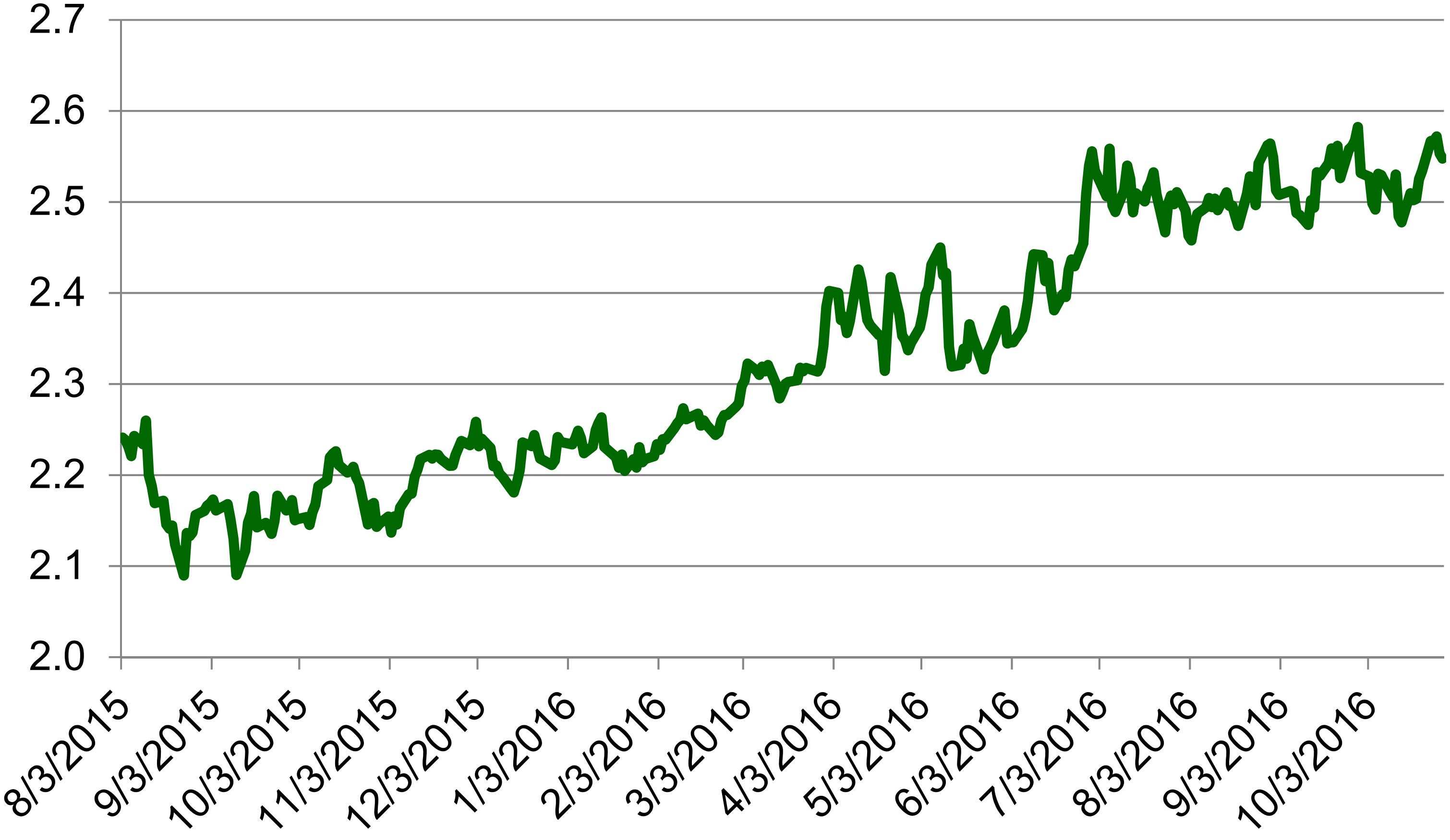
Source: Conab, USDA

U.S. Corn Exports



Soybean/Corn Price Ratio

(SX17/CZ17)



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Crop Budgets for 2017

(dollars per acre)

	Corn		Soybeans
Revenue	620		465
Operating Costs	301		150
Allocated Costs	331		293
Total Costs	632		443
Net over Operating Costs	319		315
Net over all costs	-12		22

Revenue based on $3.65 corn price and 170 bu/ac yield and $9.50 soybean price and 49 bu/ac yield

Crop Budgets for 2017

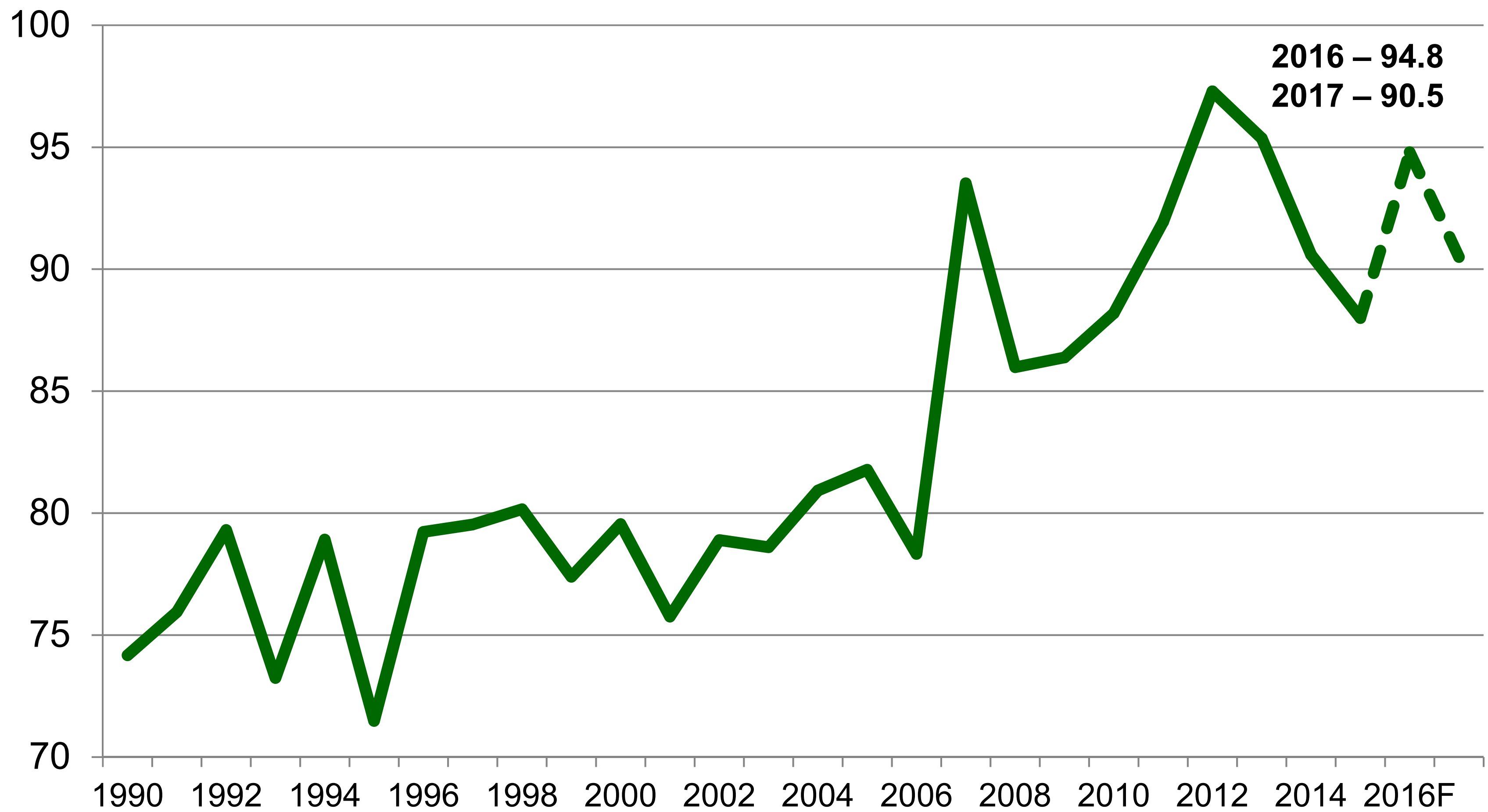
(dollars per acre)

	Corn-Corn		Soybeans
Revenue	580		465
Operating Costs	311		150
Allocated Costs	331		293
Total Costs	642		443
Net over Operating Costs	269		315
Net over all costs	-62		22

Revenue based on $3.65 corn price and 159 bu/ac yield and $9.50 soybean price and 49 bu/ac yield

U.S. Corn Planted Acreage

(million acres)



Corn Yield Scenarios 2017-18

(thousand bushels)

	2016-17	Poor Yield 2017-18	Norm Yield 2017-18	High Yield 2017-18
Planted Acres (mil ac)	94.5	90.5	90.5	90.5
Yield (bu/ac)	175.3	157.0	171.0	176.0
Beginning Stocks, 9/1	1,738	2,468	2,468	2,468
Production	15,226	12,859	14,176	14,654
Total Supply	17,003	15,377	16,674	17,147
Disappearance				
Food, Seed	1,435	1,400	1,450	1,470
Ethanol	5,300	5,200	5,300	5,350
Feed/Residual	5,550	5,525	5,650	5,675
Exports	2,200	1,850	1,950	2,000
Total Disappearance	14,535	13,975	14,350	14,495
Ending Stocks	2,468	1,402	2,324	2,652
% Stocks to Use	**17.0**	**10.0**	**16.2**	**18.3**
Corn Price ($/bu)	**$3.30**	**$4.15**	**$3.35**	**$3.00**

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Crop Sector Outlook

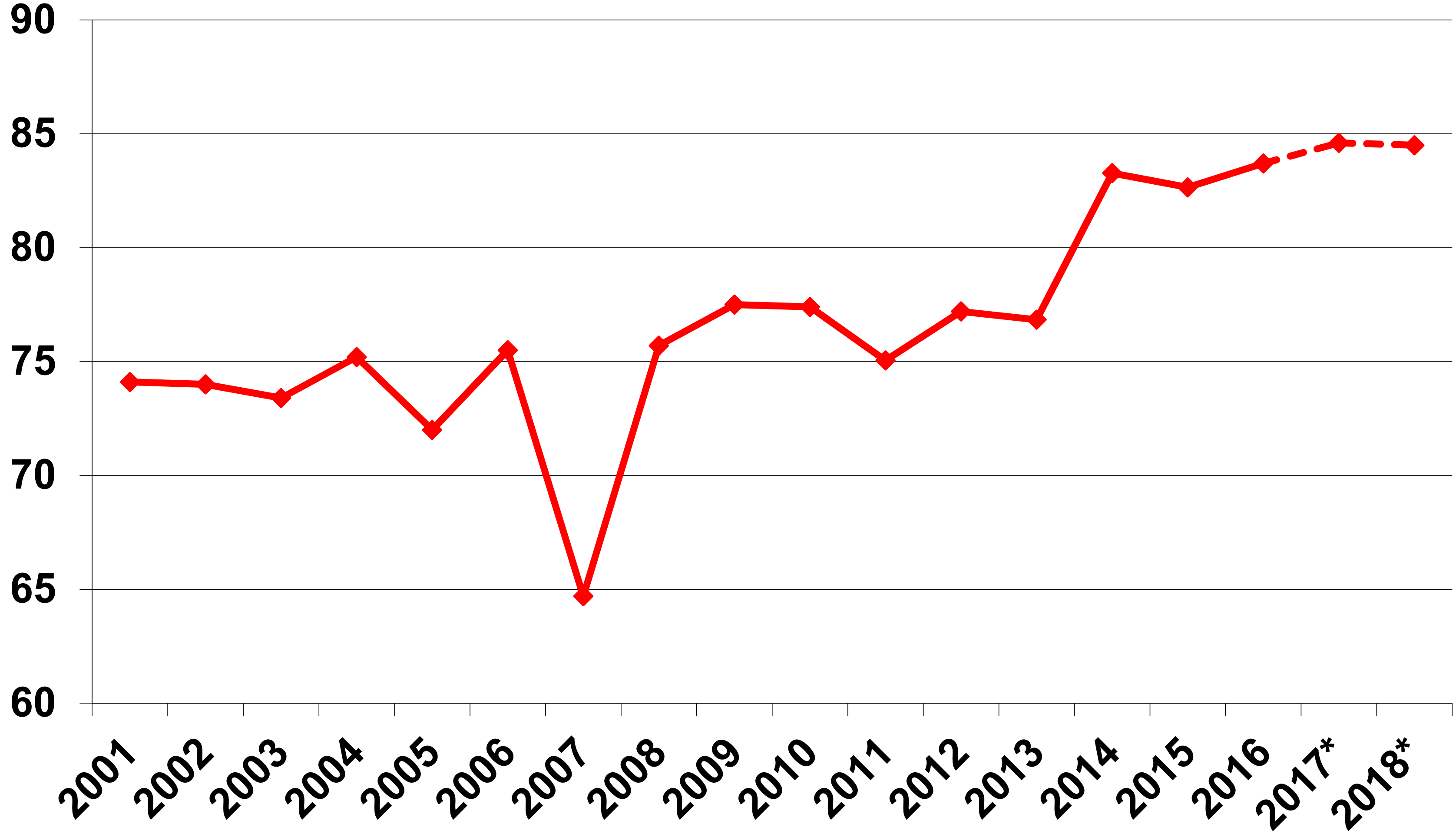
Soybeans

Key Points for the Soybean Sector

- 2016 Argentine floods, Brazilian drought
  - Surge in U.S. export demand until new SA production
- Rumored slowdowns in Chinese demand never materialize
  - Record consumption, imports – year-after-year
- Incredible 2016 US crop easing immediate global supply concerns
- Price swings hinging on 2017 SA crops, then US
  - La Nina?
- US acreage up in 2017, yields and production down

U.S. Soybean Planted Acreage

(million acres)



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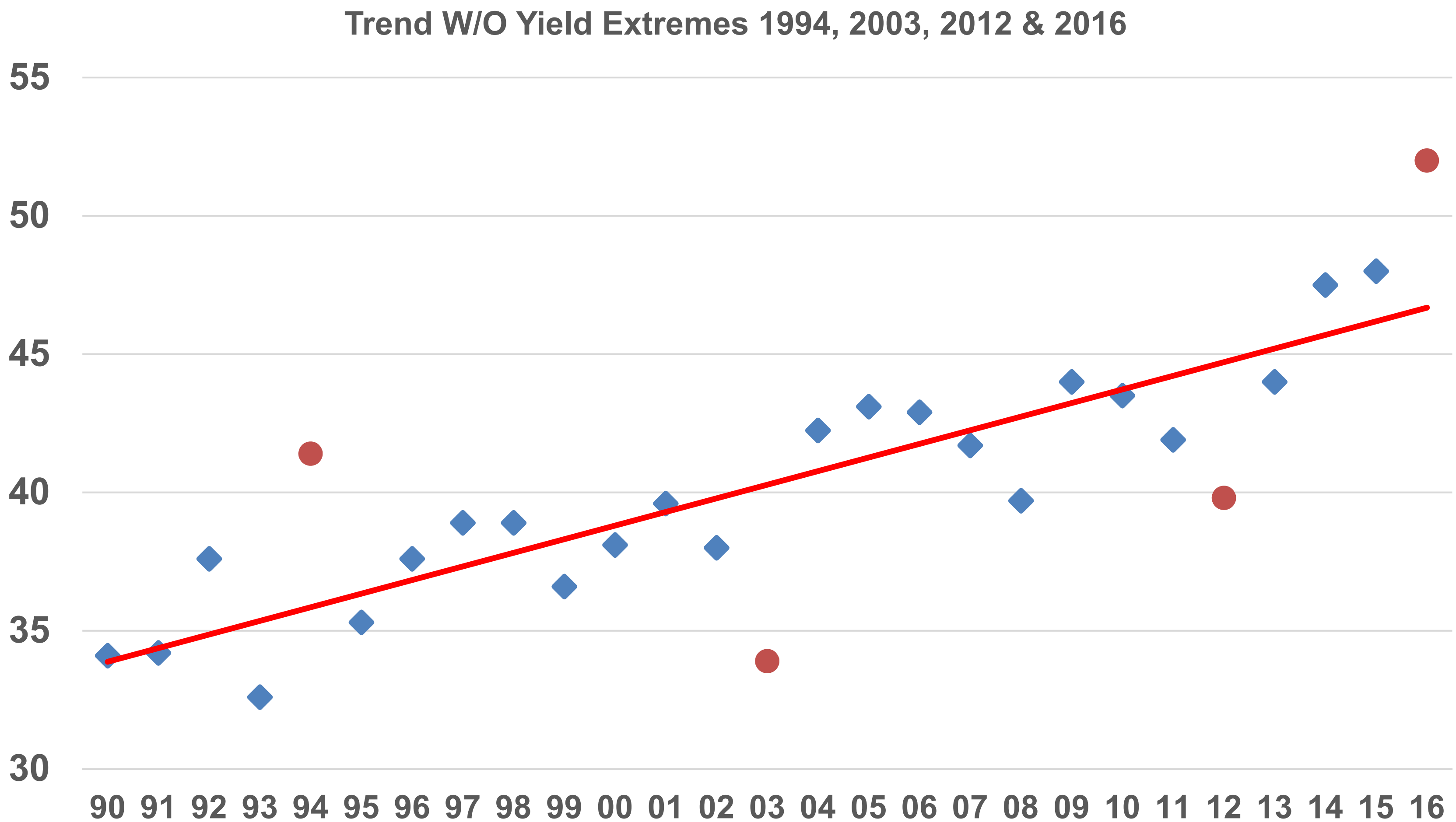
U.S. Soybean Yields

(bu/ac)



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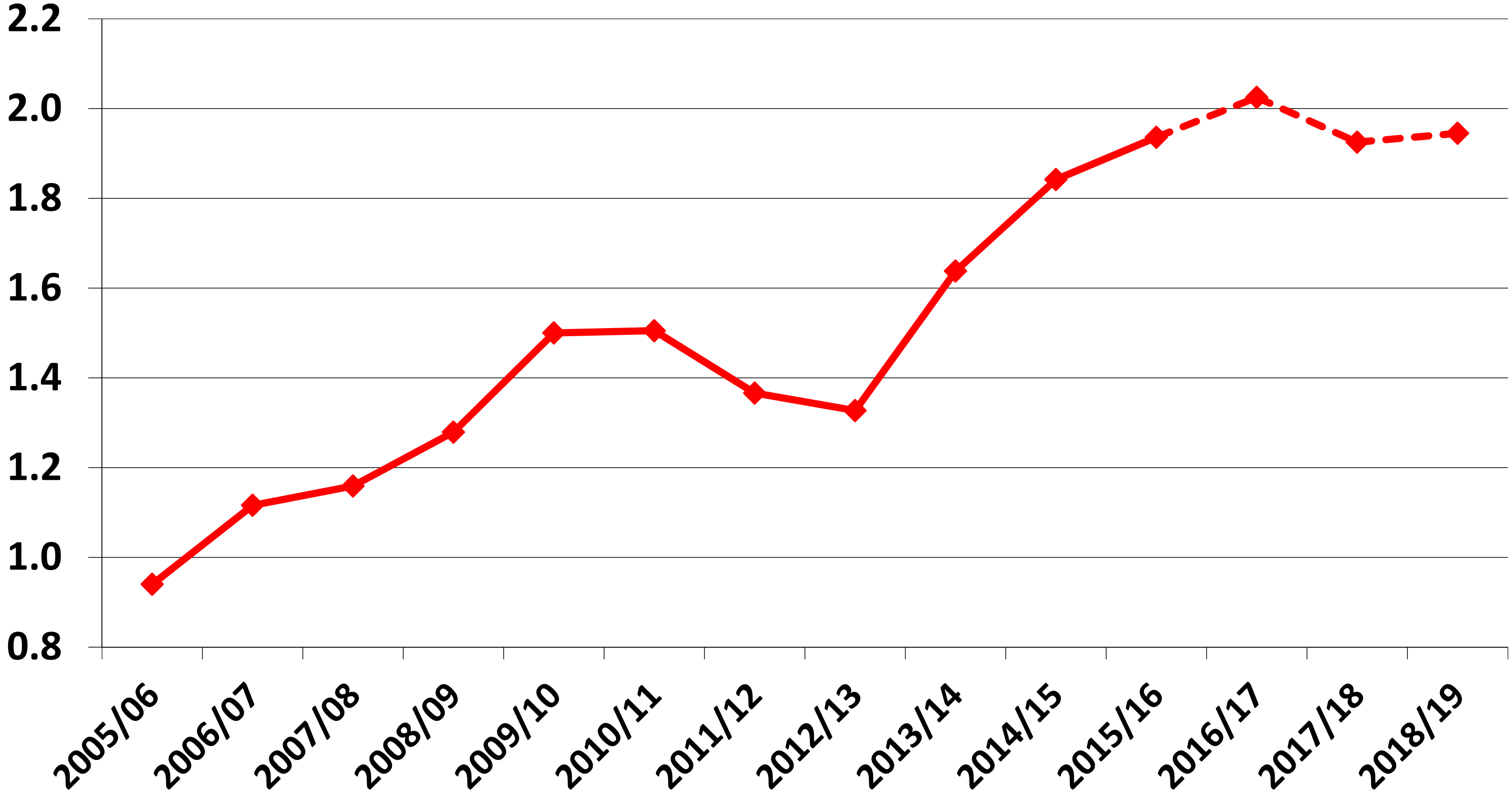
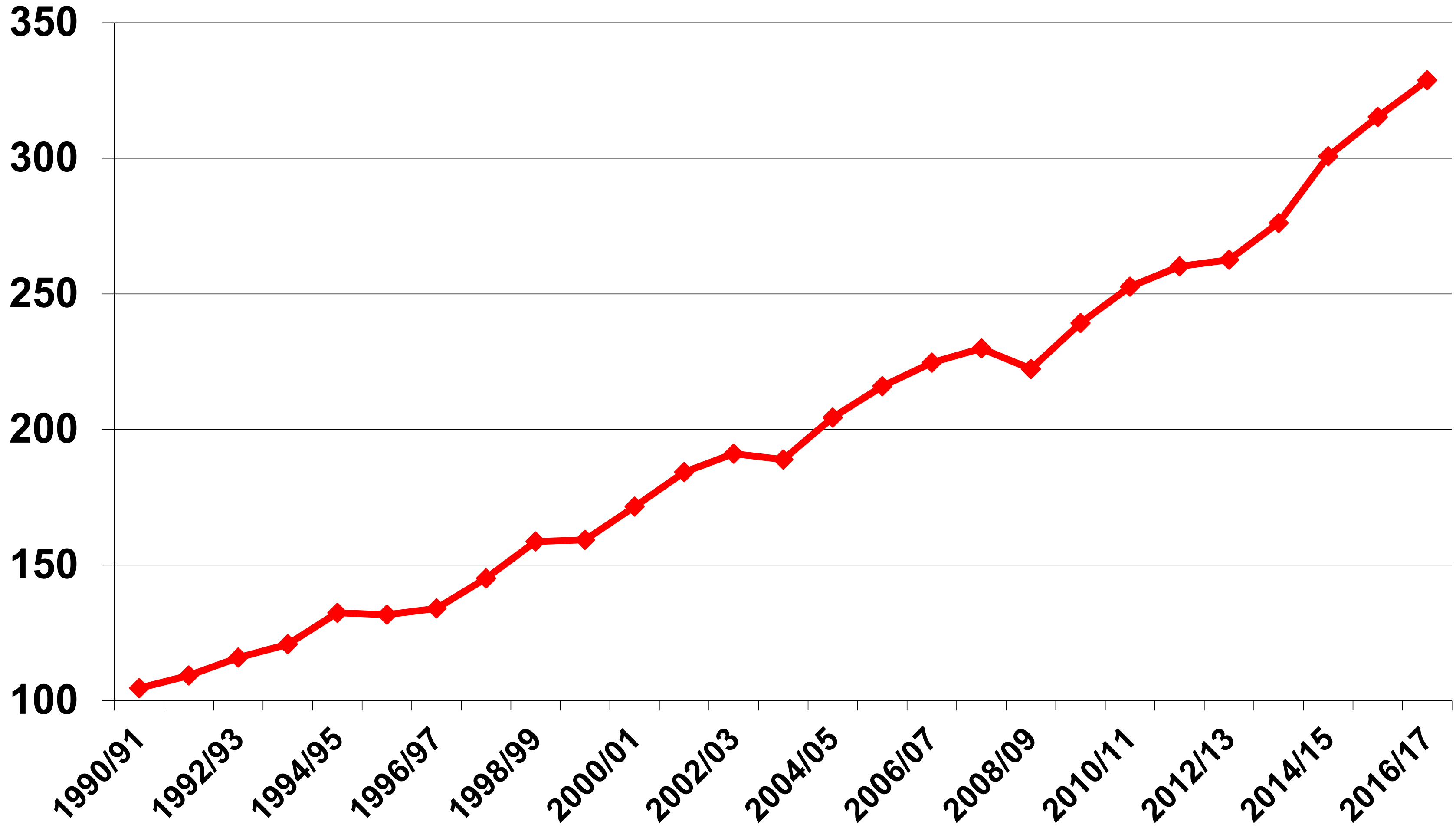
U.S. Soybean Exports

(billion bushels)



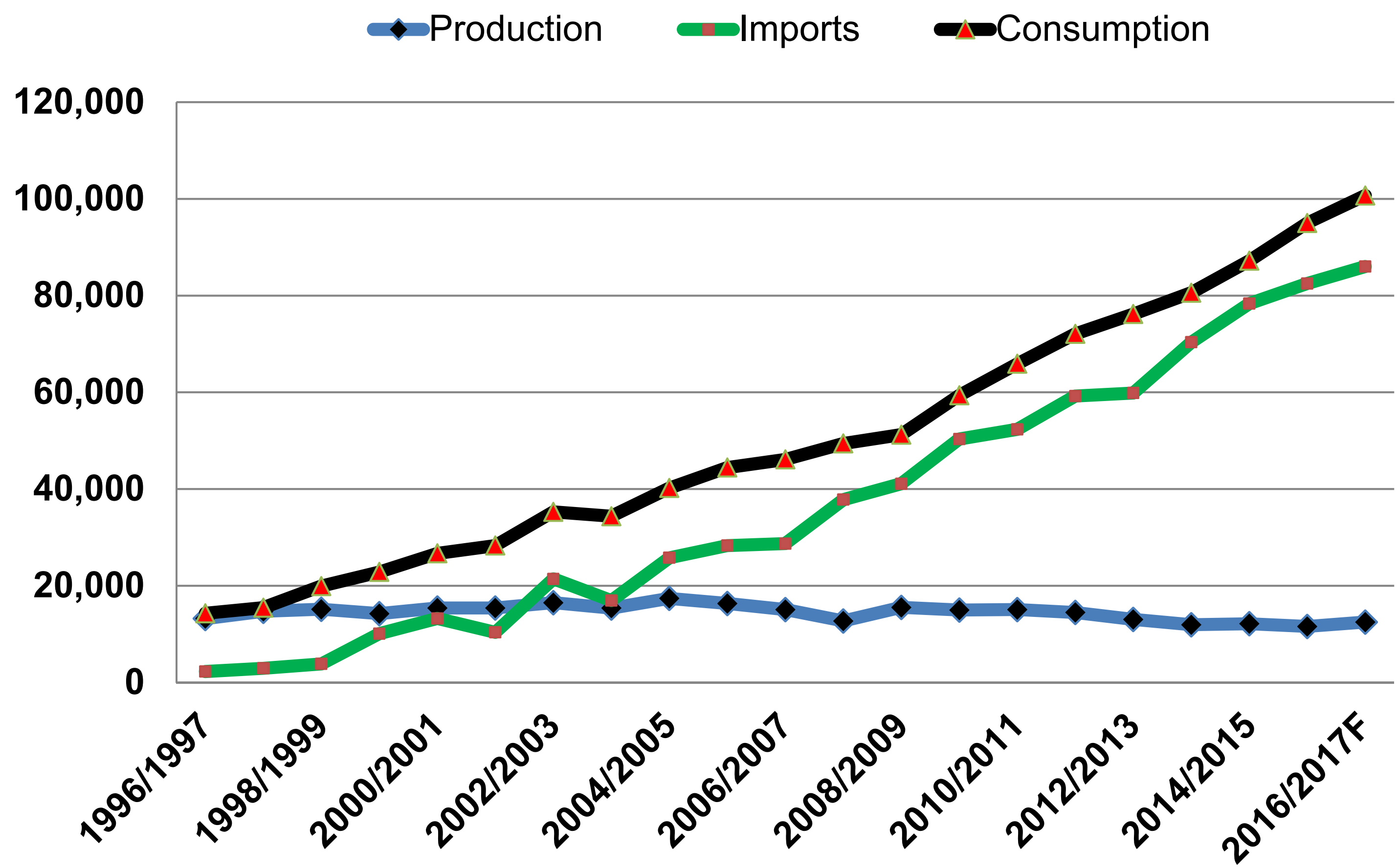
World Soybean Demand

(million tonnes)



China's Soybean Balance

(1,000 tonnes)



Soybean Area Harvested

(million hectares)

	2005	2015		Change	Million acres
Argentina	15.2	19.5		4.3	10.6
Brazil	22.2	33.1		10.9	26.9
Canada	1.2	2.2		1.0	2.5
China	9.6	6.4		-3.2	-7.9
India	7.7	11.6		3.9	9.6
Oth. Latin America	3.8	5.7		1.5	3.7
USA	28.8	33.1		4.3	10.6
Others	4.5	8.3		3.8	9.4
World total	93.0	119.9		26.9	66.5

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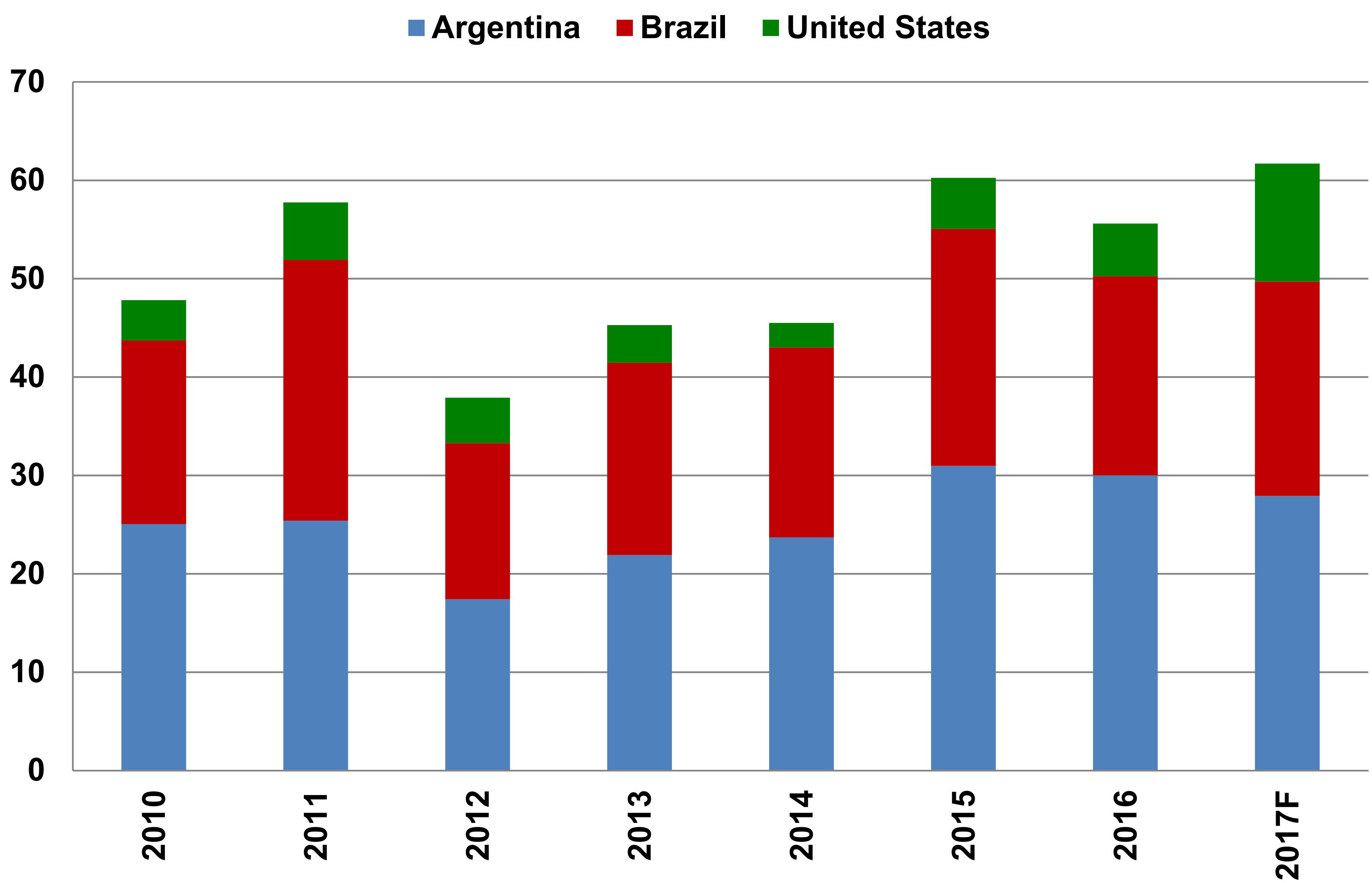
September 1 Soybean Stocks in Argentina, Brazil, US

(Cumulative MMT)



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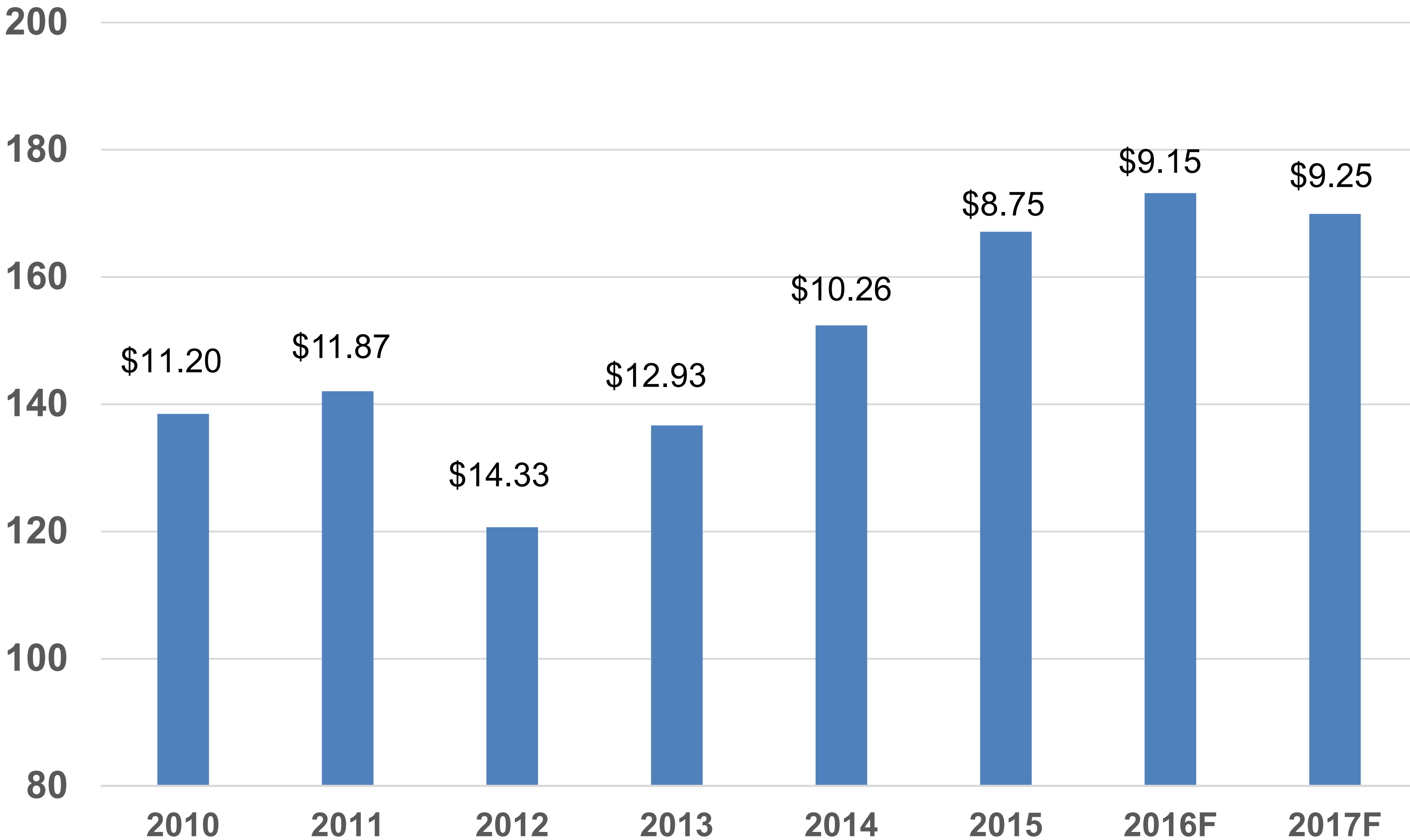
September 1 Soybean Stocks in Arg, Bz, US + US Prod

(MMT – Avg Cash Price Sep-Feb)



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2017/18 Soybean Variable Weather S/D Scenarios

(million bushels)

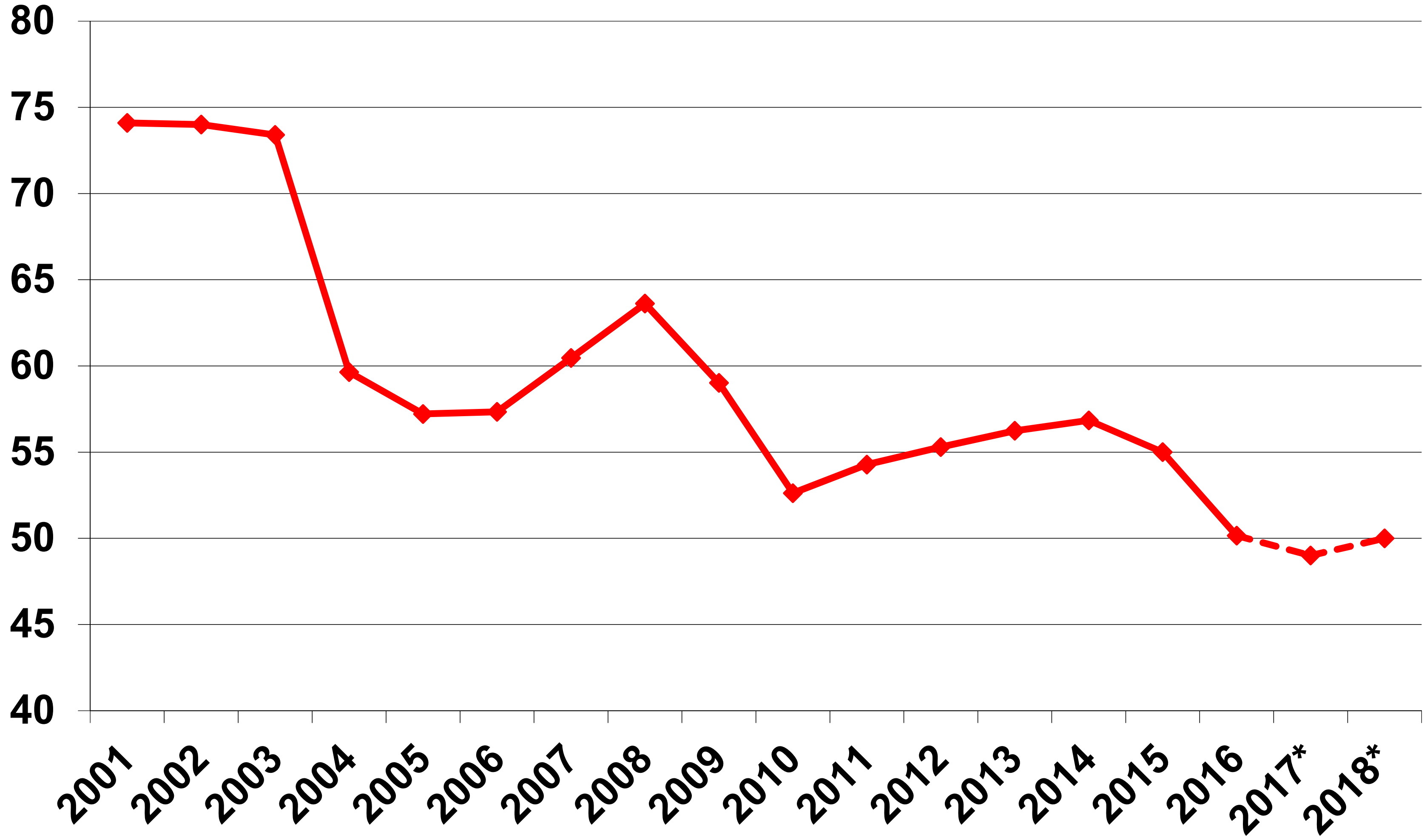
	Doane 2016-17	Below Avg Wx 2017-18	Average Wx 2017-18	Above Avg Wx 2017-18
Planted (M Ac)	83.7	84.1	84.6	84.8
Yield (Bu/Ac)	52.5	45.0	47.5	50.0
Production	4,361	3,735	3,975	4,205
Total Supply	4,583	4,245	4,470	4,700
Crush	1,930	1,925	1,955	1,970
Exports	2,050	1,900	1,950	2,000
Carryover	475	290	435	600
Stocks-to-use	11.6%	7.3%	10.8%	14.6
Price $/bu	$9.15	$10.00	$9.25	$8.00

Crop Sector Outlook

Wheat

U.S. Wheat Acreage

(million acres)



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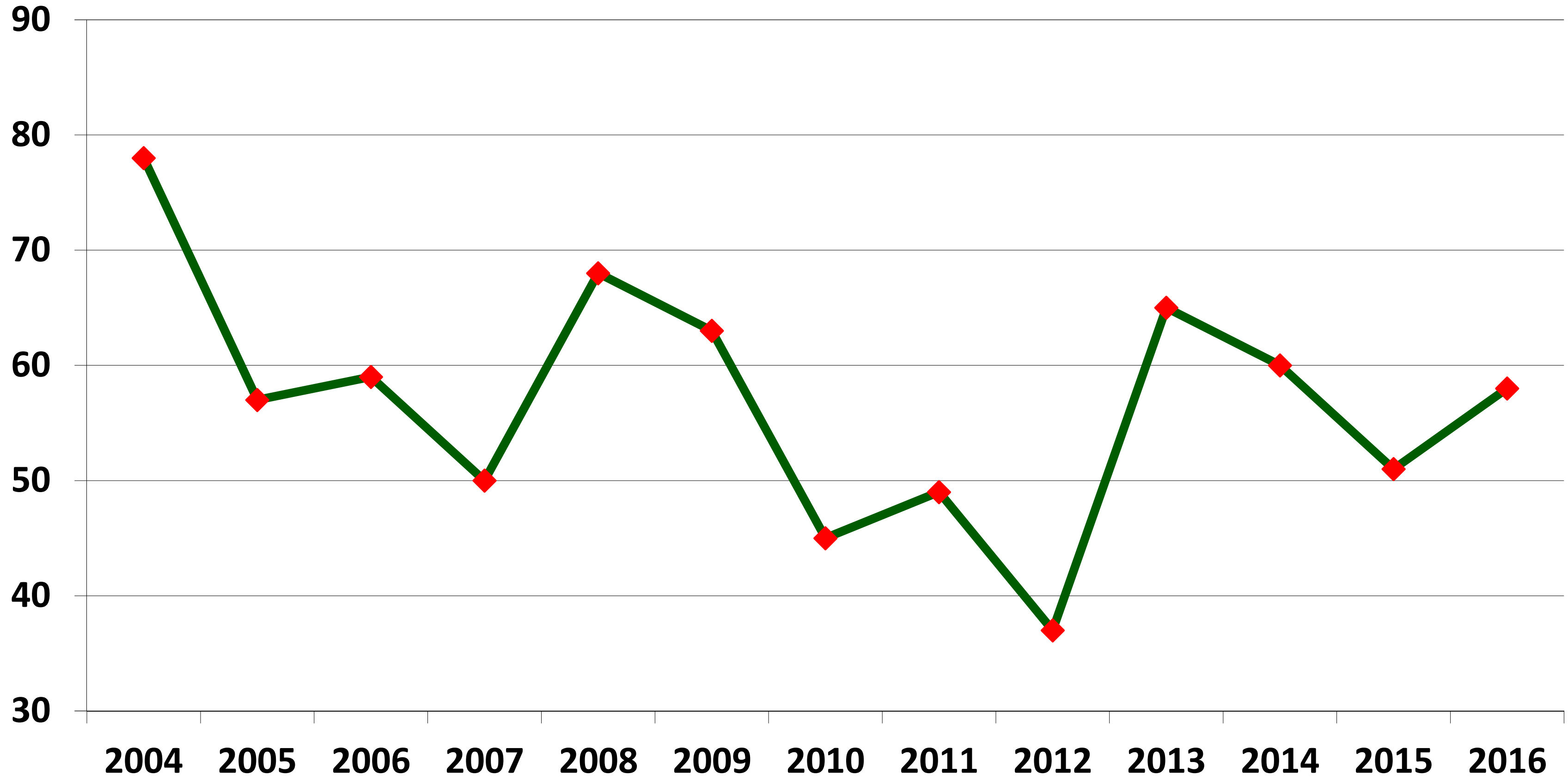
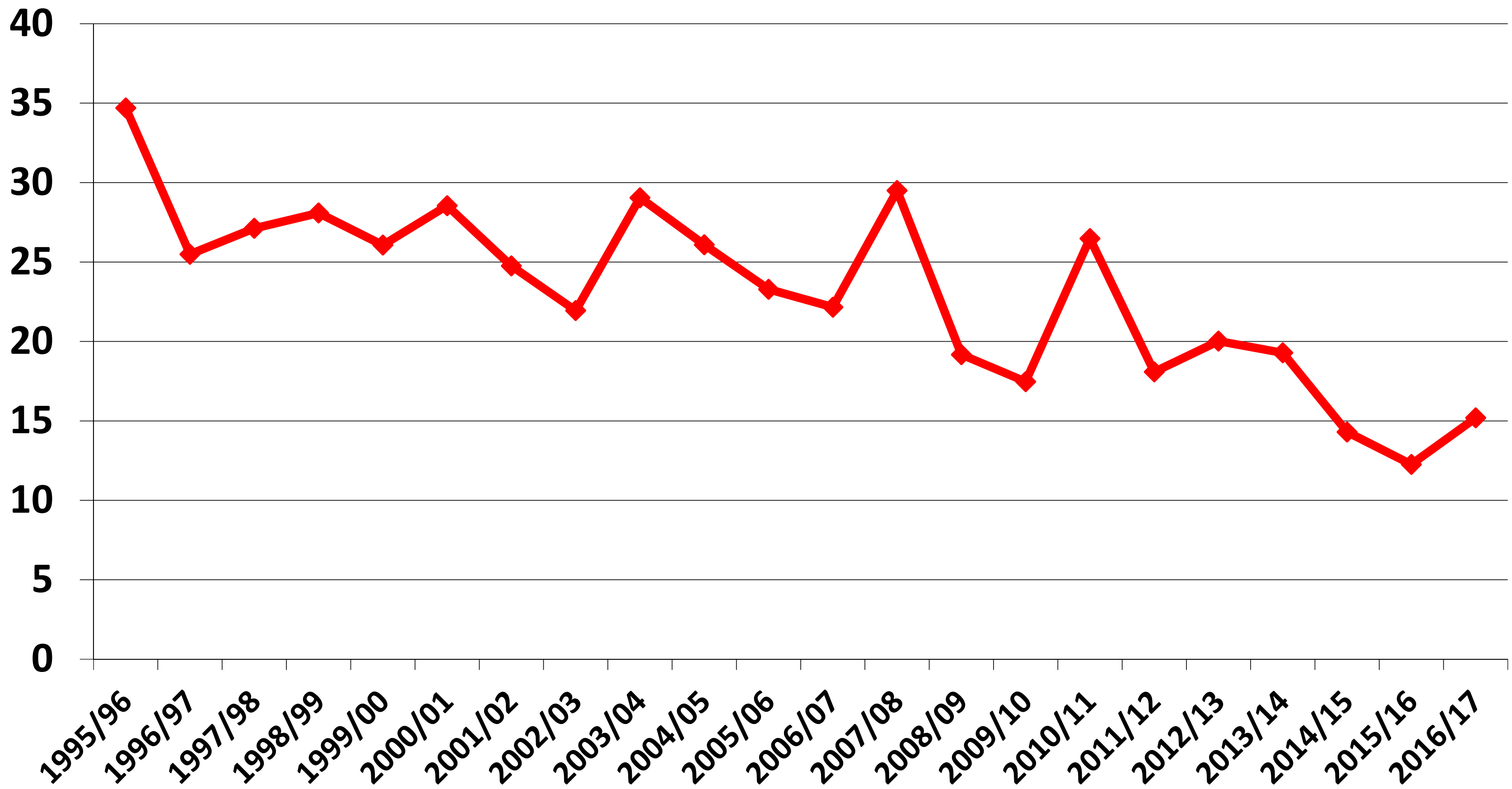
Early November Winter Wheat Condition Rating

(share rated good or excellent)

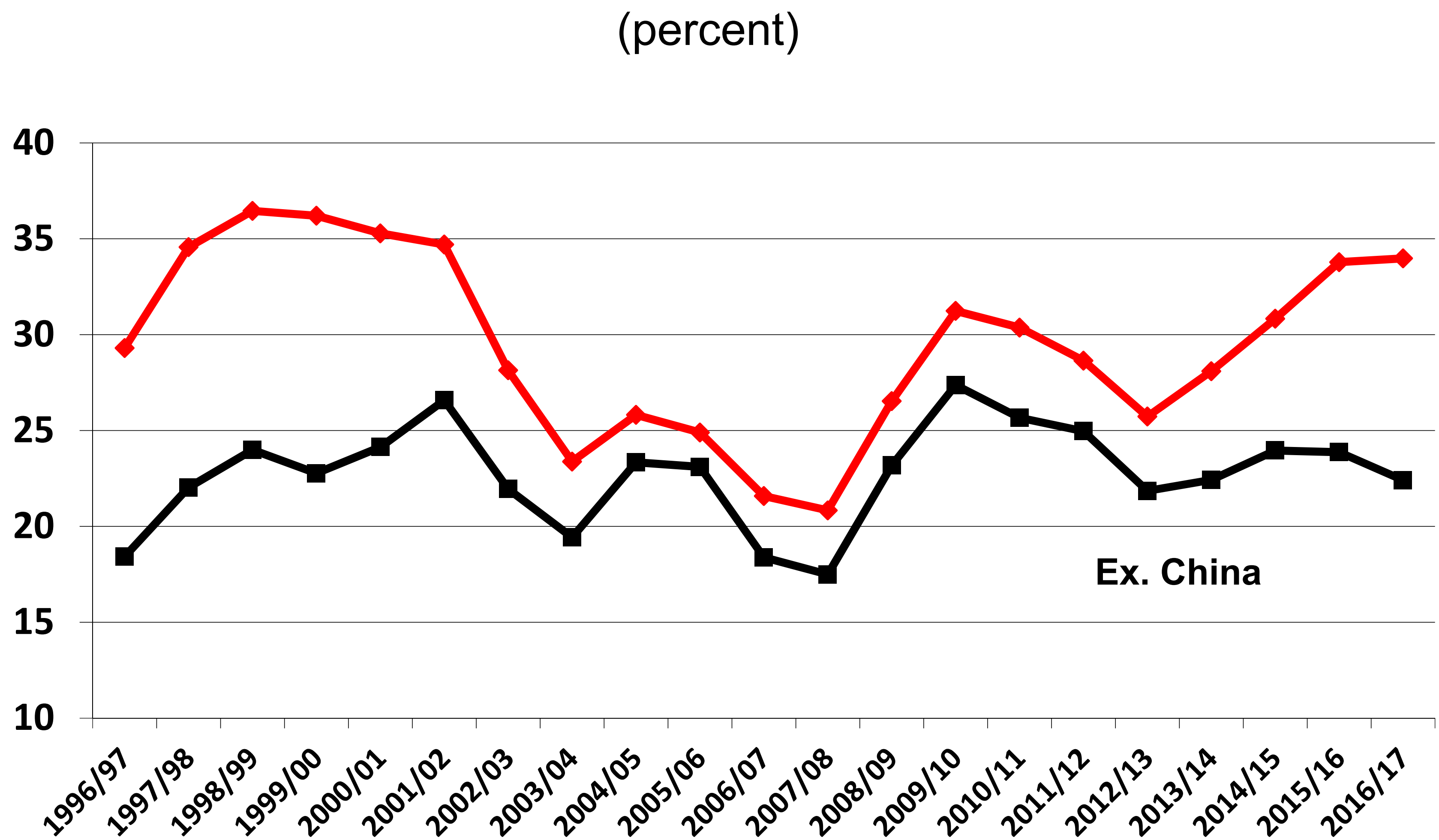


U.S. Share of Word Wheat Trade

(percent)



World Wheat Percent Stocks to Use



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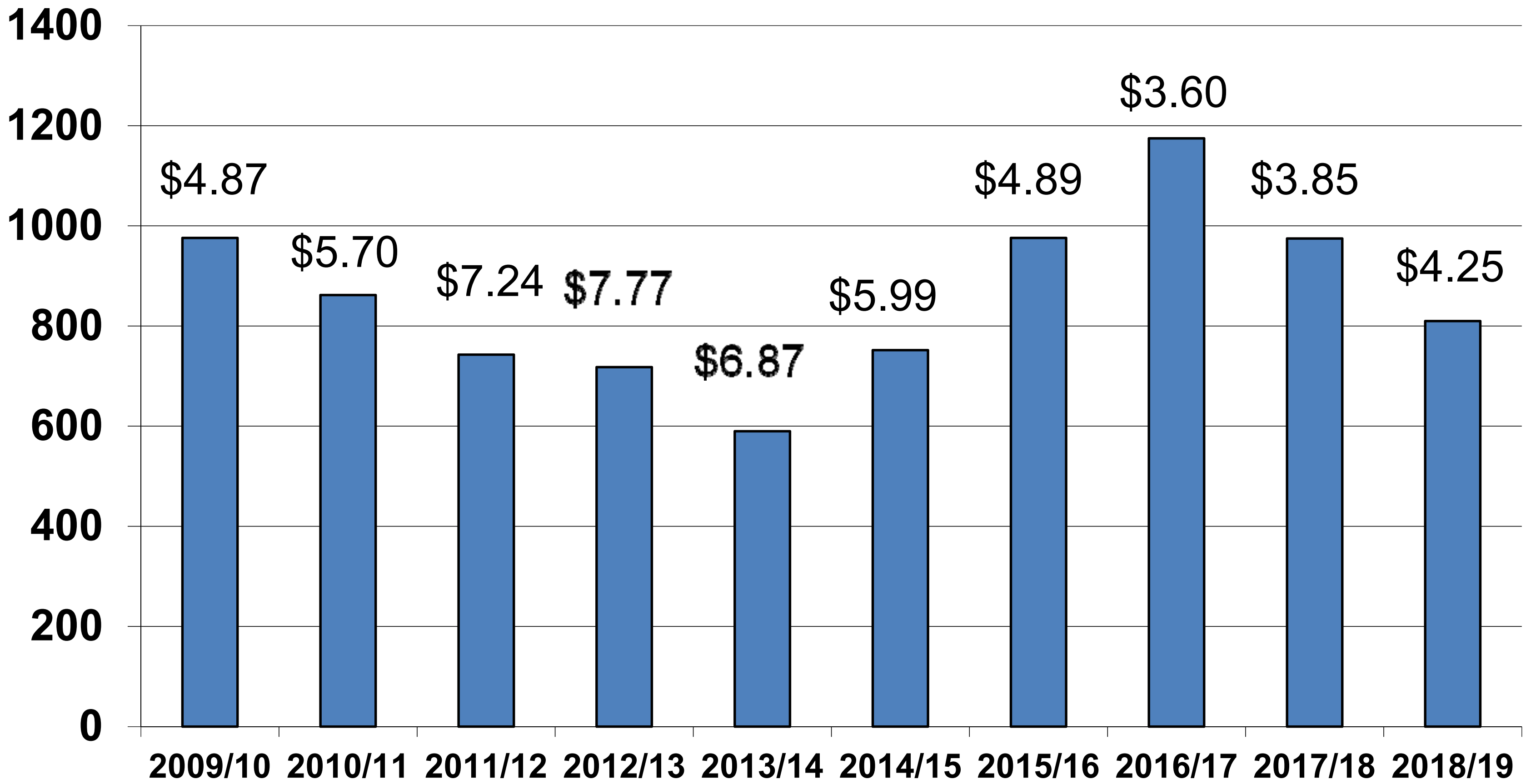
U.S. Wheat Supply/Demand

(billion bushels)

	2015/16	2016/17	2017/18
Planted Acres (mil)	55.2	50.1	49.0
Production	2.062	2.310	1.925
Domestic Use	1.177	1.251	1.270
Exports	.775	.975	.975
Total Use	1.952	2.226	2.245
Ending Stocks	.976	1.175	.975
Price ($/bushel)	$4.89	$3.60	$3.85

U.S. Ending Wheat Stocks and Prices

(million bushels & $ per bushel)



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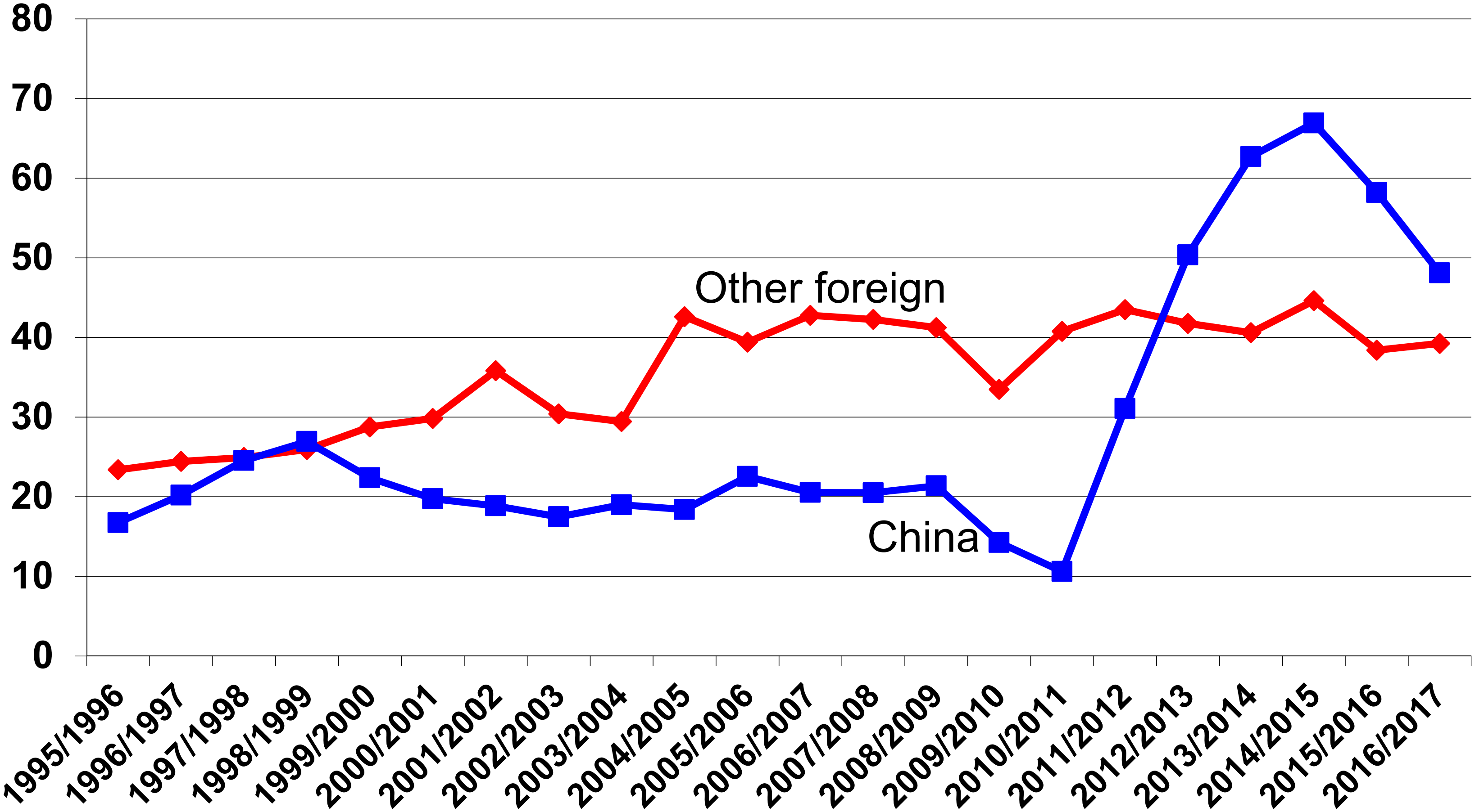
Crop Sector Outlook

Cotton

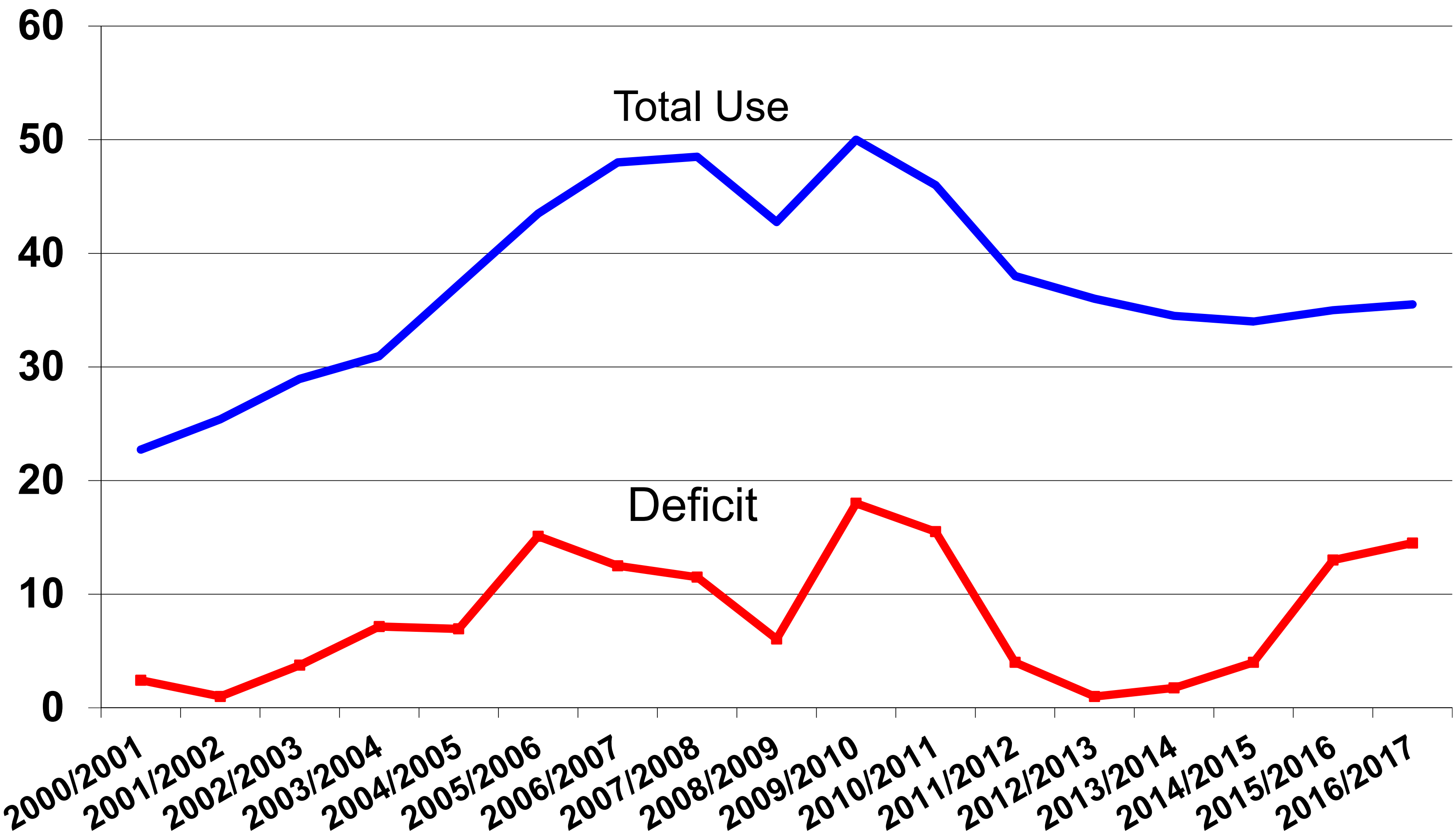
Global Cotton Stocks

(million bales)



China's Cotton Demand

(million bales)



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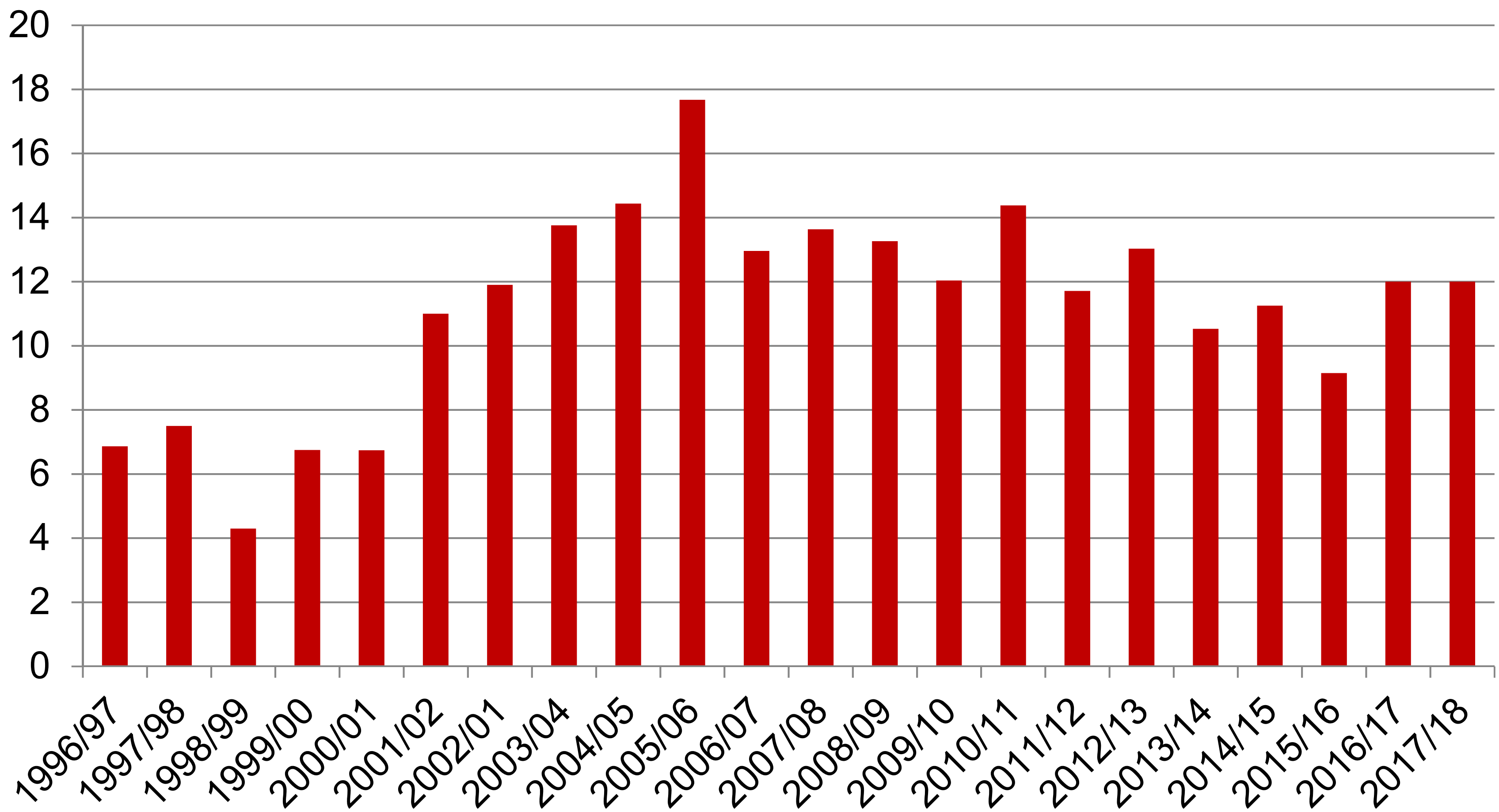
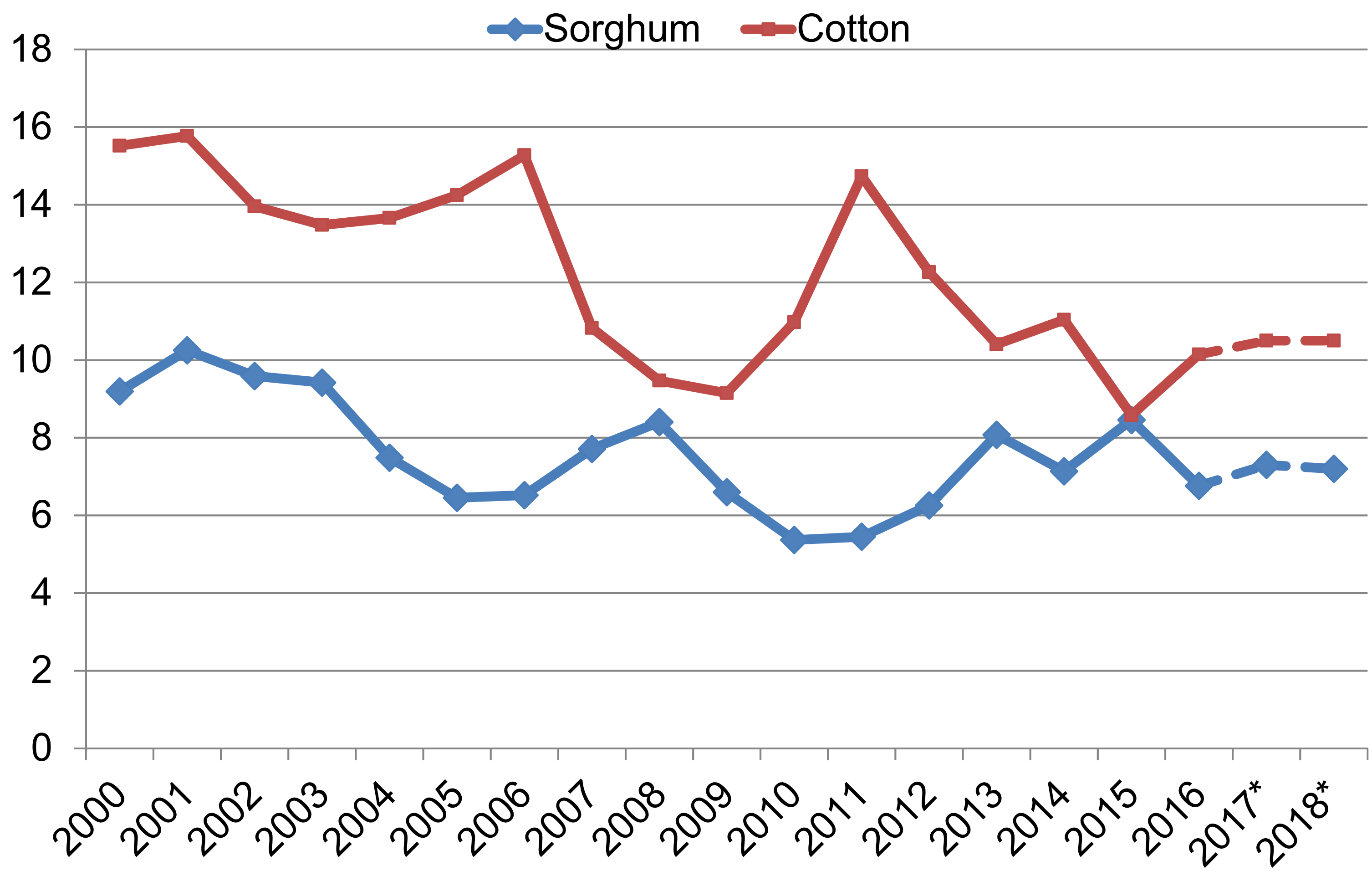
U.S. Cotton Exports

(million bales)



U.S. Cotton and Sorghum Acreage

(million acres)



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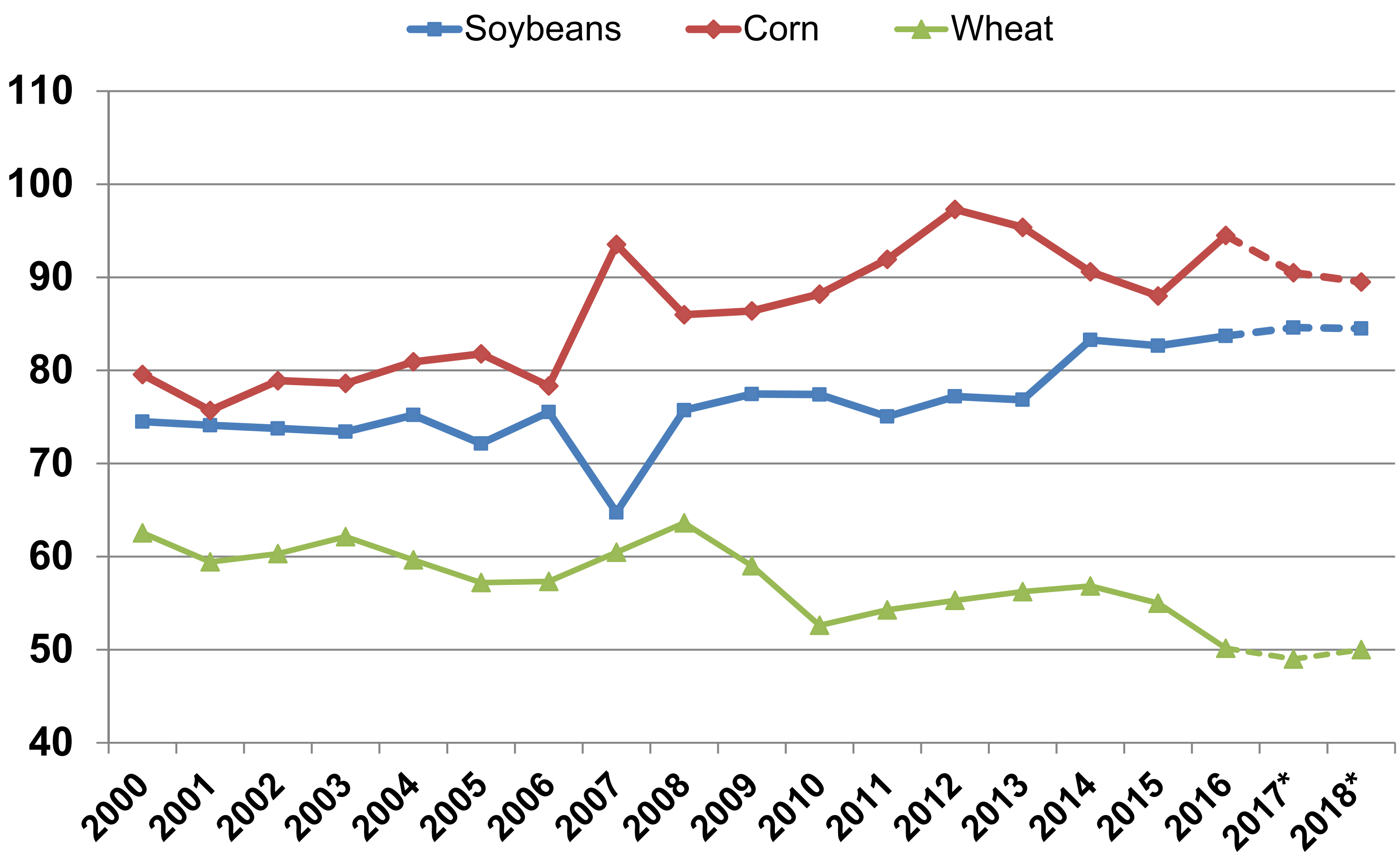
U.S. Corn Soybean and Wheat Acreage

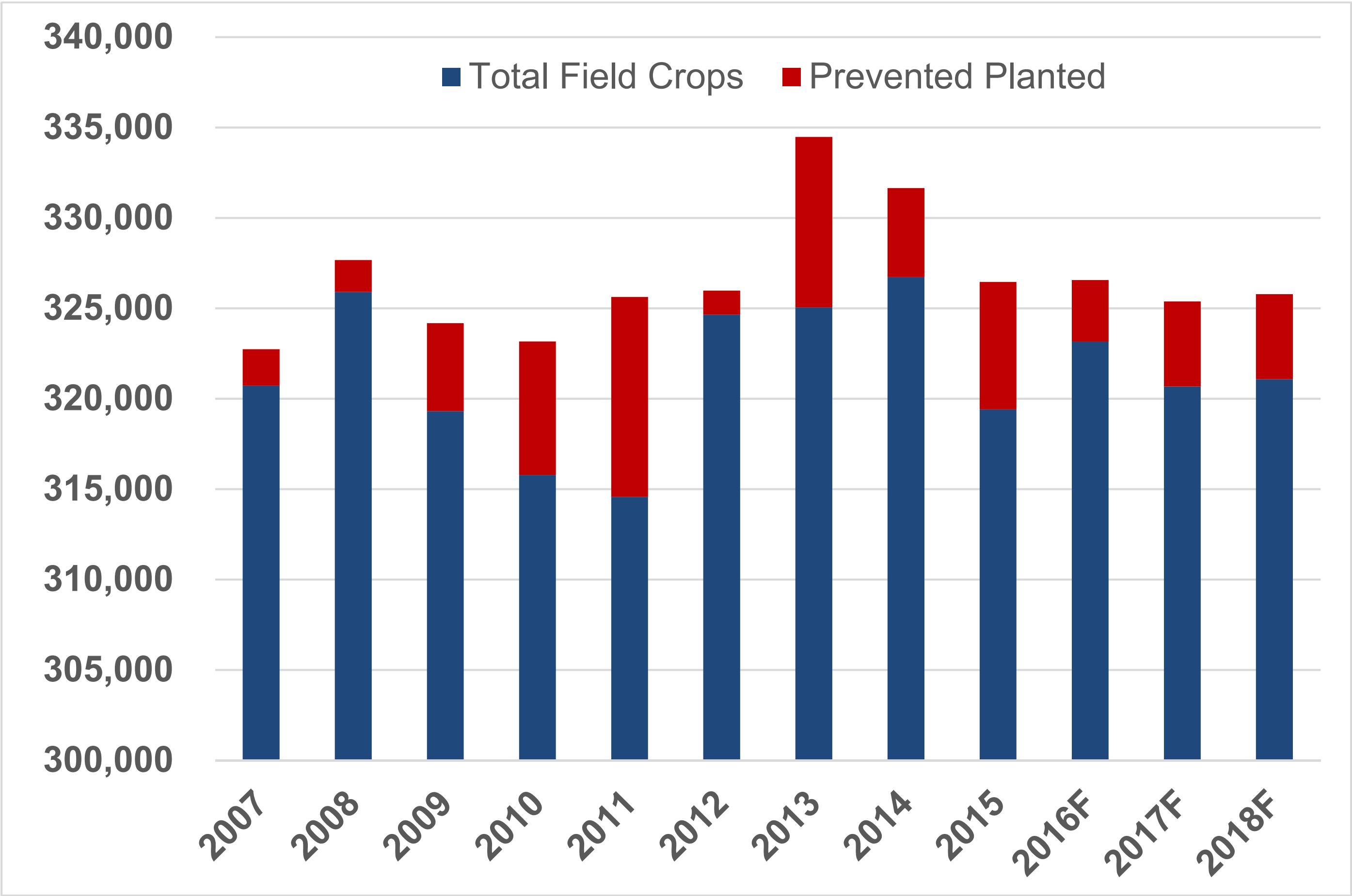
(million acres)



* Doane Forecast

U.S. Crop Acreage

(1,000 acres)



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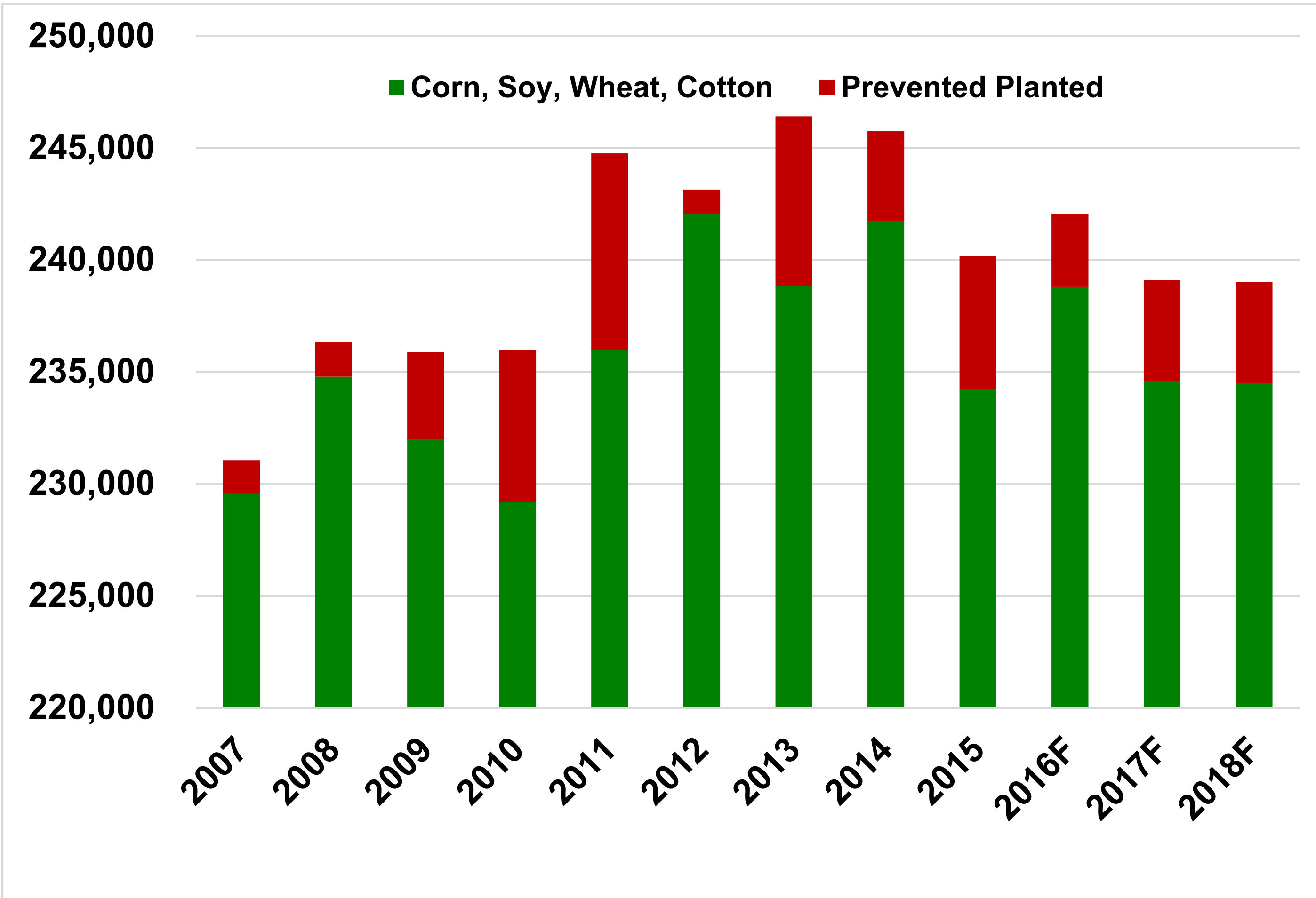
Corn, Soybean, Wheat and Cotton

(1,000 acres)



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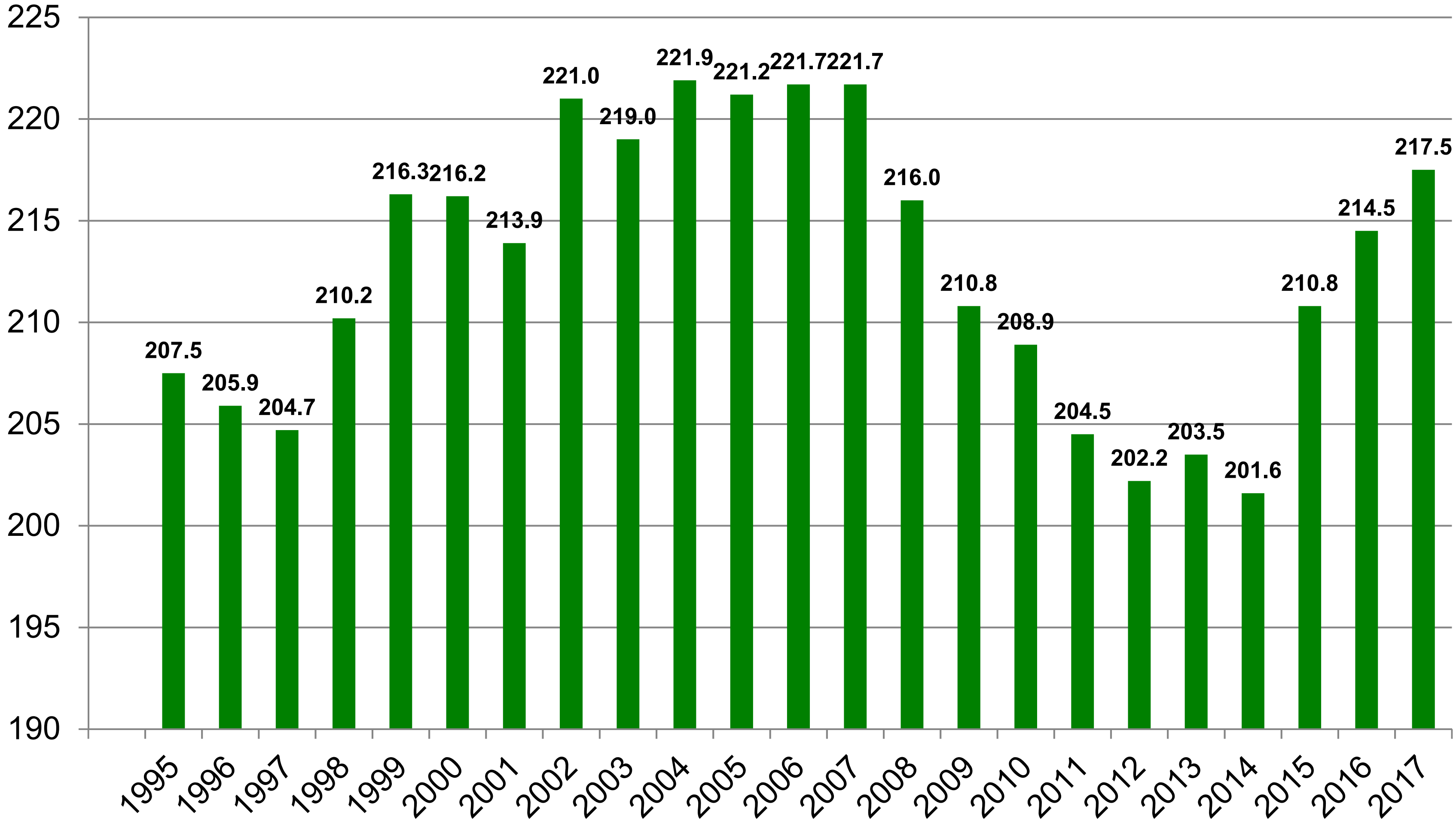
Livestock Sector Outlook

U.S. per Capita Meat Consumption

pounds



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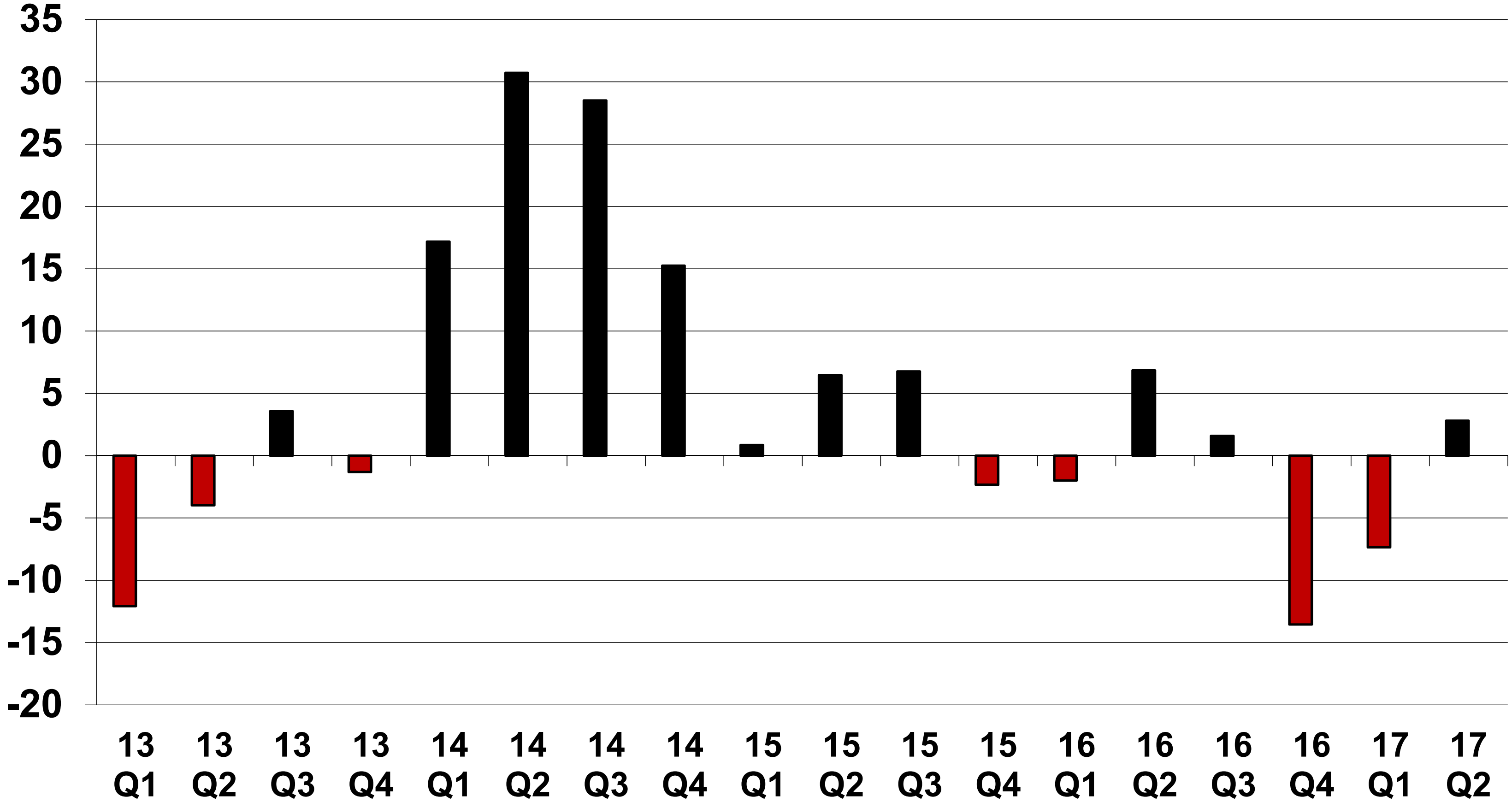
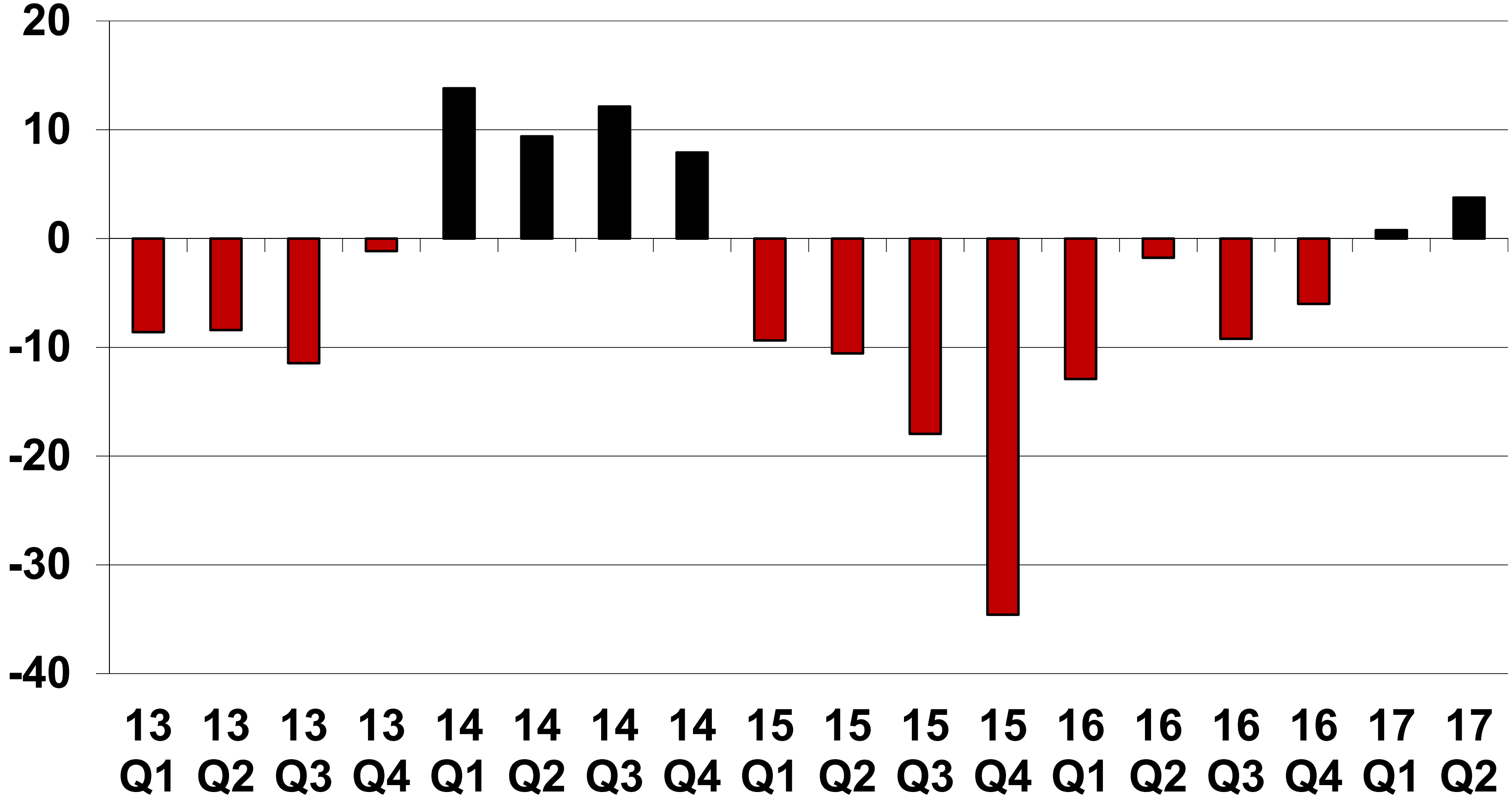
Hog Profitability

($ per cwt)



Fed Steer Profitability

($ per head)



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Livestock Sector

- Expansion phase of cattle cycle continues 1-2 years
  - Industry has incurred huge losses over the past 2 years
  - Cattle prices drift lower into 2018

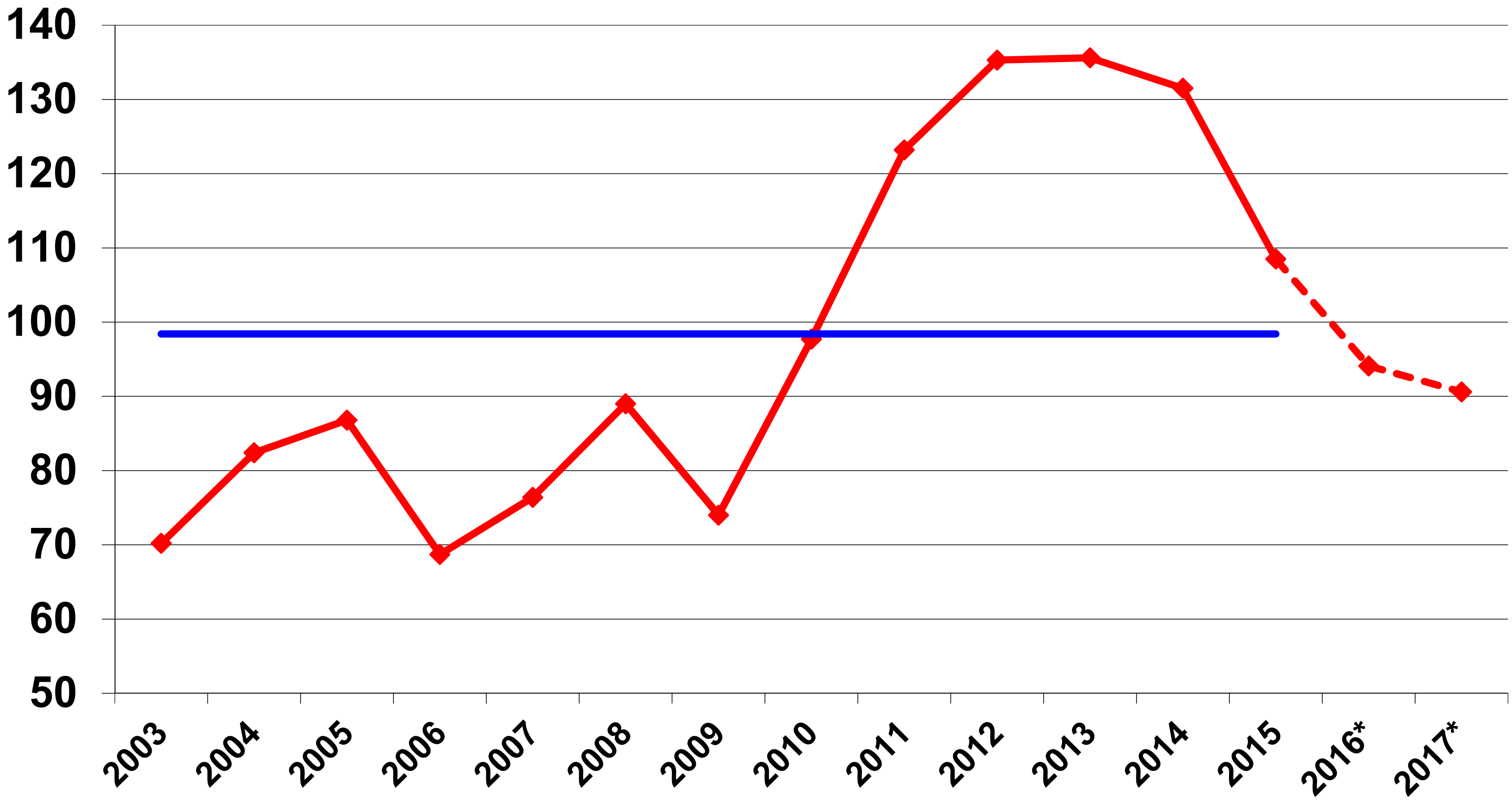
- Pork production rising and challenging packing industry capacity
  - Pork production margins are also negative

- Large meat supplies - lower prices should begin to stimulate demand domestically and for export

Financial Overview

Net Cash Farm Income

(billion dollars)



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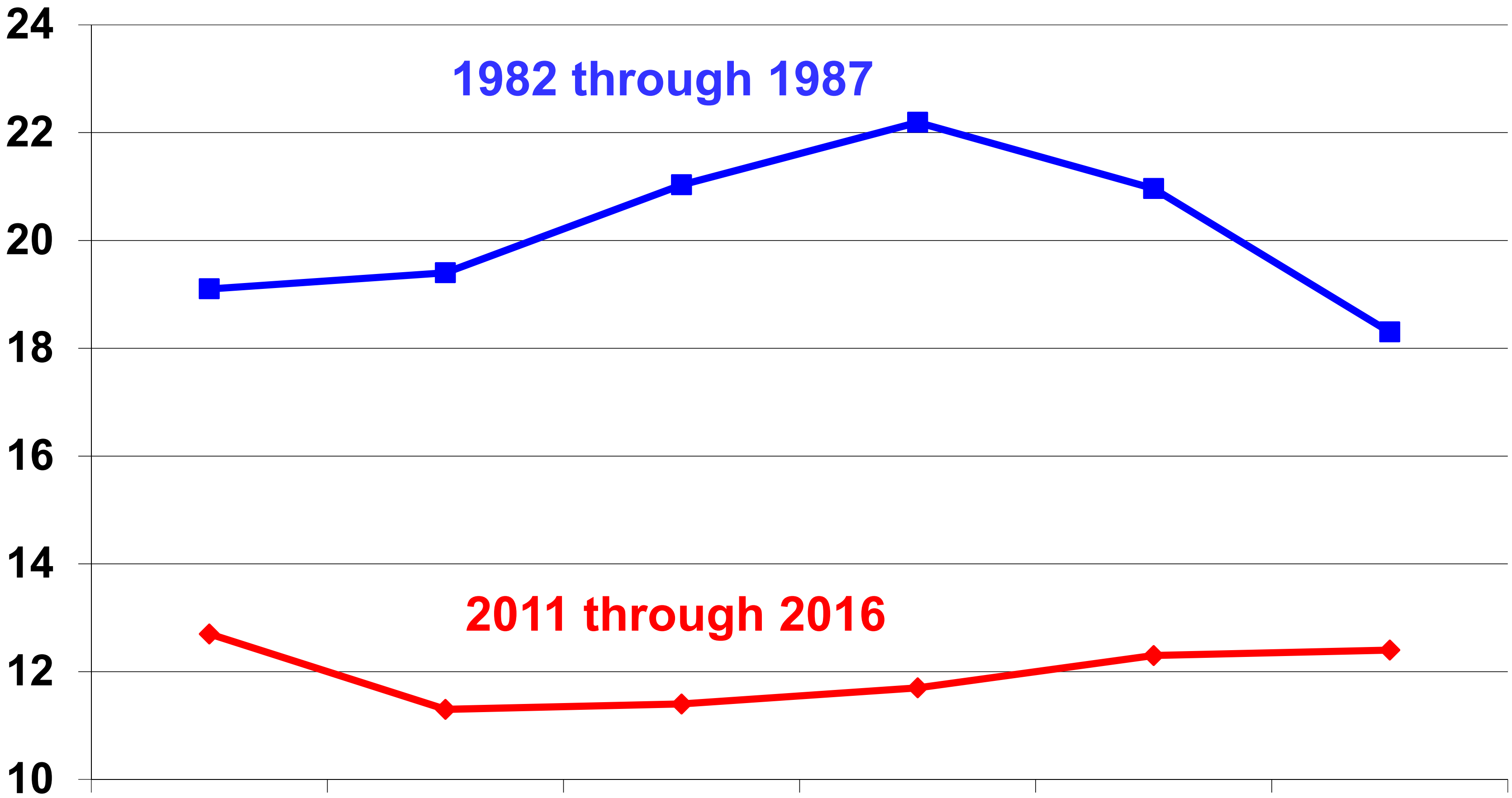
Debt-to-Asset Ratio

(percent)



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Closing Comments

- Grain supplies begin to stabilize
- We need strong exports for all crops
- Corn acreage will decline in 2017 then hold steady
- Livestock producers also facing margin pressure
- Net cash farm income still under pressure, but only moderately lower
- Government payments provide limited support with normal weather and yields

Questions?

Doane Advisory Services

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