

Crop market outlook and farm bill choices

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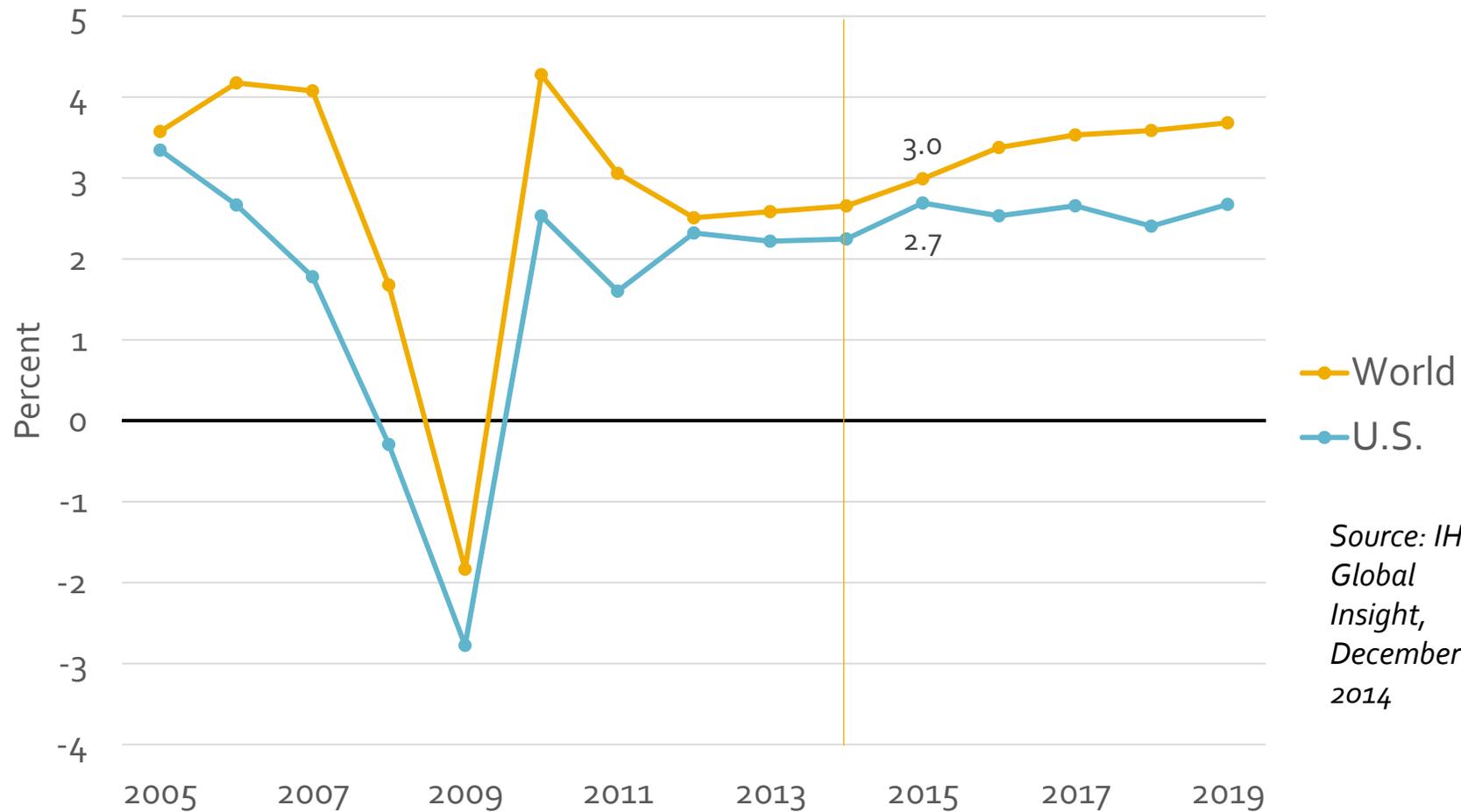
Arkansas webinar
Feb. 17, 2015



Agenda

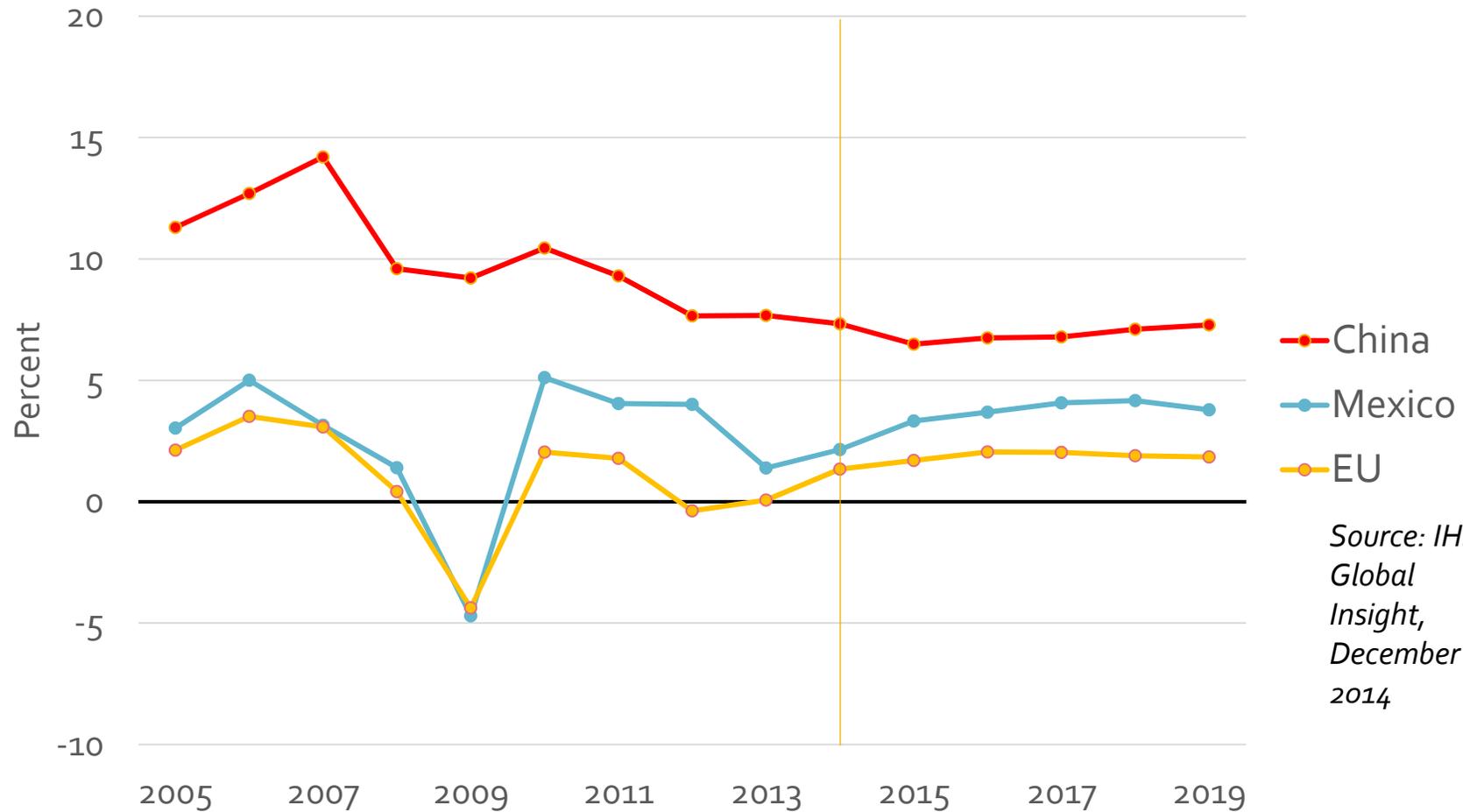
- The outlook in brief
 - Macro economy
 - Corn
 - Soybeans
 - Rice
 - Cotton
- Decisions under the new farm bill
 - PLC/ARC, base reallocation, generic base, etc.
 - NAFFP (AFPC/FAPRI-MU) tool

U.S. and world real GDP growth



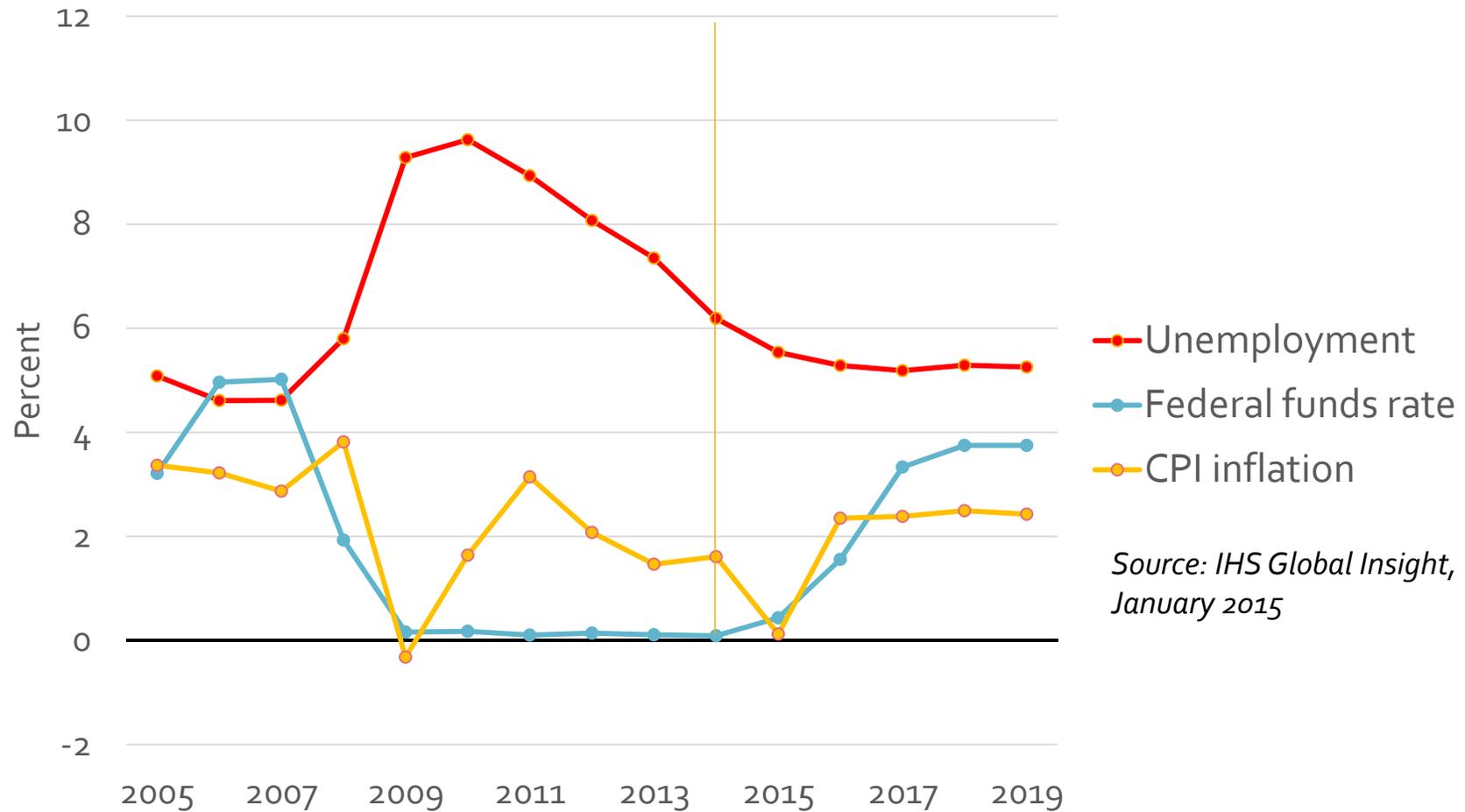
Source: IHS
Global
Insight,
December
2014

Real GDP growth in major U.S. agricultural trading partners



Source: IHS
Global
Insight,
December
2014

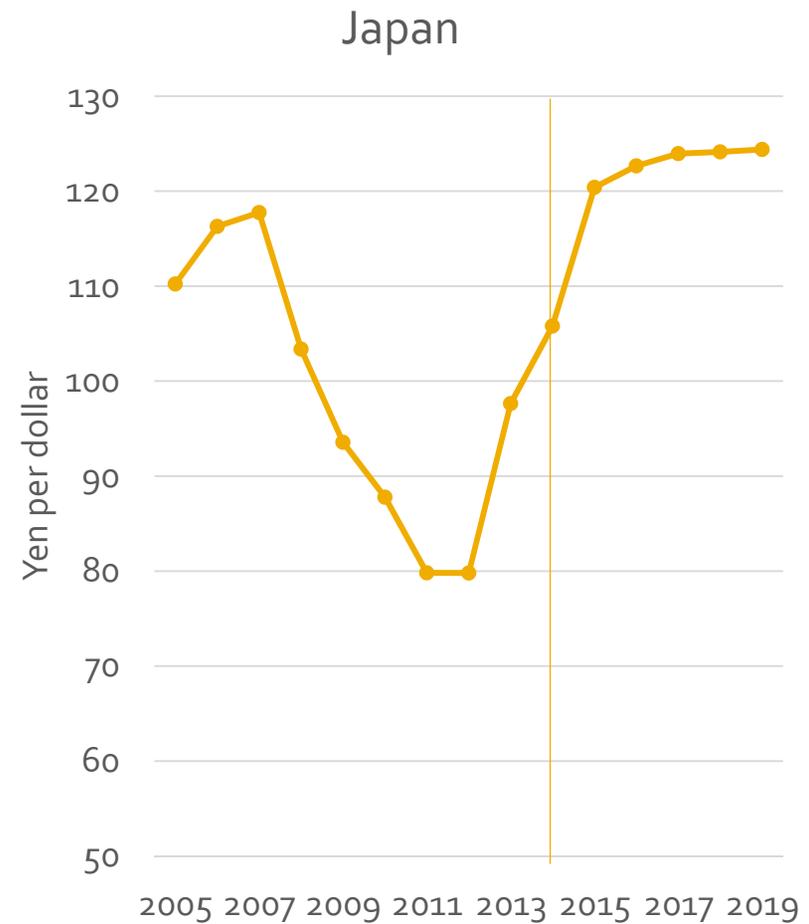
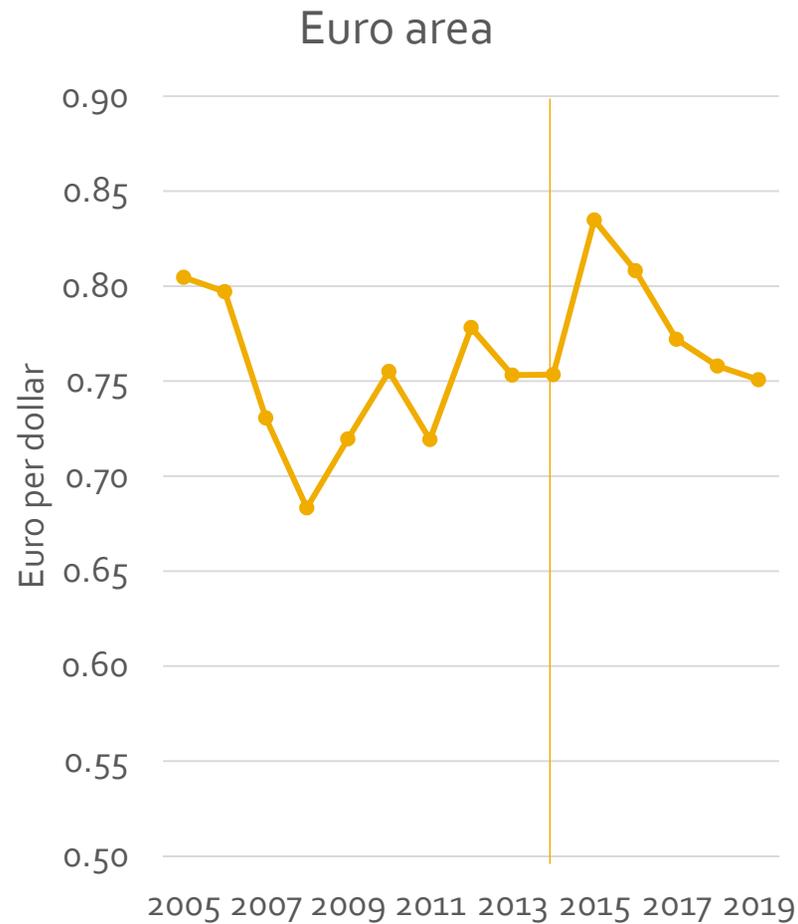
U.S. interest and inflation rates



Source: IHS Global Insight, January 2015

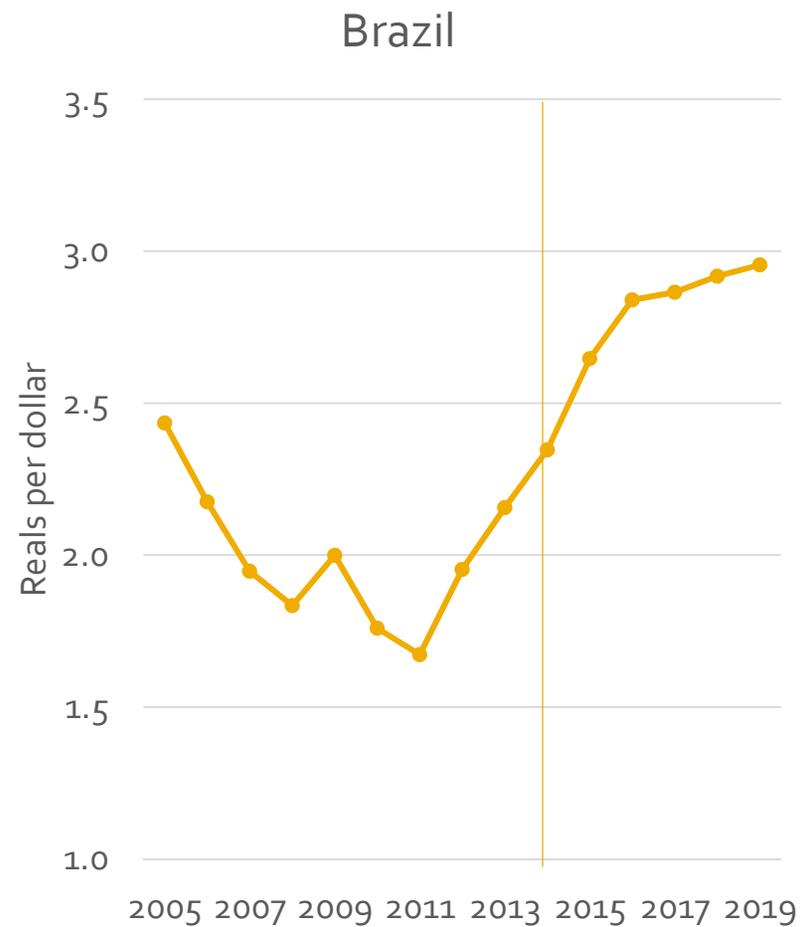
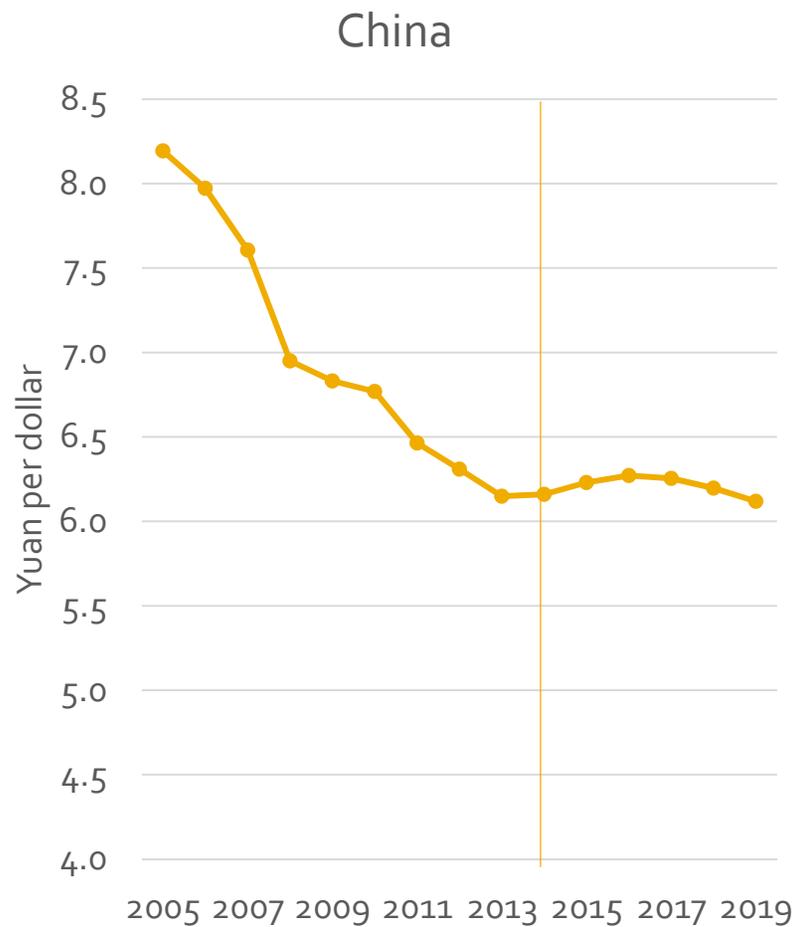
Exchange rates

(IHS Global Insight, December 2014)



More exchange rates

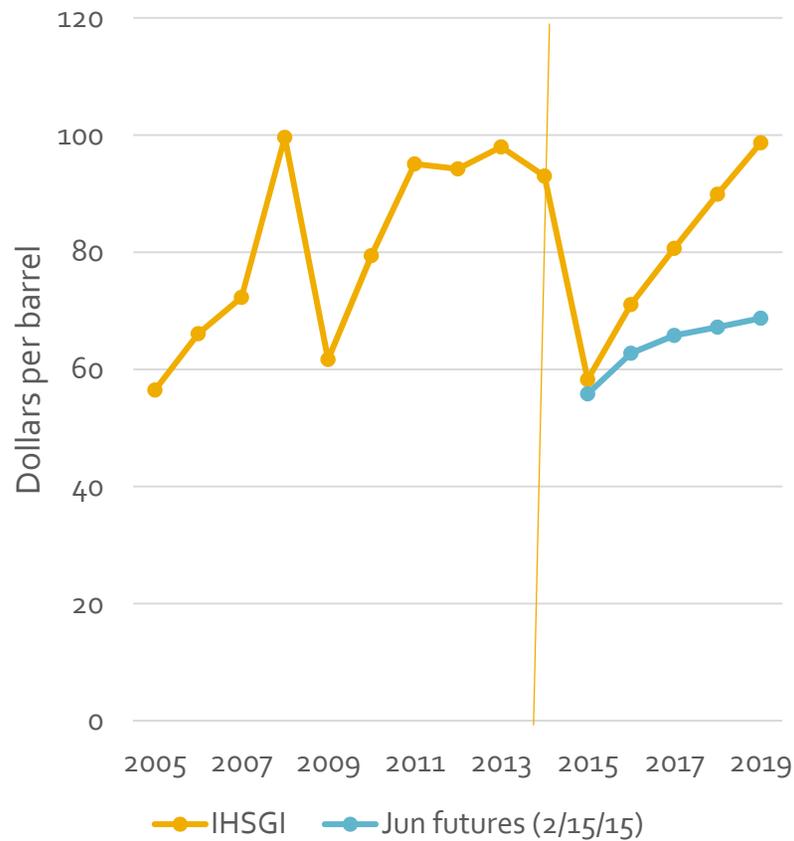
(IHS Global Insight, December 2014)



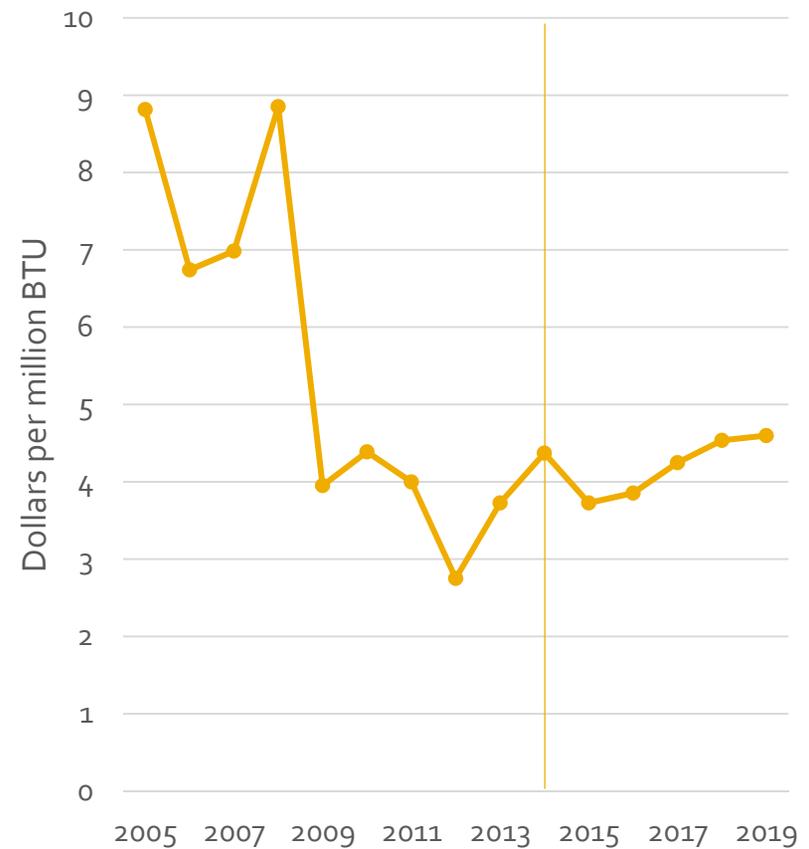
Oil and natural gas prices

(IHS Global Insight, January 2015)

West Texas Intermediate oil

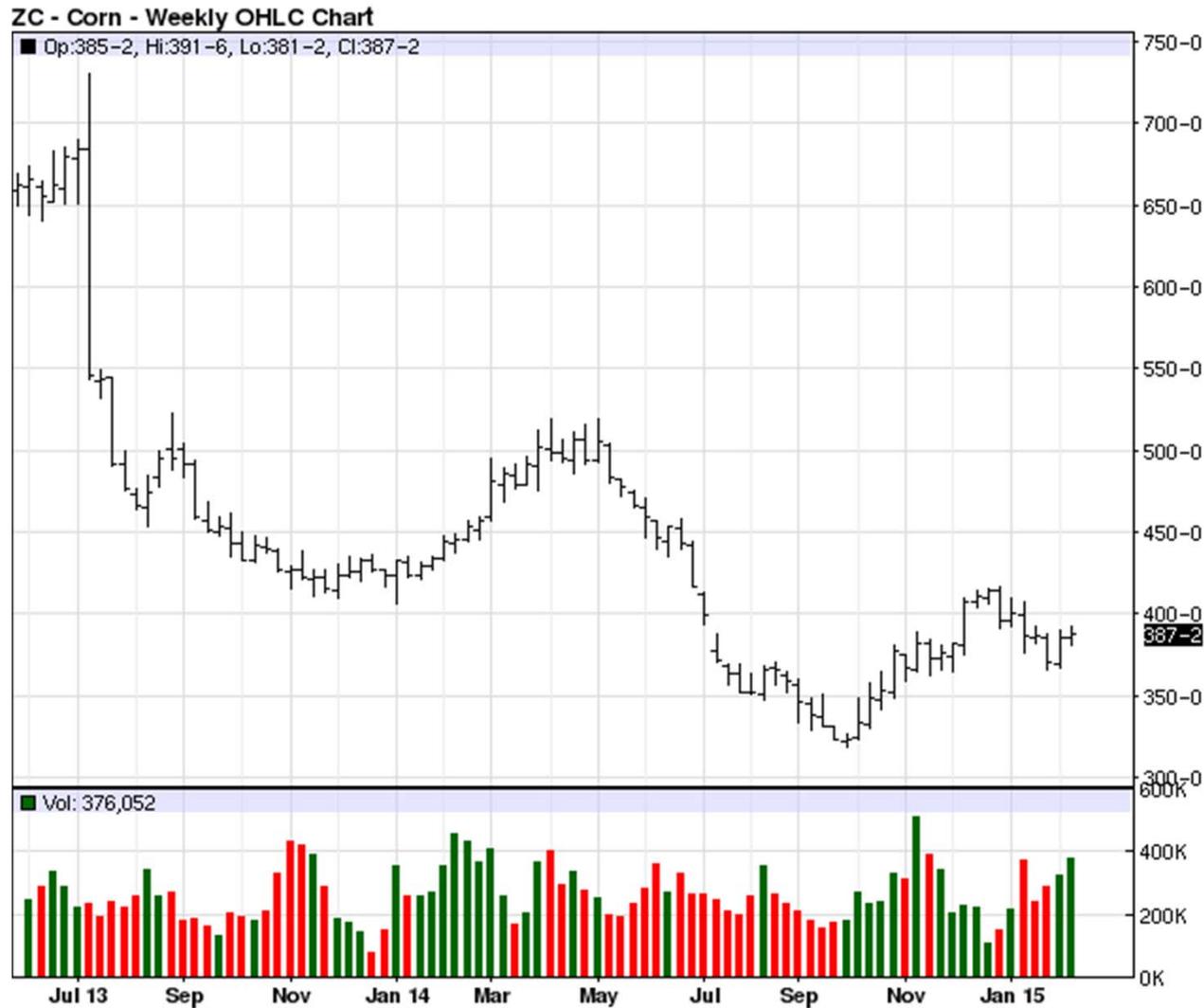


Henry Hub natural gas



March 2015 corn futures

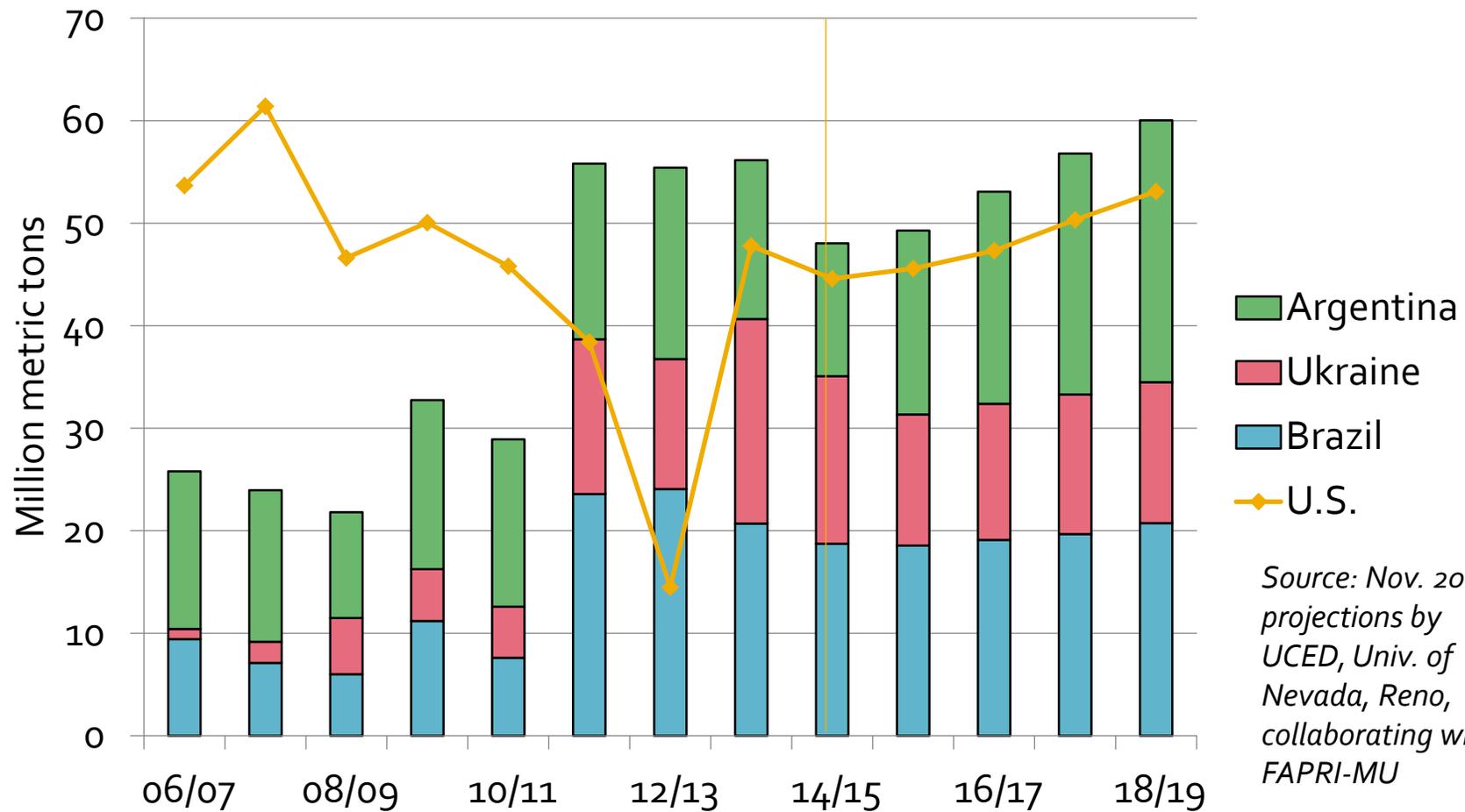
(May 2013-Feb. 16, 2015, Great Pacific Trading Co.)



U.S. corn supply and use (USDA WASDE, Feb. 2015)

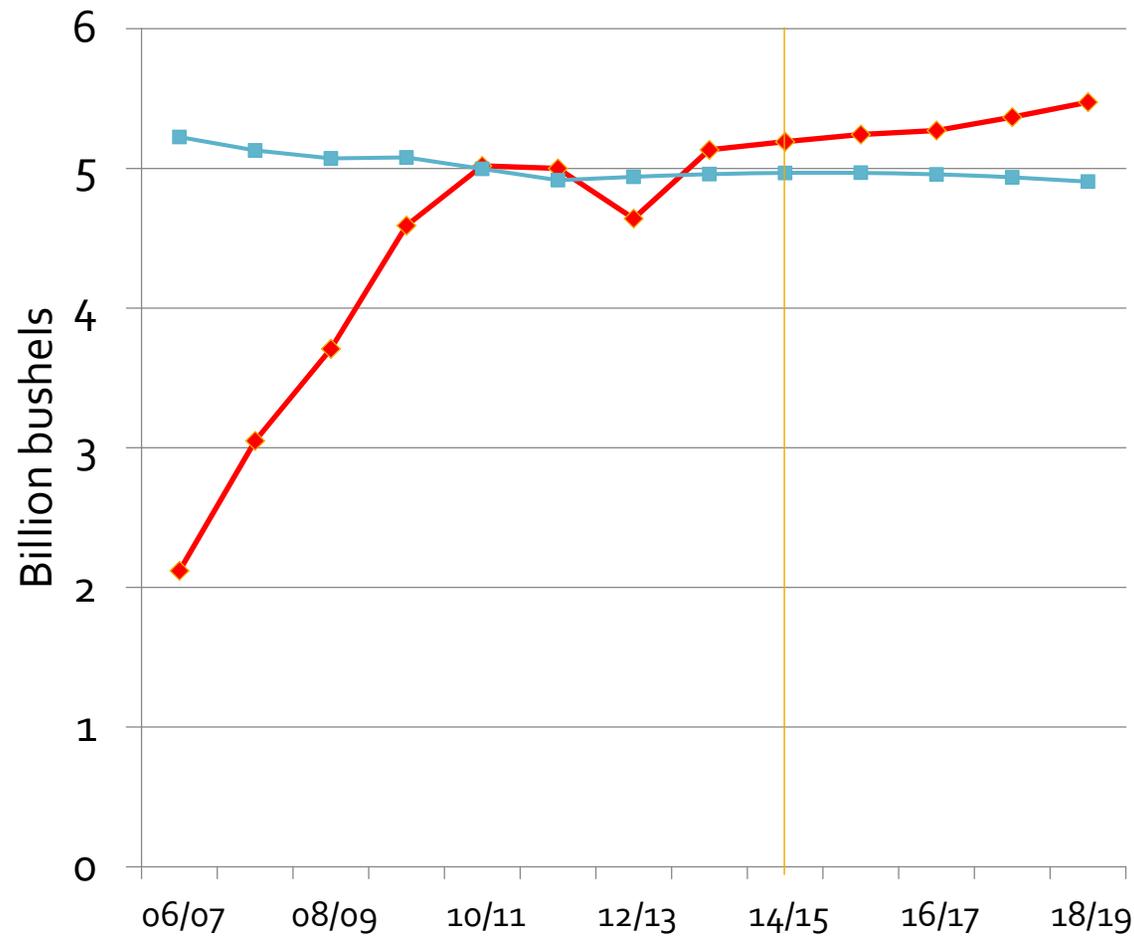
	2012/13	2013/14	2014/15
Planted area (mil. a.)	97.3	95.4	90.6
Harvested area (mil. a.)	87.4	87.5	83.1
Yield (bu./a.)	123.1	158.1	171.0
Production (mil. bu.)	10,755	13,829	14,216
Feed & residual (mil. bu.)	4,315	5,036	5,250
Ethanol & coproducts (mil. bu.)	4,641	5,134	5,250
Other domestic use (mil. bu.)	1,397	1,363	1,395
Exports (mil. bu.)	730	1,917	1,750
Ending stocks (mil. bu.)	821	1,232	1,827
Farm price per bushel	\$6.89	\$4.46	\$3.40-\$3.90

Corn net exports



Source: Nov. 2014
projections by
UCED, Univ. of
Nevada, Reno,
collaborating with
FAPRI-MU

U.S. corn ethanol & coproduct use



◆ Nov. base

■ Usable in 10% blends*

Source:

FAPRI-MU baseline, Nov. 2014

*10% of motor gasoline use
divided by ethanol yield
(gallons/bushel)

Gap must be net exports or
higher-level blends

U.S. corn supply and use

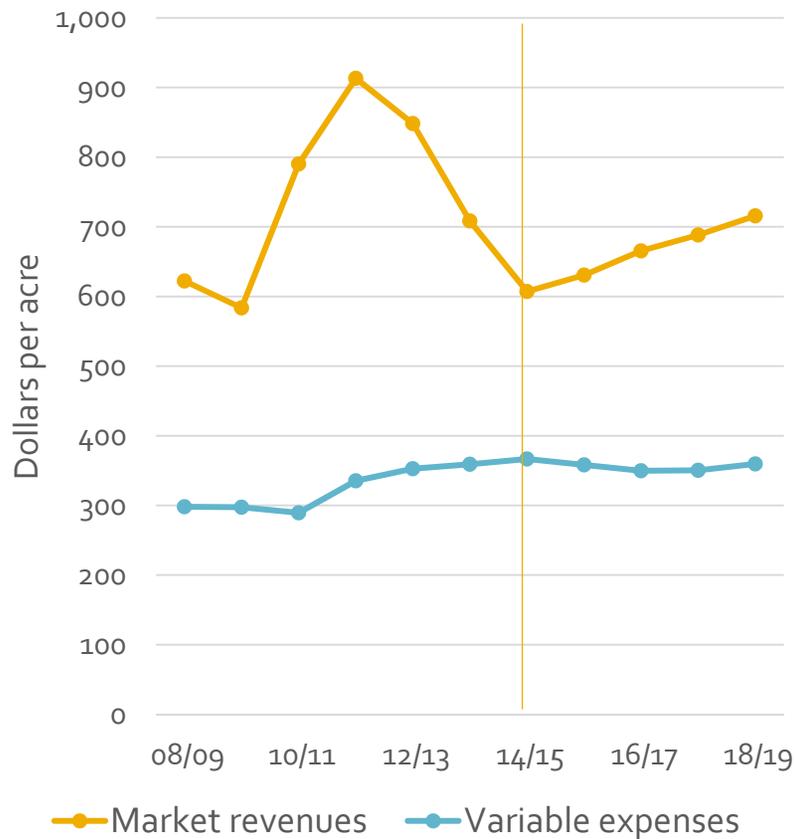
FAPRI-MU, February 2015

	2014/15	2015/16	2016/17	2017/18	2018/19
			million acres		
Area harvested	83.1	80.4	82.5	82.9	83.2
			bushels per acre		
Yield	171.0	165.0	166.9	168.8	170.4
			million bushels		
Production	14,216	13,272	13,766	13,997	14,171
Imports	25	25	25	25	25
Beginning stocks	1,232	1,845	1,630	1,657	1,662
Total supply	15,472	15,142	15,422	15,679	15,858
Feed use	5,265	5,175	5,286	5,327	5,329
Other domestic use	6,607	6,573	6,622	6,704	6,768
Exports	1,755	1,763	1,858	1,985	2,124
Total use	13,627	13,512	13,765	14,017	14,222
Ending stocks	1,845	1,630	1,657	1,662	1,637
			dollars per bushel		
Price, U.S. farm	3.61	3.87	3.91	3.96	4.09

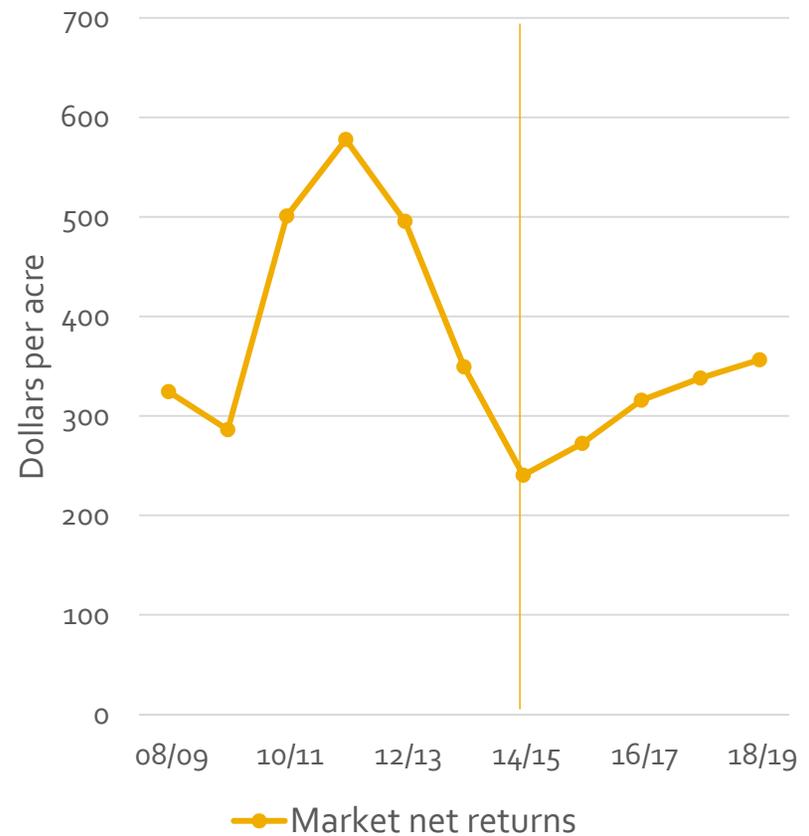
U.S. corn costs and returns

(FAPRI-MU baseline, Nov. 2014)

Market revenues, variable costs

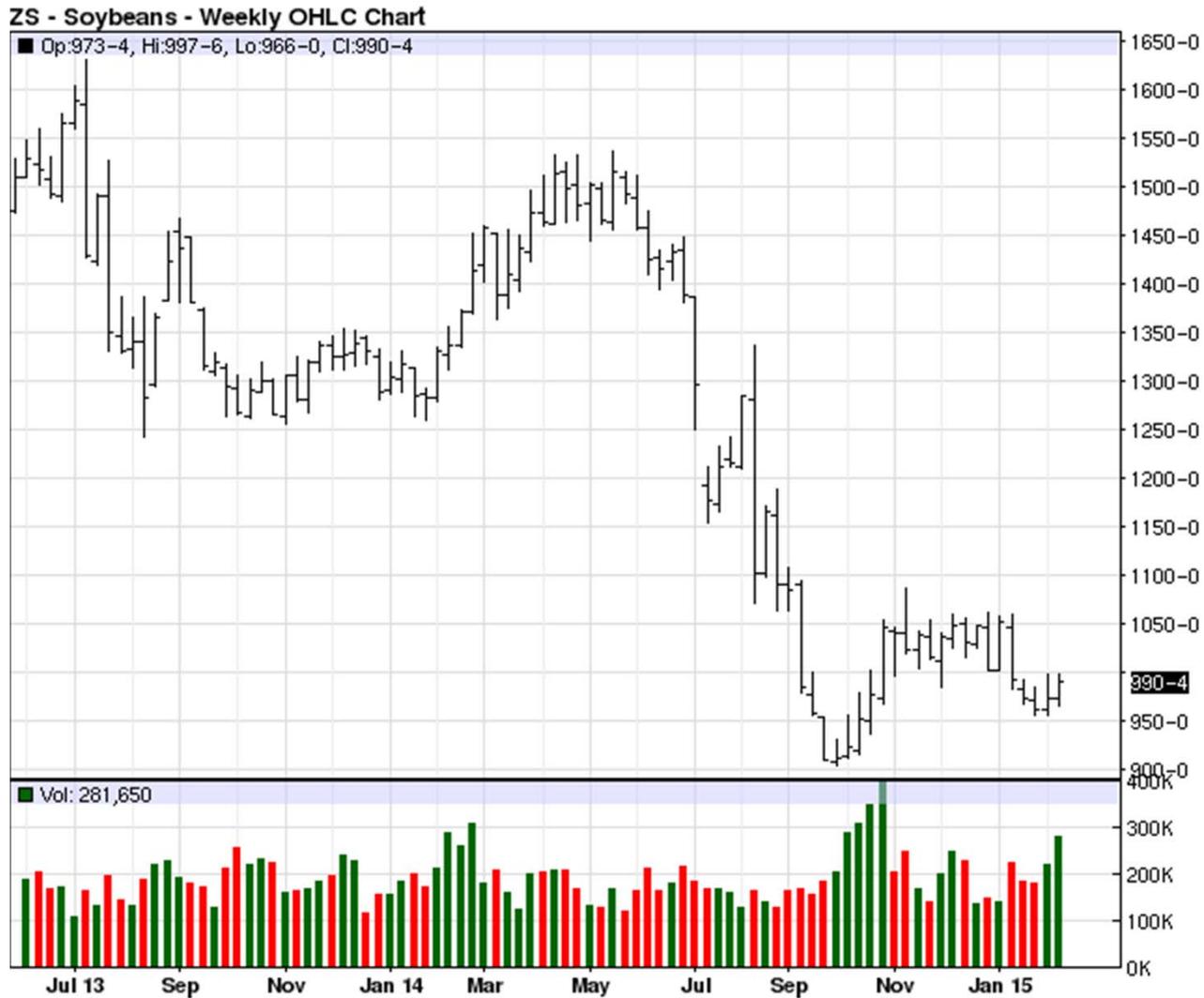


Market net returns



March 2015 soybean futures

(May 2013-Feb. 16, 2015, Great Pacific Trading Co.)



U.S. soybean supply and use (USDA WASDE, Feb. 2015)

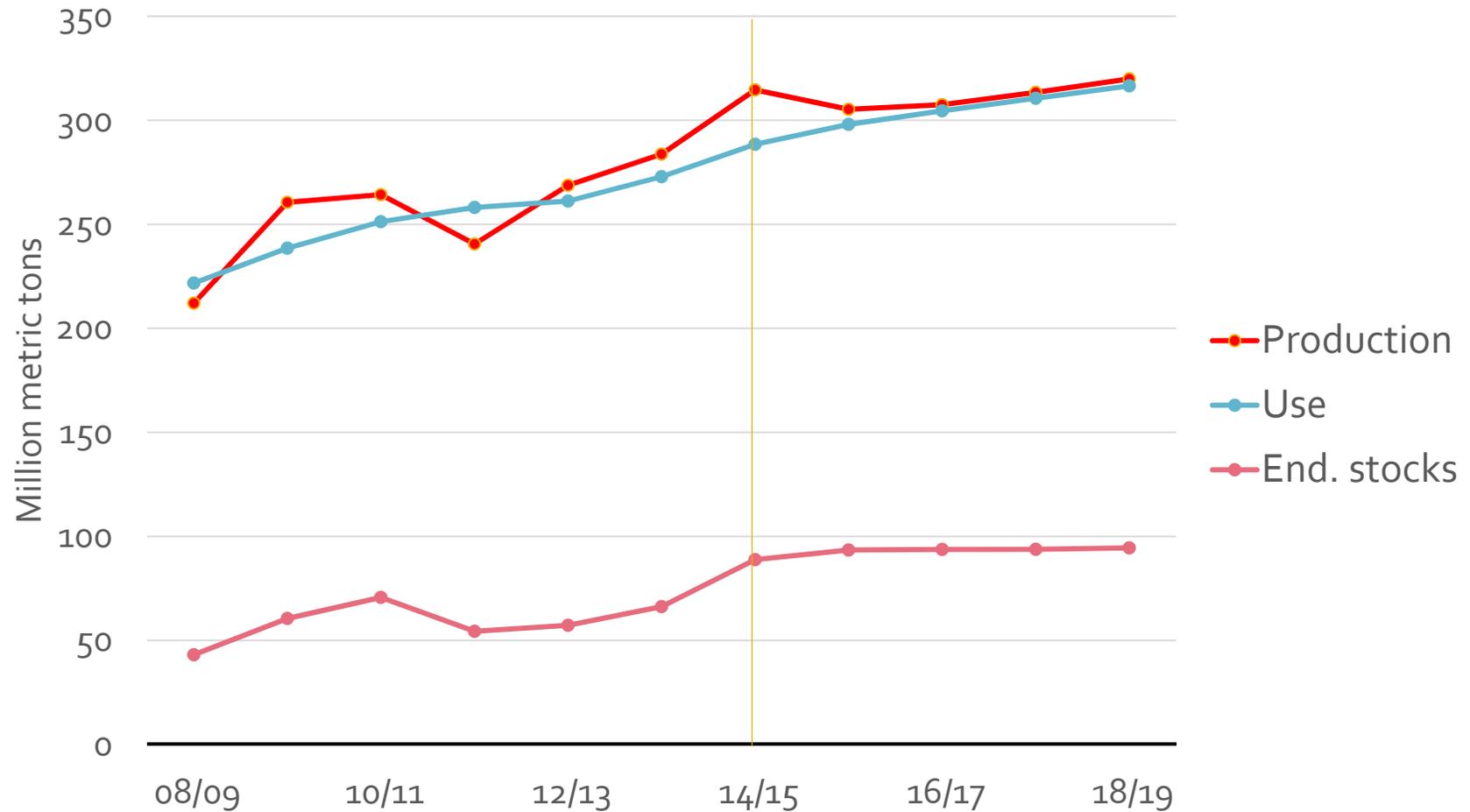
	2012/13	2013/14	2014/15
Planted area (mil. a.)	77.2	76.8	83.7
Harvested area (mil. a.)	76.1	76.3	83.1
Yield (bu./a.)	40.0	44.0	47.8
Production (mil. bu.)	3,042	3,358	3,969
Crush (mil. bu.)	1,689	1,734	1,795
Seed and residual (mil. bu.)	105	97	116
Exports (mil. bu.)	1,317	1,647	1,790
Ending stocks (mil. bu.)	141	92	385
Farm price per bushel	\$14.40	\$13.00	\$9.45-\$10.95

U.S. soybean supply and use

FAPRI-MU, February 2015

	2014/15	2015/16	2016/17	2017/18	2018/19
		million acres			
Area harvested	83.1	83.4	82.0	82.3	82.7
		bushels per acre			
Yield	47.8	44.5	45.0	45.4	45.8
		million bushels			
Production	3,969	3,712	3,687	3,737	3,782
Imports	25	15	15	15	15
Beginning stocks	92	382	393	366	344
Total supply	4,086	4,108	4,095	4,118	4,141
Crush	1,791	1,837	1,846	1,853	1,859
Other domestic use	115	113	113	113	113
Exports	1,798	1,765	1,770	1,808	1,830
Total use	3,704	3,715	3,729	3,774	3,803
Ending stocks	382	393	366	344	338
		dollars per bushel			
Price, U.S. farm	10.03	9.27	9.56	9.93	10.30

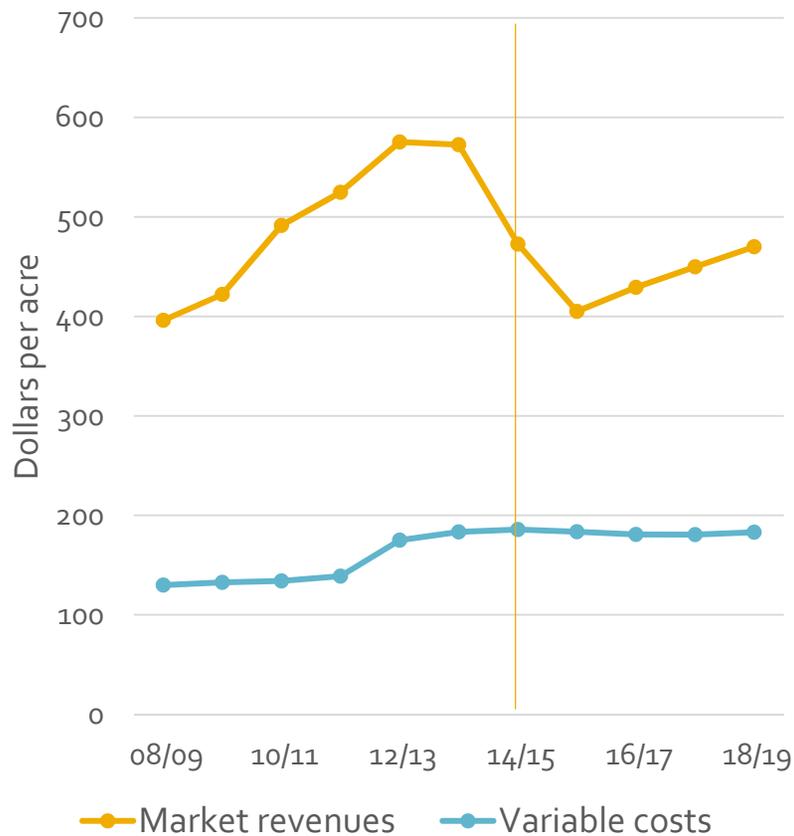
World soybean supply and use (FAPRI-MU, Jan. 2015)



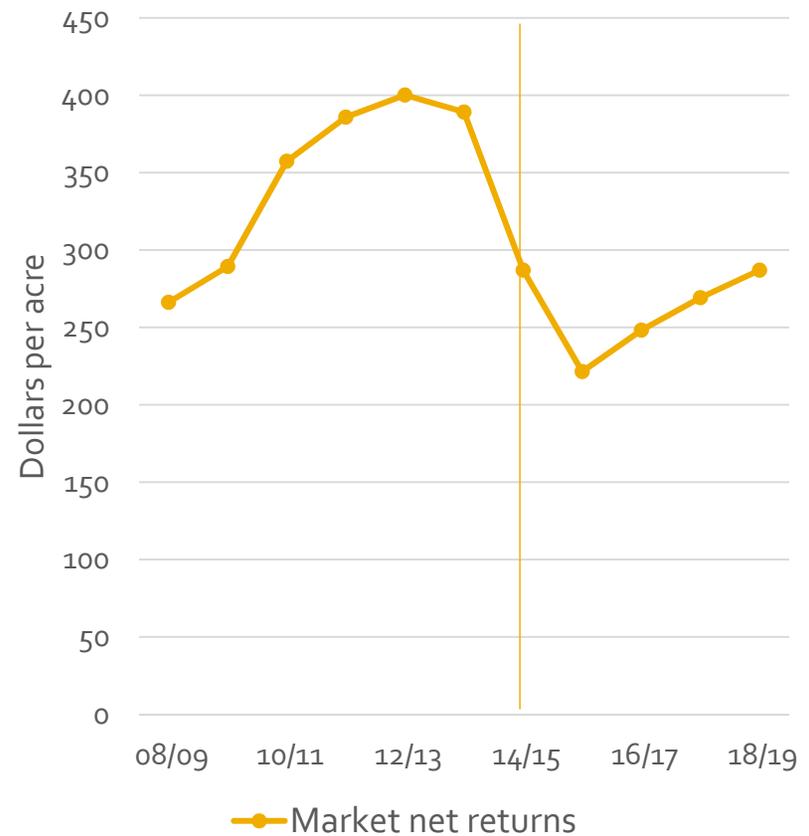
U.S. soybean costs and returns

(FAPRI-MU baseline, Nov. 2014)

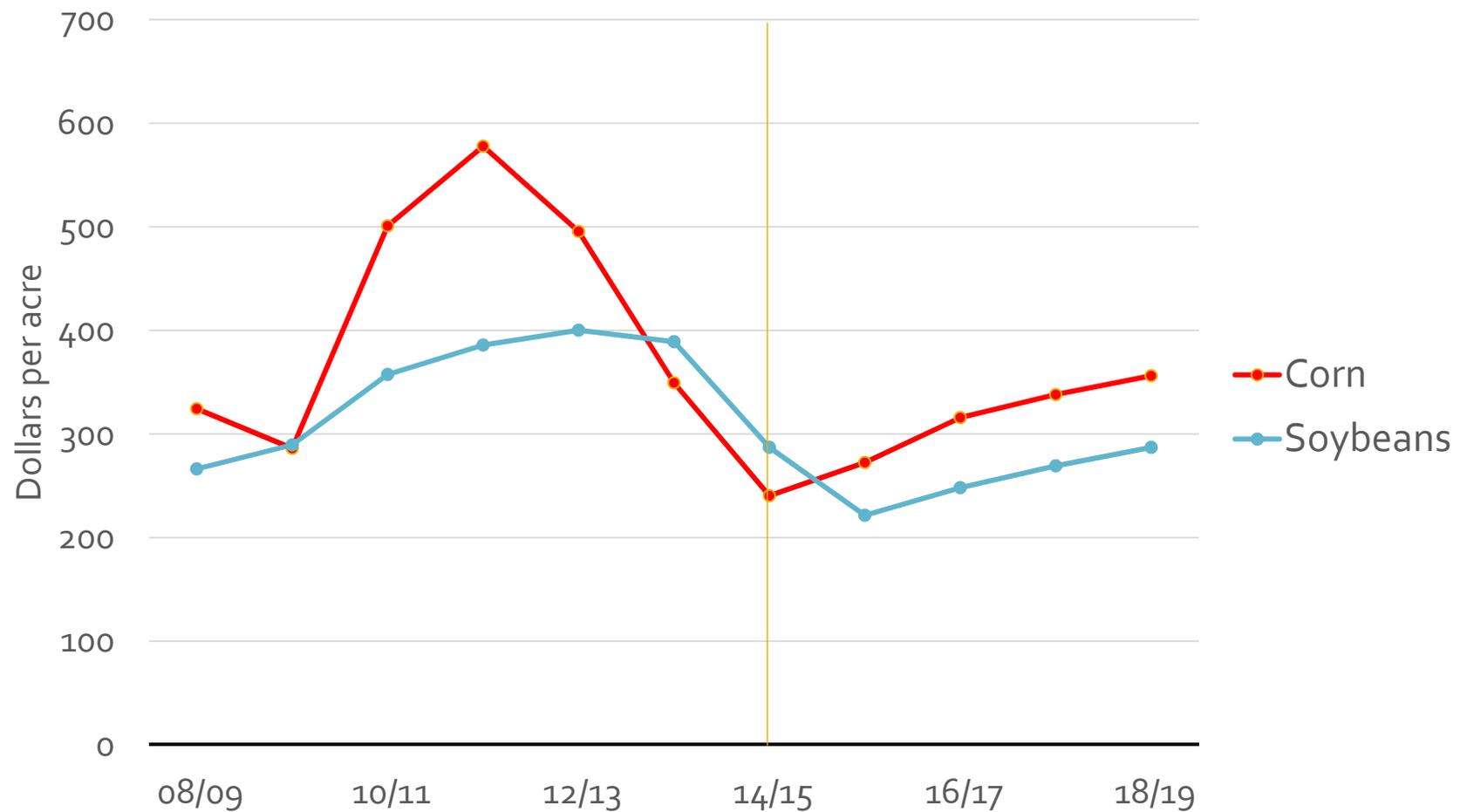
Market revenues, variable costs



Market net returns



U.S. corn and soybean net returns (FAPRI-MU baseline, Nov. 2014)



March 2015 rice futures

(May 2013-Feb. 16, 2015, Great Pacific Trading Co.)

ZR - Rough Rice - Weekly OHLC Chart

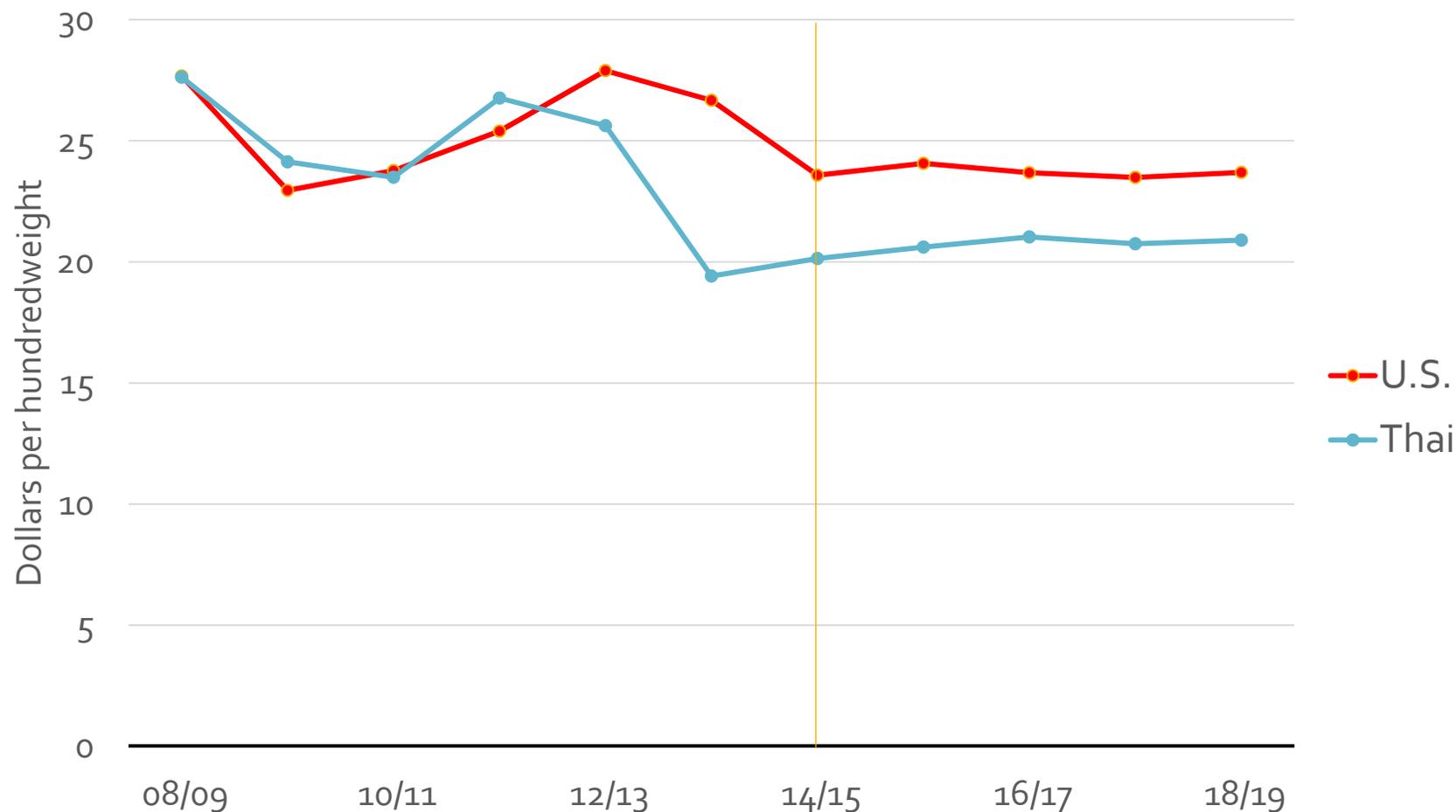


U.S. rice supply and use

FAPRI-MU, February 2015

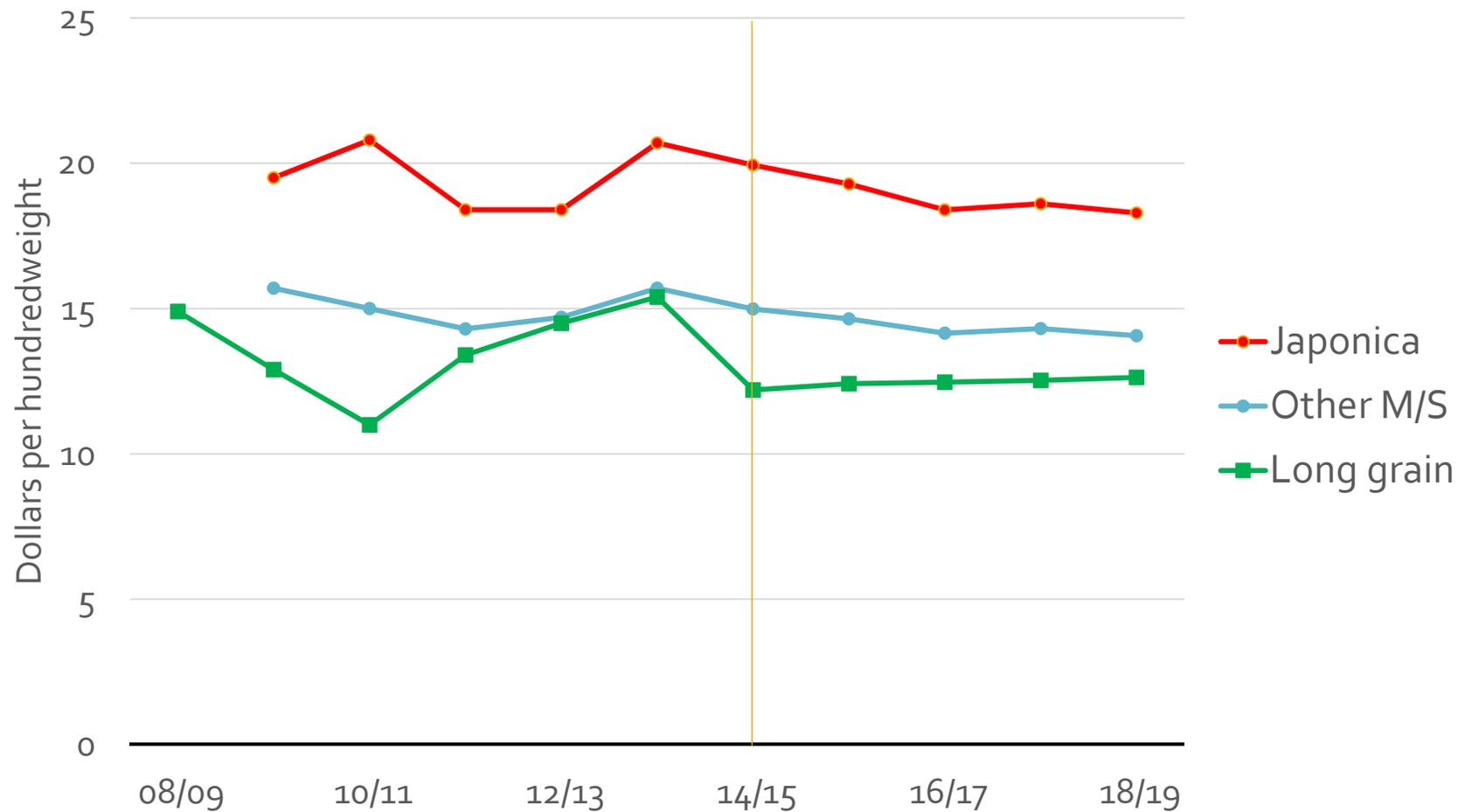
	2014/15	2015/16	2016/17	2017/18	2018/19
	million acres				
Area harvested	2.92	2.78	2.88	2.89	2.88
	pounds per acre				
Yield	7,573	7,524	7,613	7,692	7,760
	million hundredweight, rough equivalent				
Production	221.0	209.5	219.6	222.4	223.8
Imports	23.0	23.2	23.6	24.2	24.8
Beginning stocks	31.8	41.2	39.4	41.5	43.0
Total supply	275.9	273.9	282.6	288.1	291.6
Domestic use and residual	131.2	132.8	133.6	135.0	136.0
Exports	103.5	101.7	107.4	110.1	111.7
Total use	234.6	234.5	241.1	245.1	247.7
Ending stocks	41.2	39.4	41.5	43.0	43.9
	dollars per hundredweight				
Price, U.S. farm	13.92	13.98	13.76	13.87	13.89

Milled long grain rice prices (FAPRI-MU, Nov. 2014)



Rice prices

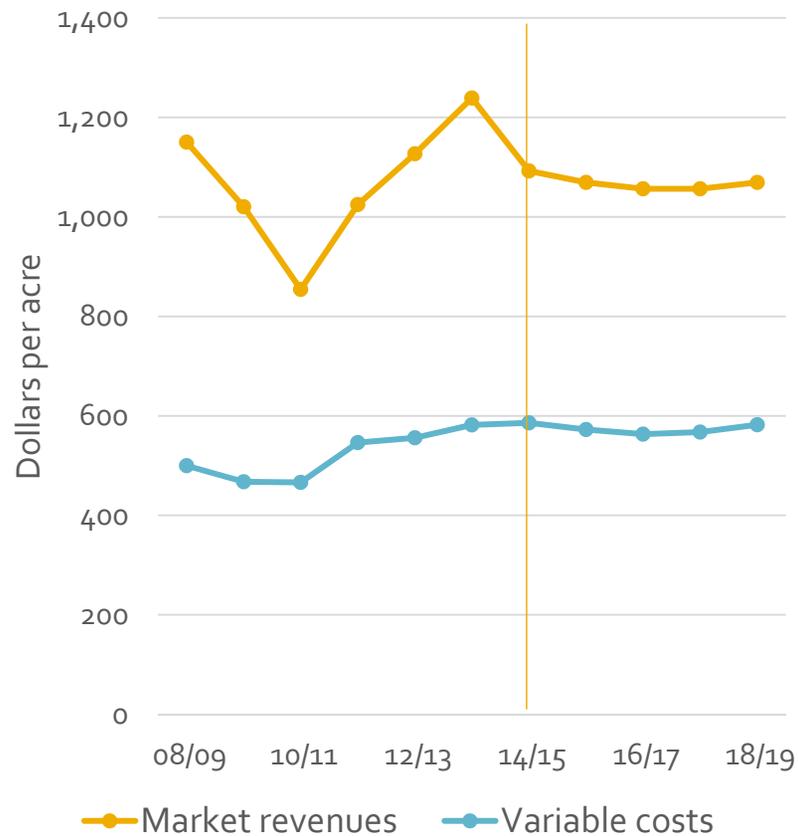
(FAPRI-MU, Feb. 2015)



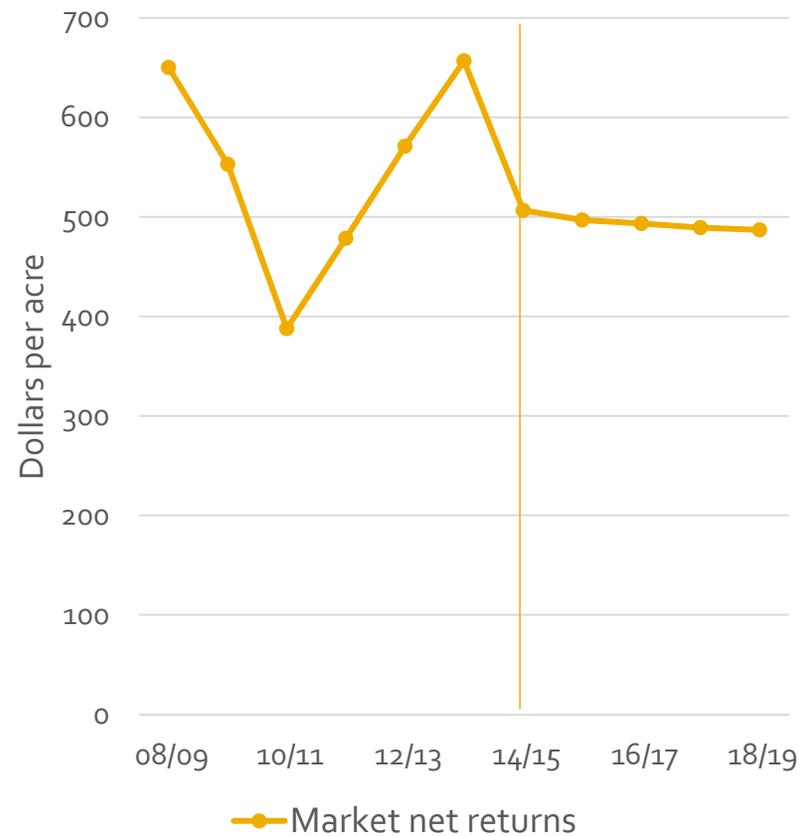
U.S. rice costs and returns

(FAPRI-MU baseline, Nov. 2014)

Market revenues, variable costs



Market net returns

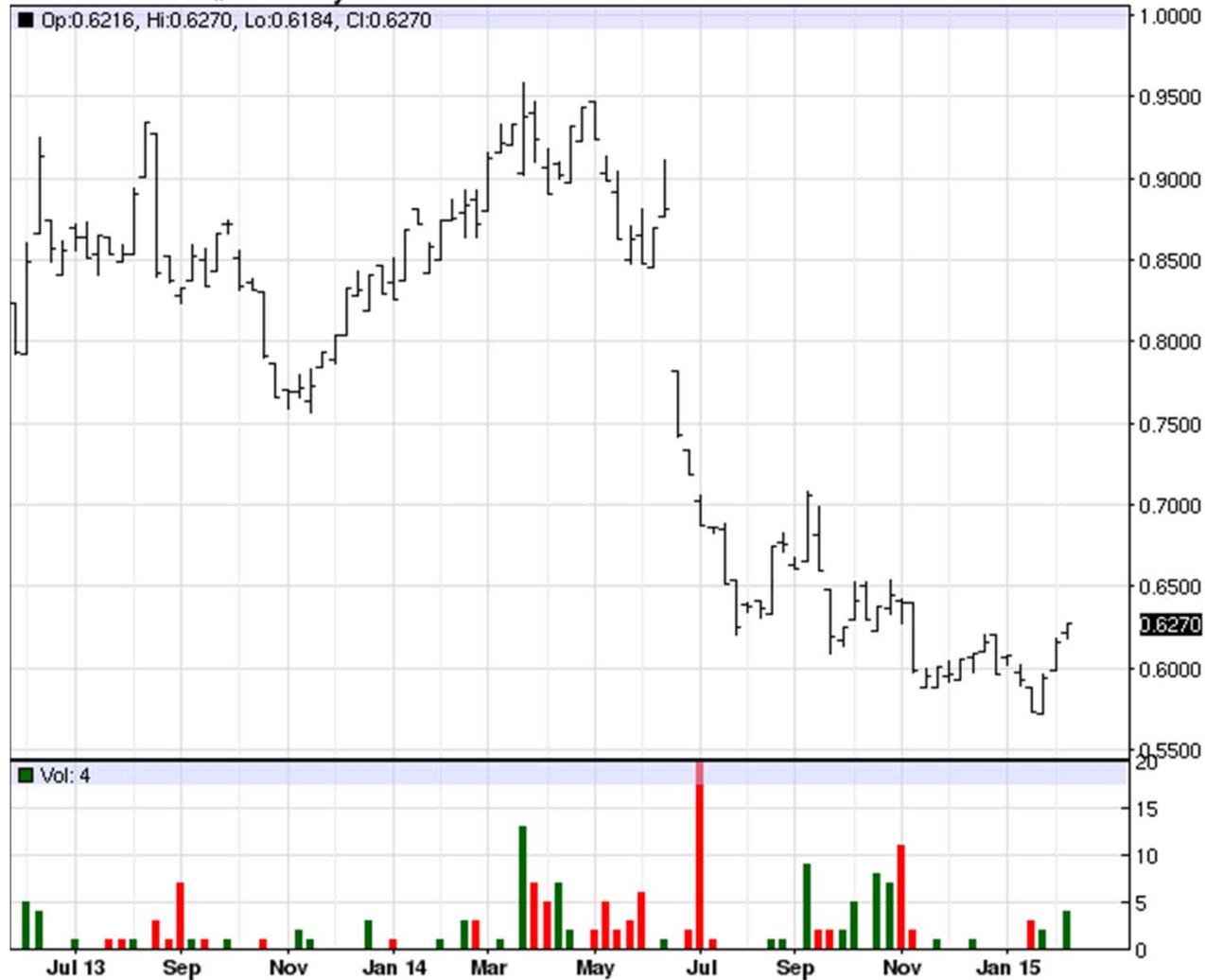


March 2015 cotton futures

(May 2013-Feb. 16, 2015, Great Pacific Trading Co.)

KG - CME Cotton #2 - Weekly OHLC Chart

■ Op:0.6216, Hi:0.6270, Lo:0.6184, Cl:0.6270

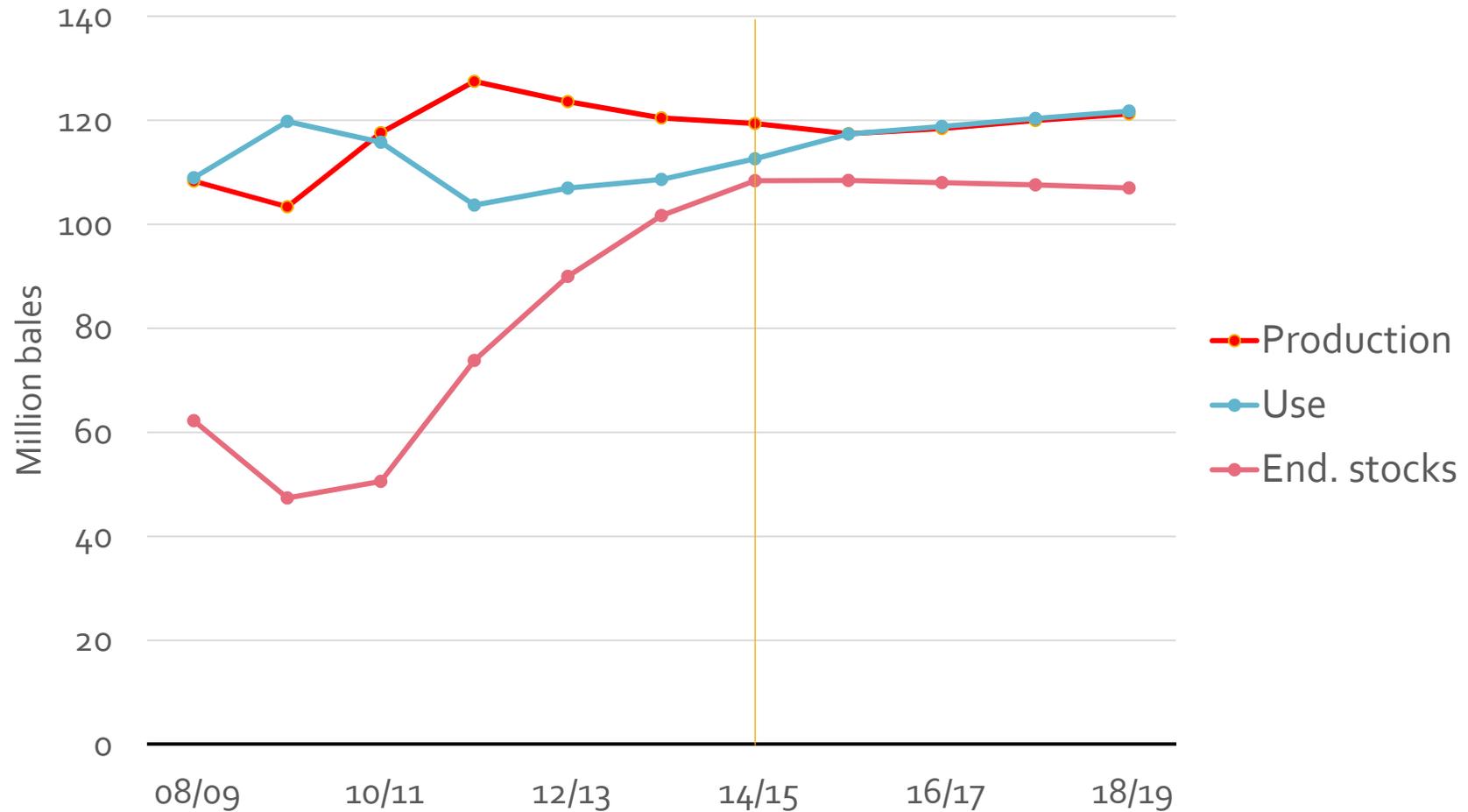


U.S. cotton supply and use

FAPRI-MU, February 2015

	2014/15	2015/16	2016/17	2017/18	2018/19
			million acres		
Area harvested	9.71	8.14	8.02	8.07	7.97
			pounds per acre		
Yield	795	808	815	824	833
			million bales		
Production	16.08	13.70	13.61	13.87	13.84
Imports	0.01	0.01	0.01	0.01	0.01
Beginning stocks	2.45	4.29	4.47	4.58	4.64
Total supply	18.53	18.00	18.09	18.45	18.49
Domestic use and residual	3.65	3.73	3.77	3.77	3.76
Exports	10.59	9.79	9.74	10.04	10.17
Total use	14.24	13.53	13.51	13.81	13.93
Ending stocks	4.29	4.47	4.58	4.64	4.56
			cents per pound		
Price, U.S. farm	61.2	60.0	61.2	61.0	62.5

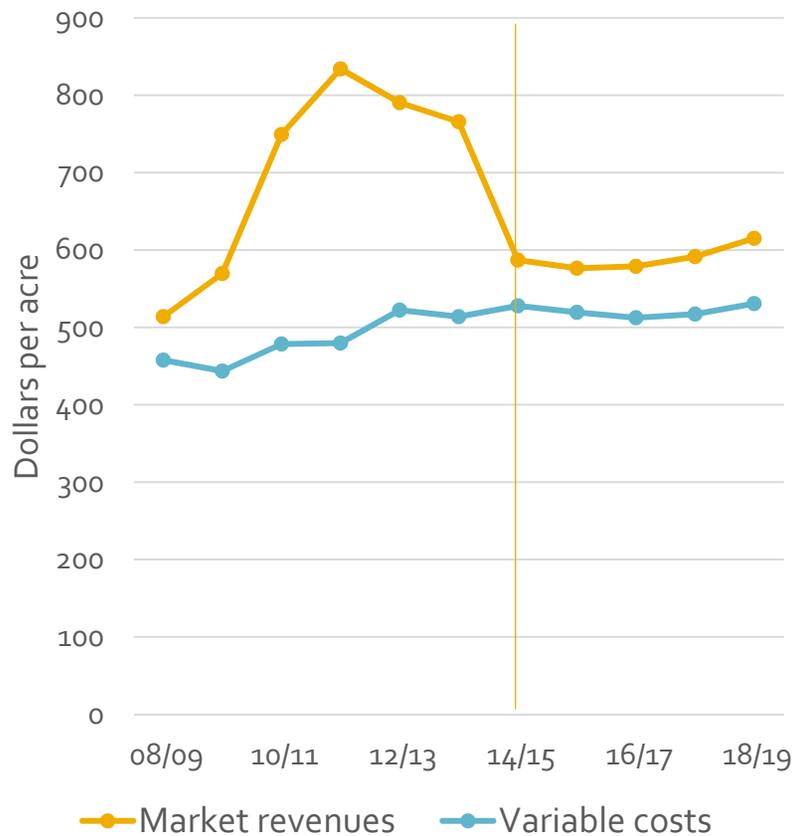
World cotton supply and use (FAPRI-MU, Feb. 2015)



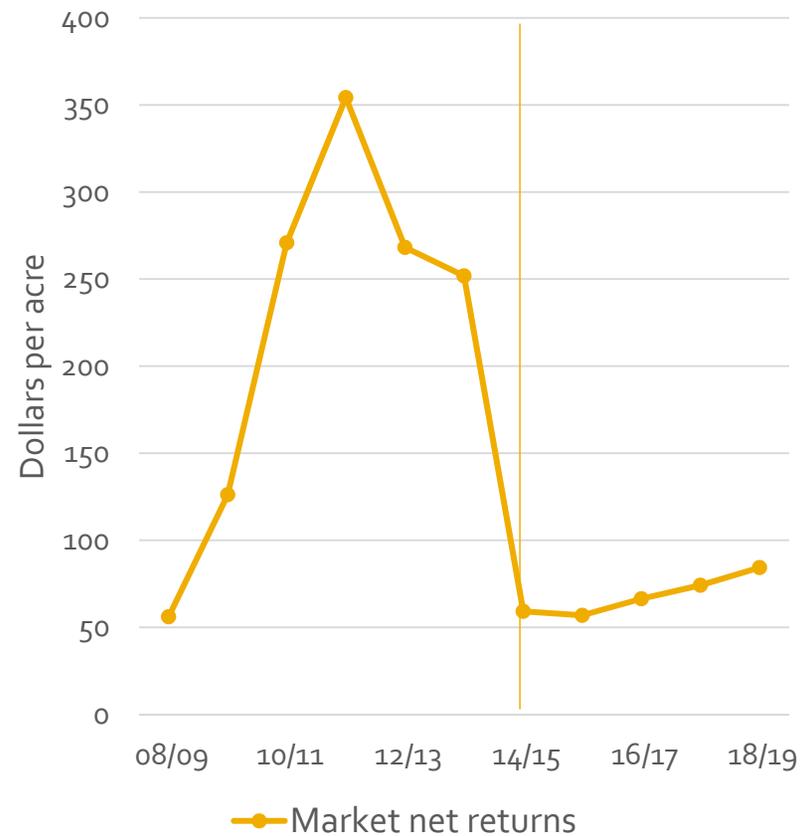
U.S. cotton costs and returns

(FAPRI-MU baseline, Nov. 2014)

Market revenues, variable costs



Market net returns



U.S. market price projections

FAPRI-MU, mid-Feb. 2015 (will do these each month)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Corn (\$/bu.)	3.55	5.18	6.22	6.89	4.46	3.61	3.87	3.91	3.96	4.09
Soybeans (\$/bu.)	9.59	11.30	12.50	14.40	13.00	10.03	9.27	9.56	9.93	10.30
Wheat (\$/bu.)	4.87	5.70	7.24	7.77	6.87	6.01	5.17	5.26	5.44	5.70
Durum	5.47	5.98	9.68	8.18	7.46	8.90	6.41	6.27	6.49	6.81
Other spring	5.23	6.49	8.24	8.24	6.73	5.89	5.48	5.59	5.78	6.05
Winter	4.71	5.37	6.81	7.55	6.89	5.96	5.01	5.12	5.29	5.54
Upland cotton (cents/lb.)	62.90	81.50	88.30	72.50	77.90	61.17	59.97	61.19	61.00	62.48
Sorghum (\$/bu.)	3.22	5.02	5.99	6.33	4.28	3.81	3.64	3.66	3.77	3.89
Rice (\$/cwt)	14.40	12.70	14.50	15.10	16.30	13.92	13.98	13.76	13.87	13.89
Long grain	12.90	11.00	13.40	14.50	15.40	12.20	12.42	12.47	12.53	12.63
Medium/short (exc. Japonica)	15.70	15.00	14.30	14.70	15.70	14.99	14.64	14.15	14.31	14.07
Japonica	19.50	20.80	18.40	18.40	20.70	19.93	19.29	18.40	18.60	18.29
Barley (\$/bu.)	4.66	3.86	5.35	6.43	6.06	5.26	4.58	4.61	4.66	4.82
Oats (\$/bu.)	2.02	2.52	3.49	3.89	3.75	3.23	2.96	2.97	2.97	3.05
Peanuts (cents/lb.)	21.70	22.50	31.80	30.10	24.90	21.42	21.97	21.54	21.92	22.18
Sunflower seed (\$/cwt)	15.10	23.30	29.10	25.40	21.40	20.34	19.40	19.48	20.46	20.82
Canola (\$/cwt)	16.20	19.30	24.00	26.50	20.60	16.80	16.73	17.22	17.87	18.15

So are these projections any good?

Mean absolute percentage errors, 18 past baselines for CORN prices

Projection for	USDA	FAPRI-MU	Futures
Next year	12.5%	15.0%	19.0%
2 years ahead	17.7%	20.4%	25.1%
3 years ahead	22.9%	22.3%	23.6%
4 years ahead	26.2%	26.1%	24.2%
5 years ahead	29.7%	28.9%	26.9%
Average of above	21.8%	22.5%	23.8%

Source: USDA and Futures estimates by Scott Irwin and Darrell Good in a FarmDoc piece posted Feb. 4 (<http://farmdocdaily.illinois.edu/2015/02/long-term-forecasts-and-farm-bill-program-choice.html>). FAPRI-MU estimates compiled by FAPRI-MU.

So are these projections any good?

Mean absolute percentage errors, 18 past baselines for WHEAT prices

Projection for	USDA	FAPRI-MU	Futures
Next year	15.3%	14.5%	18.2%
2 years ahead	24.3%	21.4%	22.0%
3 years ahead	30.0%	24.7%	21.0%
4 years ahead	29.1%	25.7%	19.2%
5 years ahead	32.5%	25.8%	21.6%
Average of above	26.2%	22.4%	20.4%

Source: USDA and Futures estimates by Scott Irwin and Darrell Good in a FarmDoc piece posted Feb. 4 (<http://farmdocdaily.illinois.edu/2015/02/long-term-forecasts-and-farm-bill-program-choice.html>). FAPRI-MU estimates compiled by FAPRI-MU.

So are these projections any good?

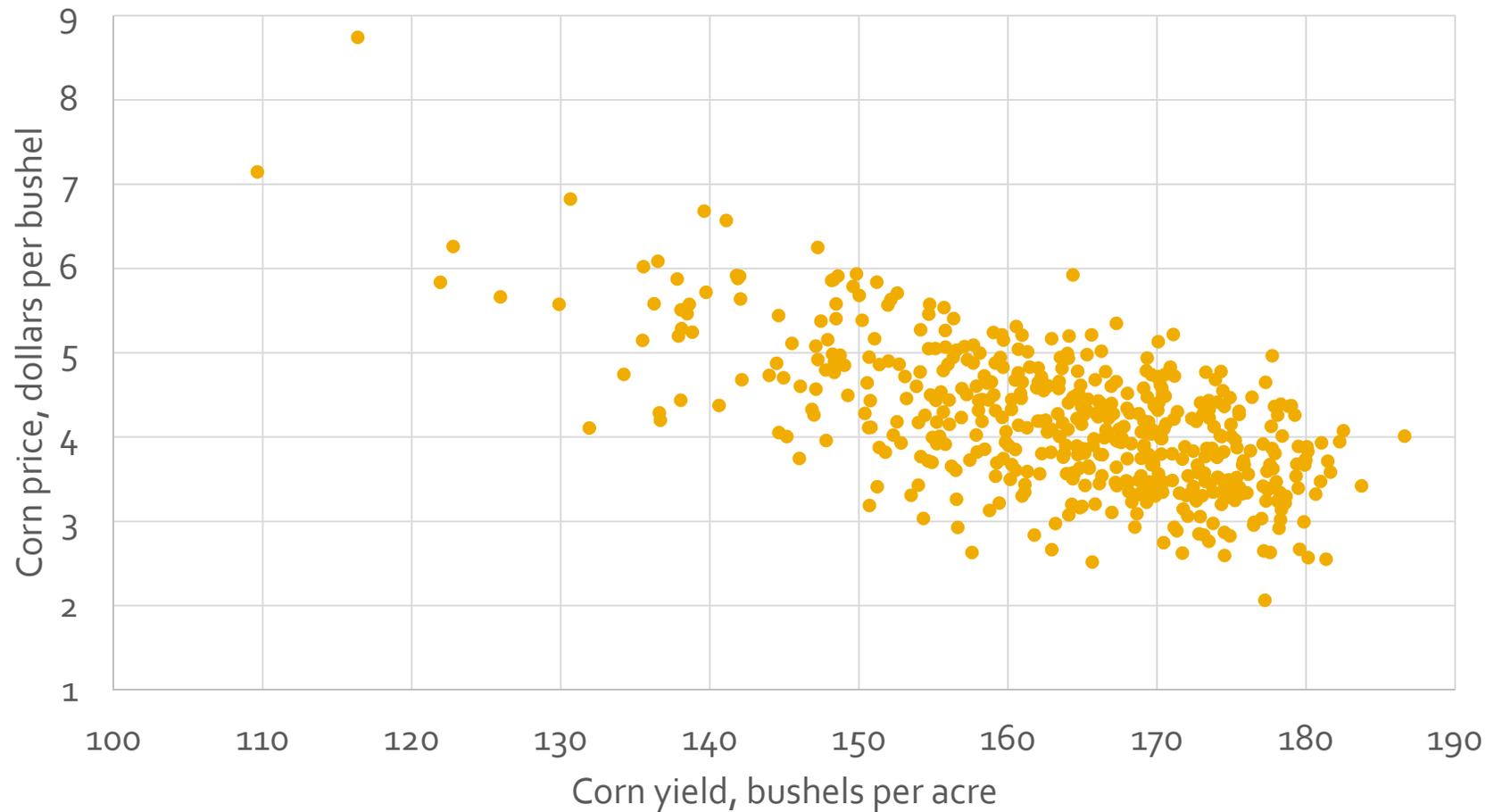
Mean absolute percentage errors, 18 past baselines for SOYBEAN prices

Projection for	USDA	FAPRI-MU	Futures
Next year	13.4%	13.9%	13.6%
2 years ahead	19.0%	20.1%	20.4%
3 years ahead	25.1%	24.6%	22.2%
4 years ahead	27.6%	28.9%	23.7%
5 years ahead	32.4%	31.0%	30.0%
Average of above	23.5%	23.7%	22.0%

Source: USDA and Futures estimates by Scott Irwin and Darrell Good in a FarmDoc piece posted Feb. 4 (<http://farmdocdaily.illinois.edu/2015/02/long-term-forecasts-and-farm-bill-program-choice.html>). FAPRI-MU estimates compiled by FAPRI-MU.

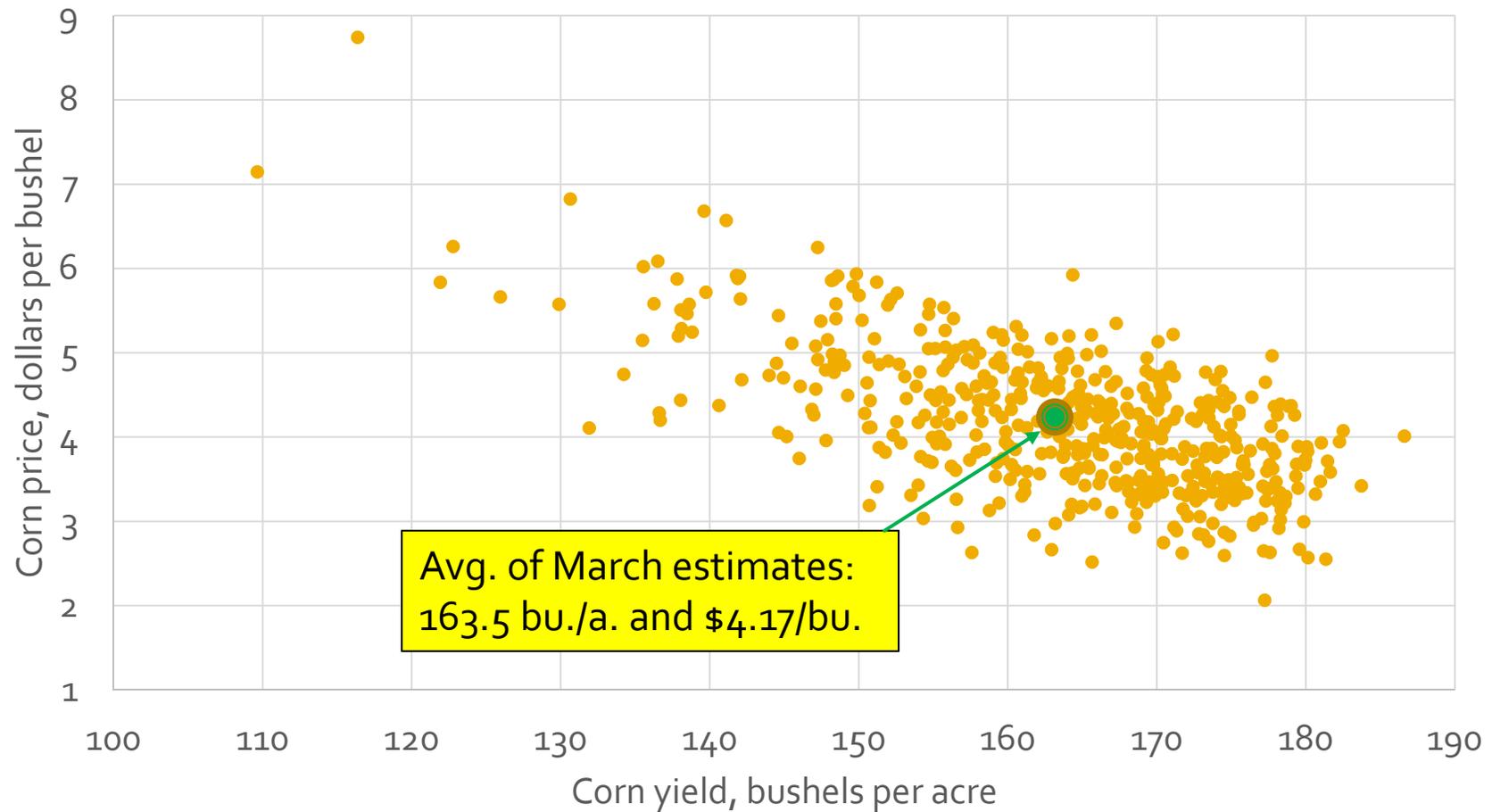
2014/15 corn yields and prices

FAPRI-MU stochastic baseline, March 2014



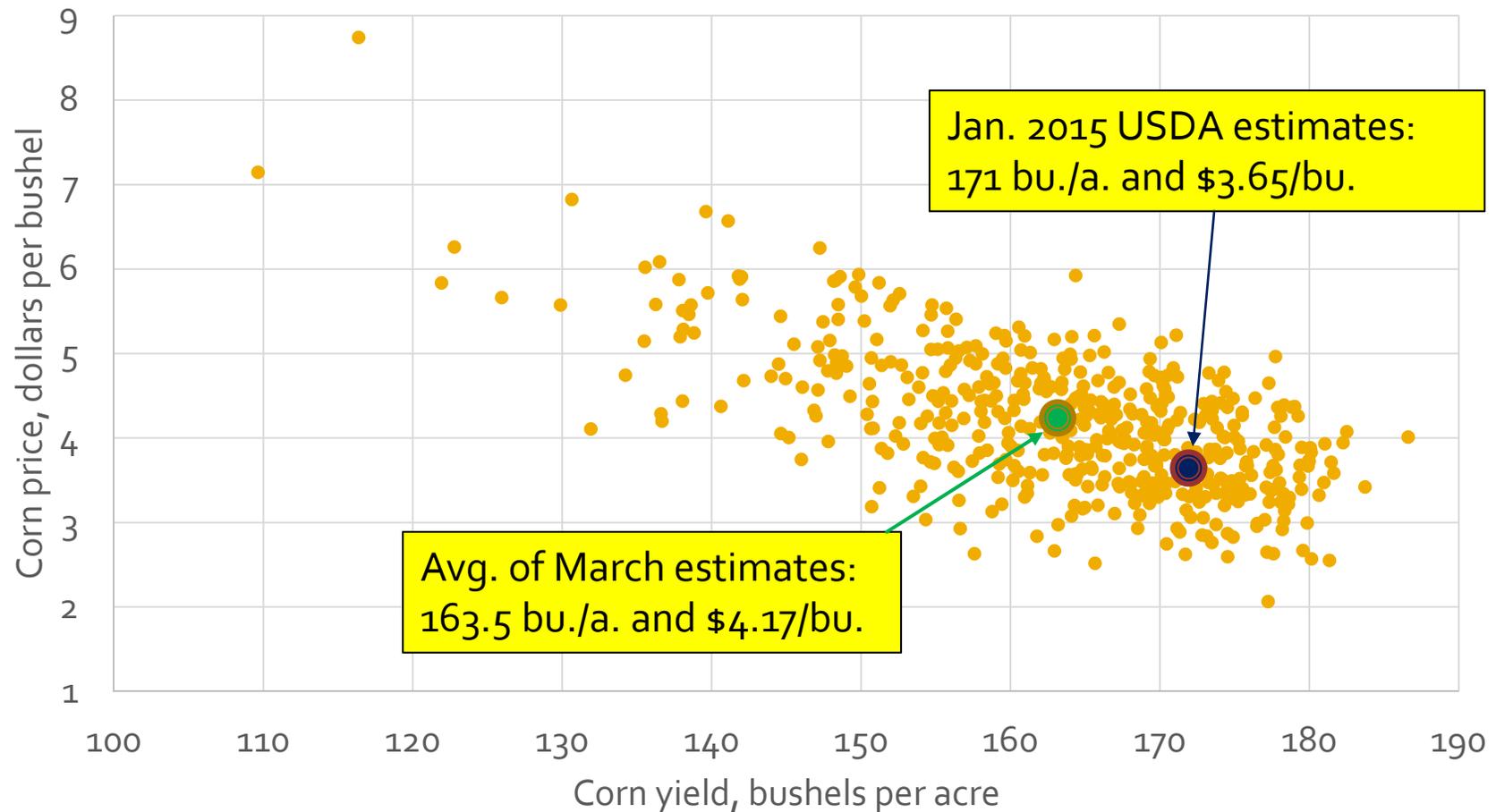
2014/15 corn yields and prices

FAPRI-MU stochastic baseline, March 2014



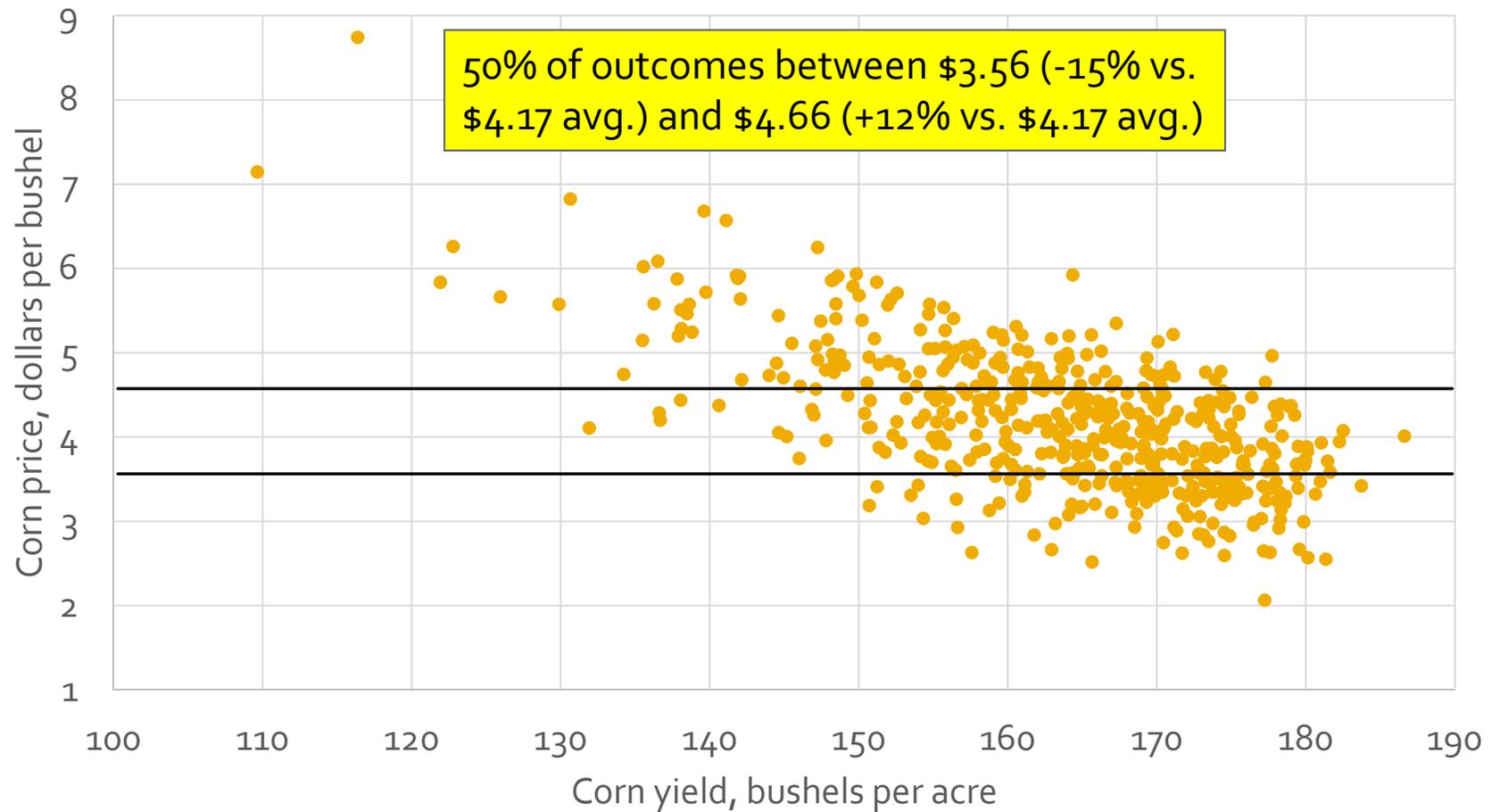
2014/15 corn yields and prices

FAPRI-MU stochastic baseline, March 2014



2014/15 corn yields and prices

FAPRI-MU stochastic baseline, March 2014



Policy changes for crop producers

- No more direct, countercyclical or ACRE program payments
- Must choose between
 - Price loss coverage (PLC, payments when prices fall below a trigger)
 - Agriculture risk coverage (ARC, payments when per-acre revenues fall below a trigger)
- A new crop insurance option (SCO) for PLC participants
- A new crop insurance option (STAX) for cotton producers
 - No ARC or PLC program for cotton
 - But cotton producers get transition payment in 2014 and can get ARC/PLC for other crops grown on the farm

ARC-PLC choice

- **Producers** on each farm can choose
 - An individual farm version of ARC for **all crops** on the farm **OR**
 - For **each crop** on a farm, they can choose between the county version of ARC or PLC
- Choice is made **once** for the life of the farm bill
- If **producers** on a farm do not agree on a choice
 - No ARC or PLC benefits are available in 2014
 - PLC is only remaining option for 2015 and beyond

Price loss coverage (PLC)

- Like countercyclical payments in some respects
 - Makes payments when prices fall below a trigger
 - Payments tied to **base** acreage and **program yields**
 - These generally do **NOT** depend on current production choices
 - Except for those with cotton base or with fruits and vegetables, planting more or less of a given crop will have NO effect on payments
- But different in many ways, including
 - Formula is simpler—payment rate is just the difference between reference price and the higher of the season-average farm price and the loan rate
 - New “reference prices” are far higher than old target prices

Reference and target prices

	2008 farm bill Target prices	2014 farm bill Reference prices
Wheat/bu.	\$4.17	\$5.50
Corn/bu	\$2.63	\$3.70
Soybeans/bu.	\$6.00	\$8.40
Sorghum/bu.	\$2.63	\$3.95
Upland cotton/lb.	71.25 cents	None*
Long-grain rice/cwt	\$10.50	\$14.00
Japonica rice/cwt	\$10.50	\$16.10

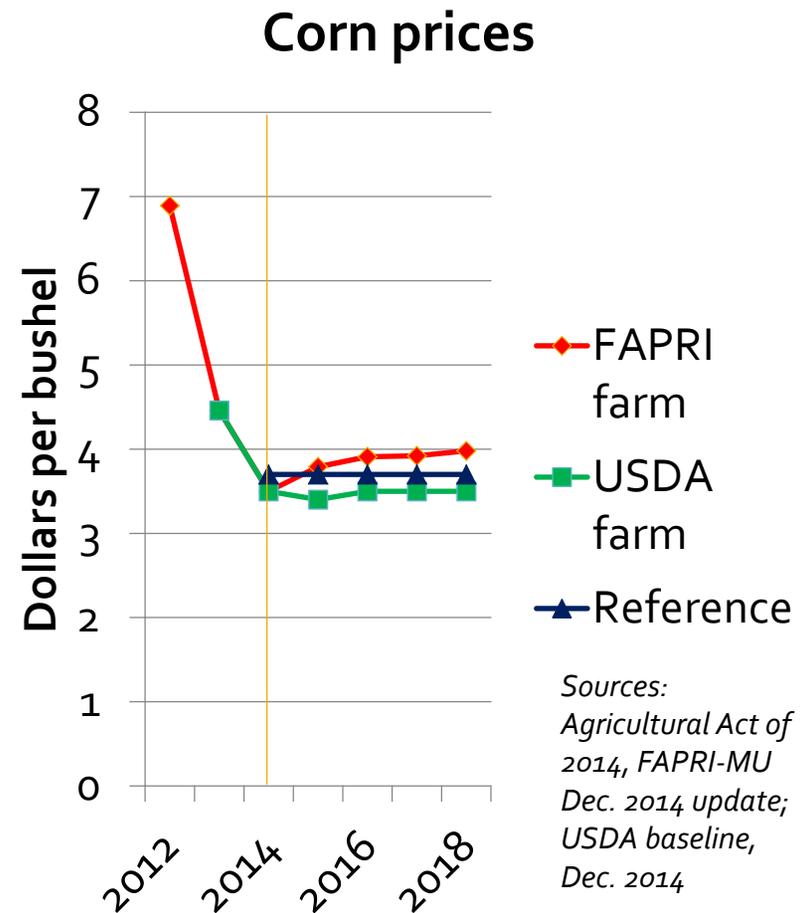
*Upland cotton is not eligible for PLC (or ARC) benefits under the 2014 farm bill. Instead, it has a special crop insurance program: STAX.

Under PLC, payments are made in the October of the year after the crop is harvested (e.g., payments for the 2014 crop would be made in October 2015 or later)

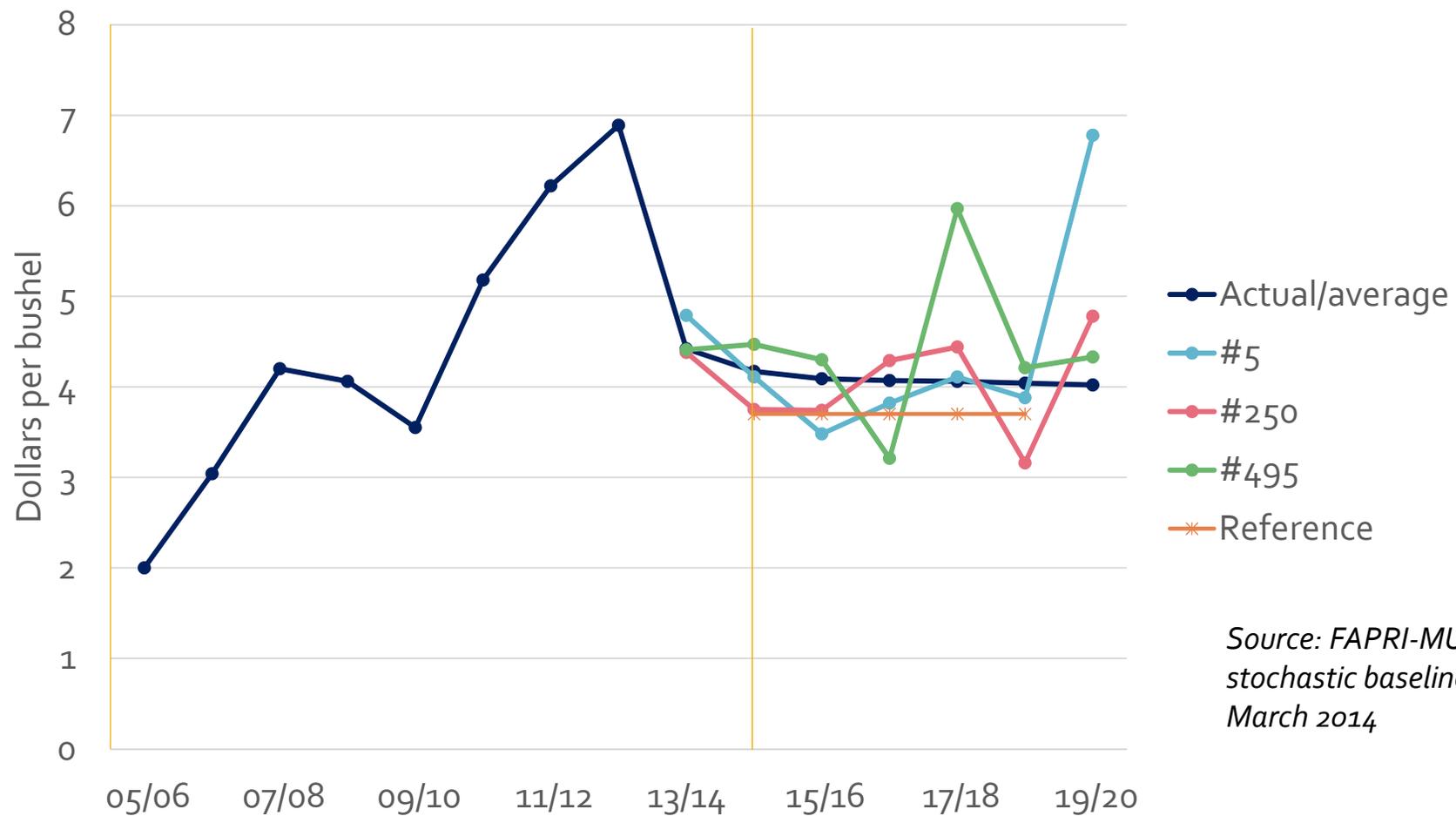
Price-based option for farm support

■ Price Loss Coverage

- Payment if annual average farm price is less than reference price
 - Wheat: \$5.50/bu.
 - Corn: \$3.70/bu.
 - Soybeans: \$8.40/bu.
 - Sorghum: \$3.95/bu.
 - Long-grain rice: \$14.00/cwt.
- Paid on 85% of base acres (tied to historical plantings)

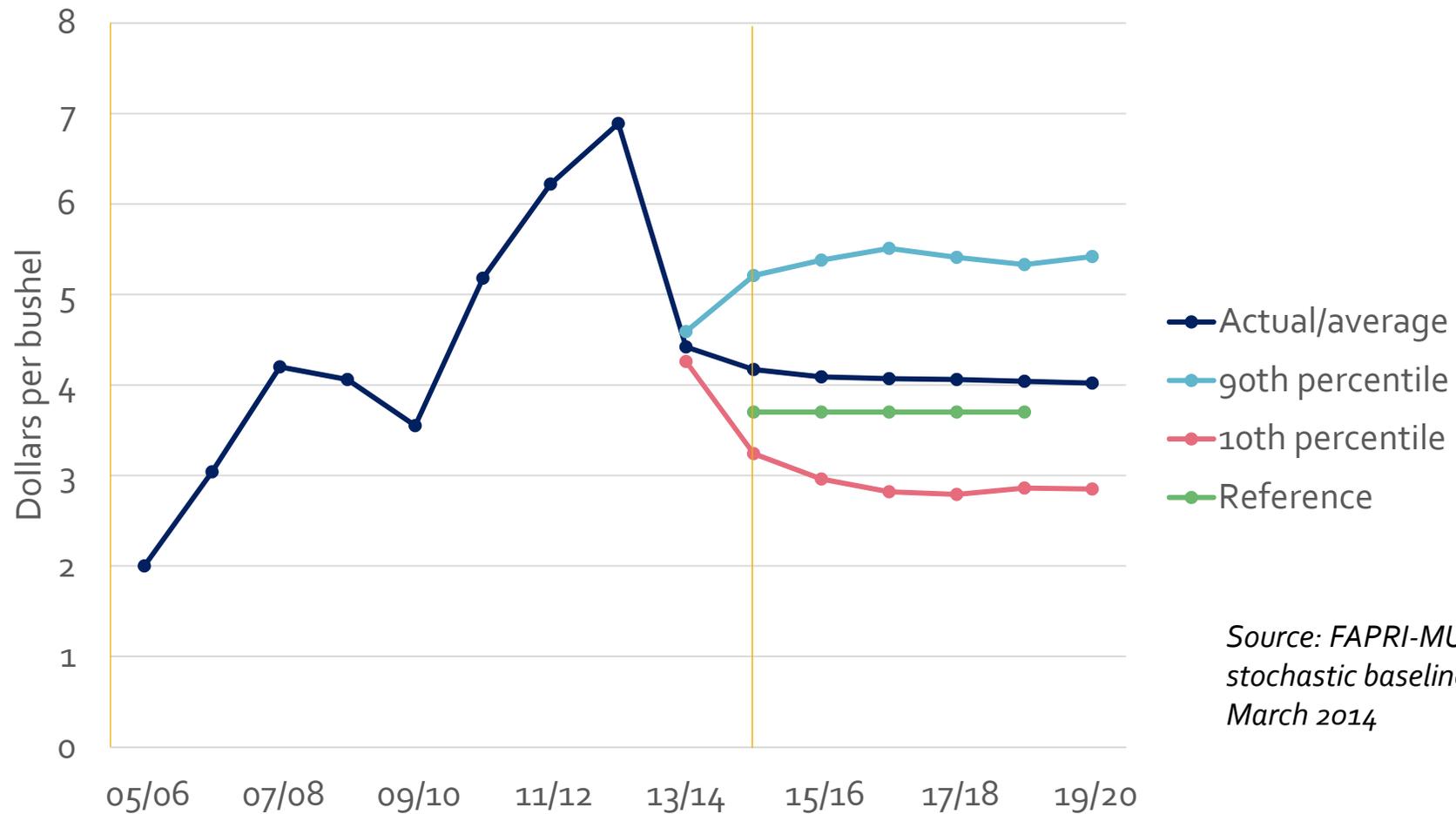


U.S. farm prices for corn



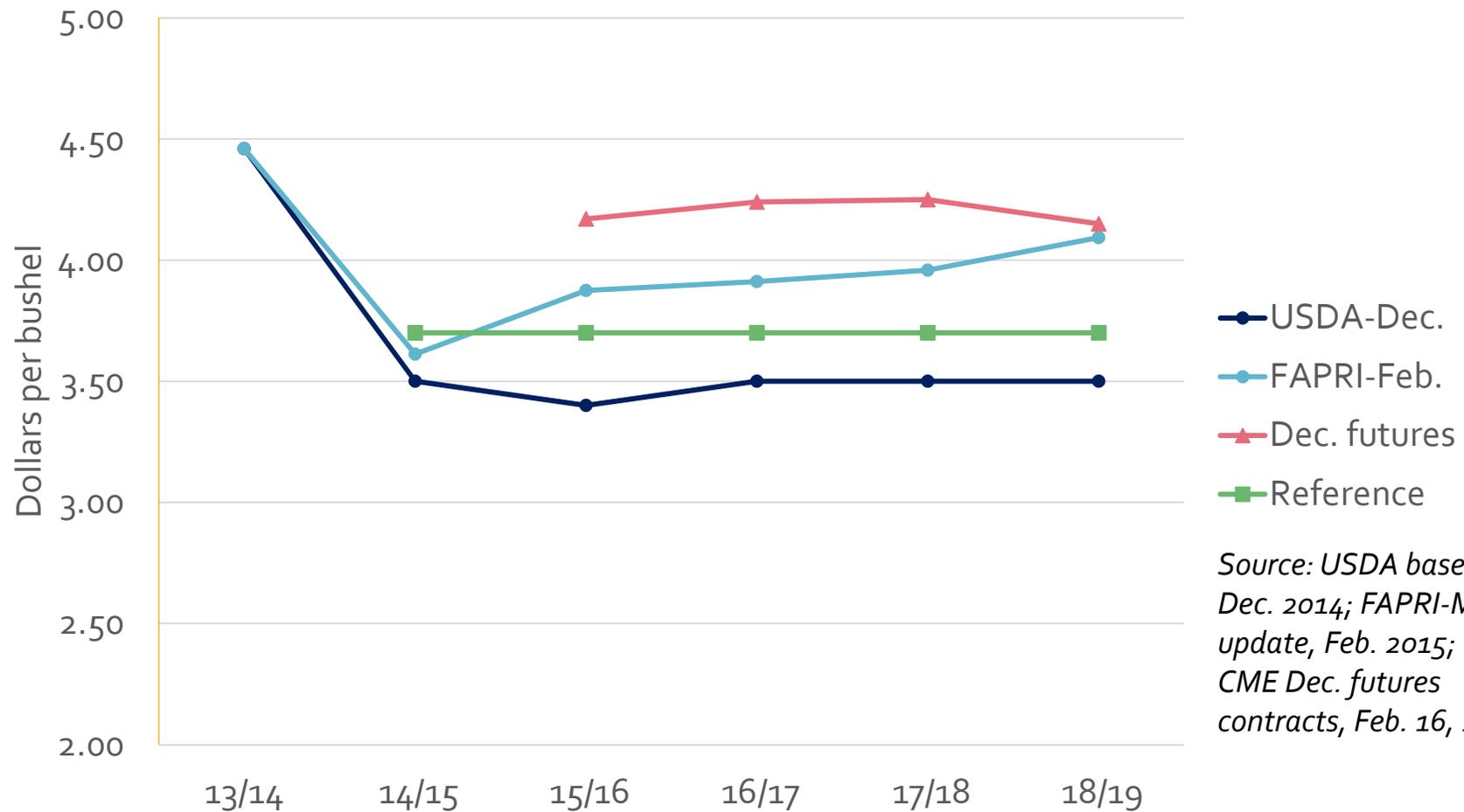
Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm prices for corn



Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm and futures prices for corn



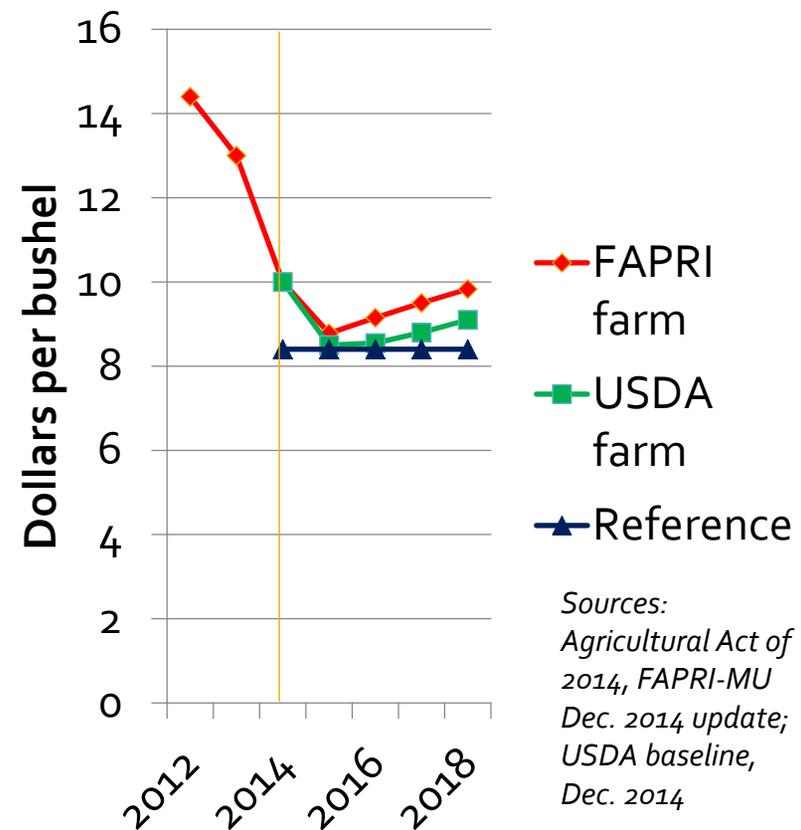
Source: USDA baseline, Dec. 2014; FAPRI-MU update, Feb. 2015; CME Dec. futures contracts, Feb. 16, 2015

Price-based option for farm support

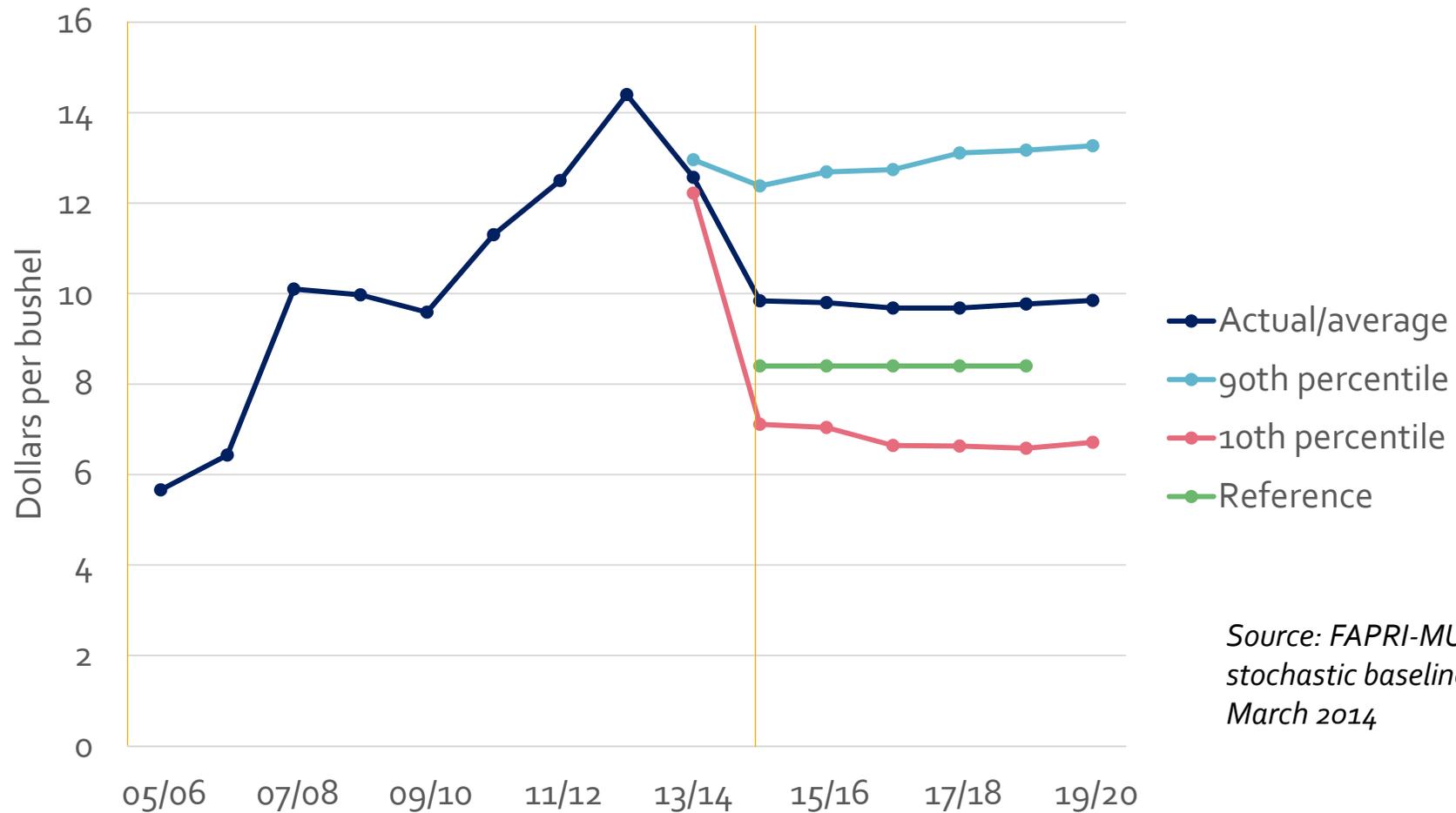
■ Price Loss Coverage

- Payment if annual average farm price is less than reference price
 - Wheat: \$5.50/bu.
 - Corn: \$3.70/bu.
 - Soybeans: \$8.40/bu.
 - Sorghum: \$3.95/bu.
 - Long-grain rice: \$14.00/cwt.
- Paid on 85% of base acres (tied to historical plantings)

Soybean prices

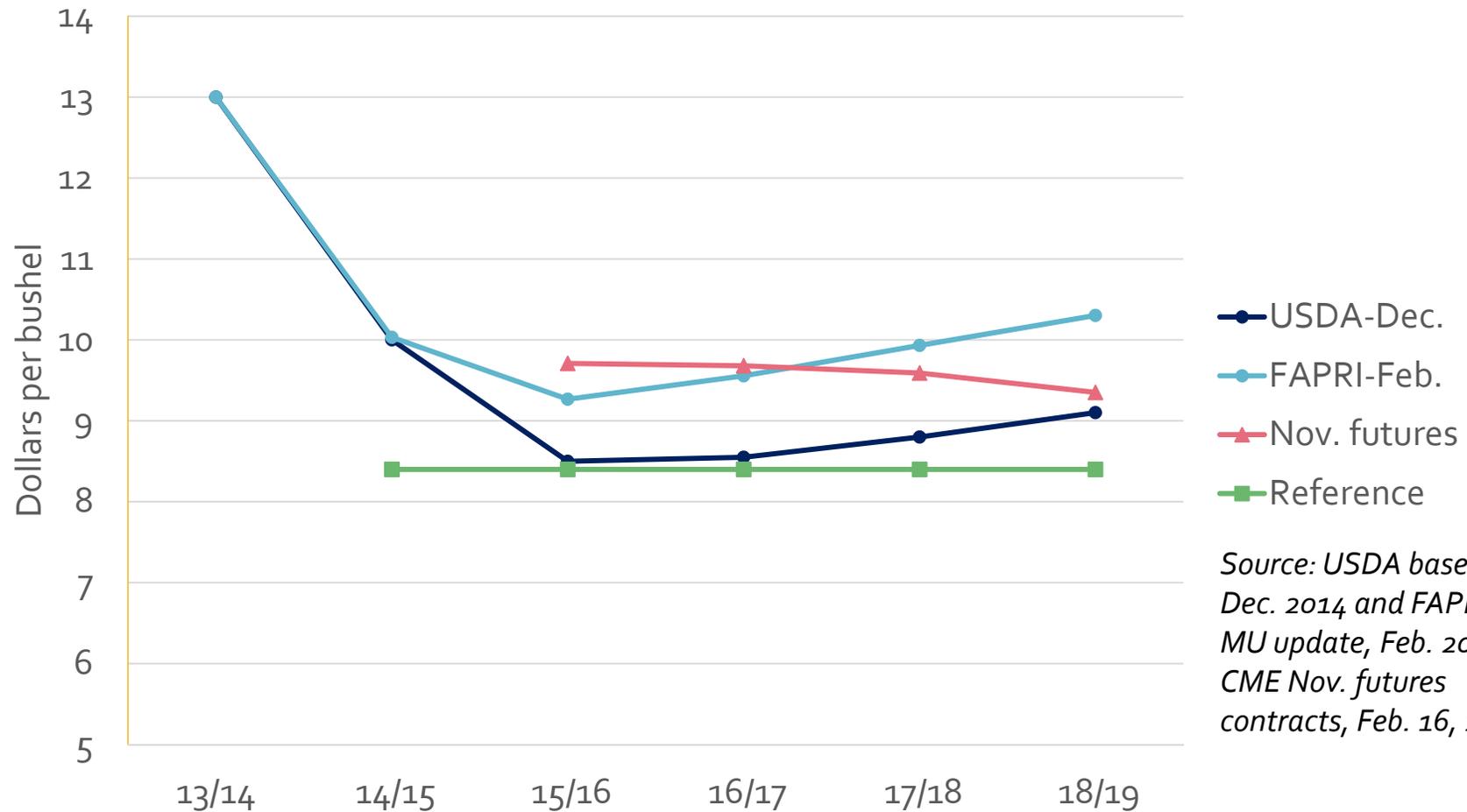


U.S. farm prices for soybeans



Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm and futures prices for soybeans

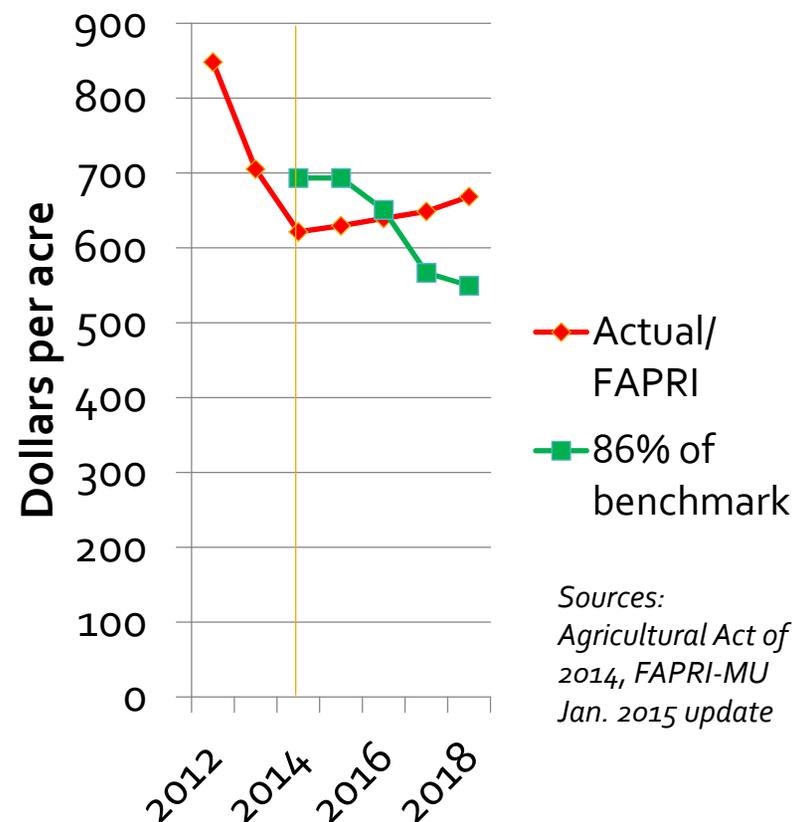


Source: USDA baseline, Dec. 2014 and FAPRI-MU update, Feb. 2015; CME Nov. futures contracts, Feb. 16, 2015

Revenue-based option for farm support

- Agriculture Risk Coverage (ARC)
 - Payment if per-acre revenues fall below trigger
 - For this example, using national yields, but actual program uses county- or farm-level yields
 - Paid on share of base acreage
 - 85% if choose county option
 - 65% if choose farm option (all crops on farm)

Corn revenues per acre

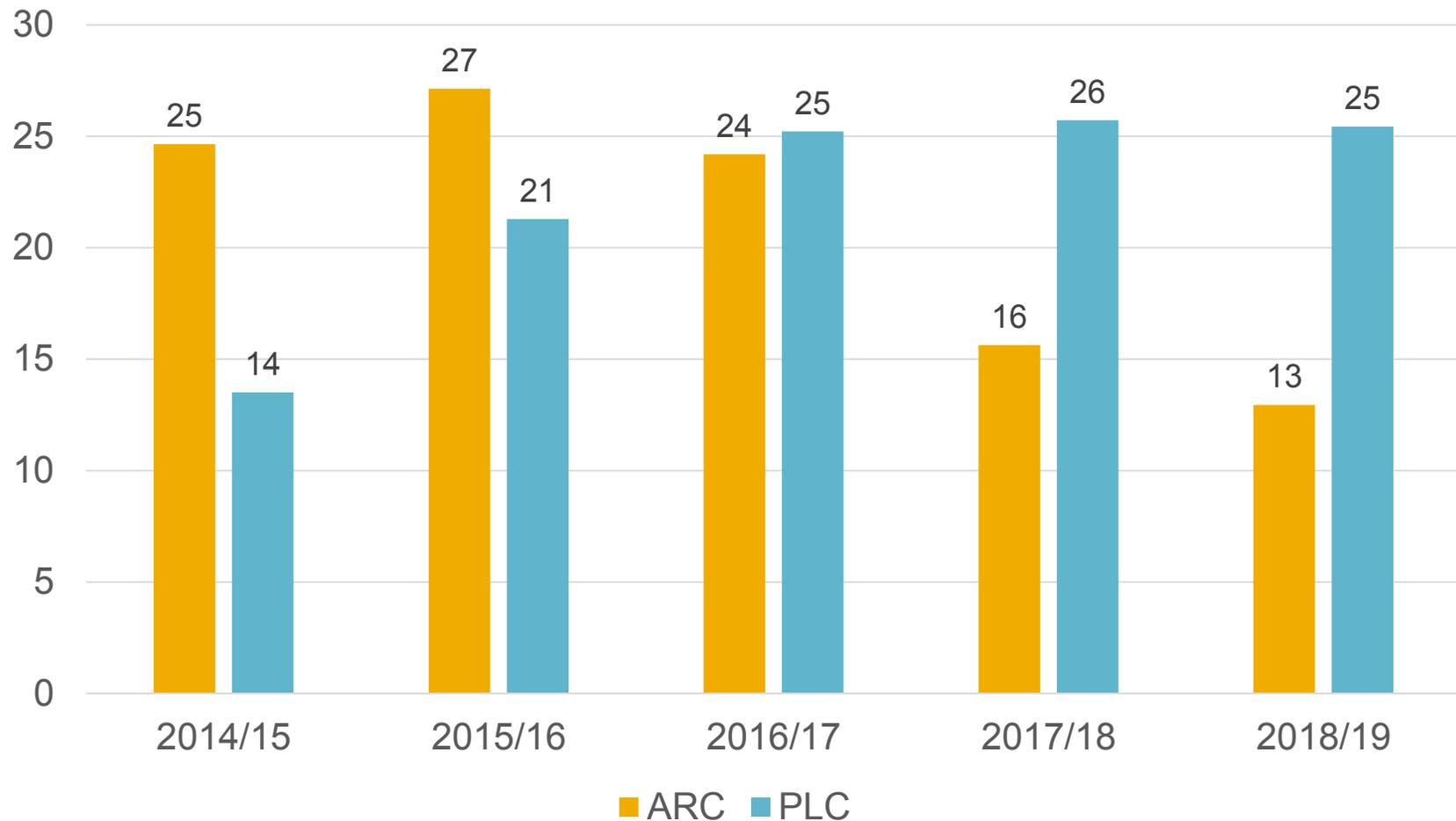


ARC-CO calculation example

Mississippi Co., AR corn, using NASS yields

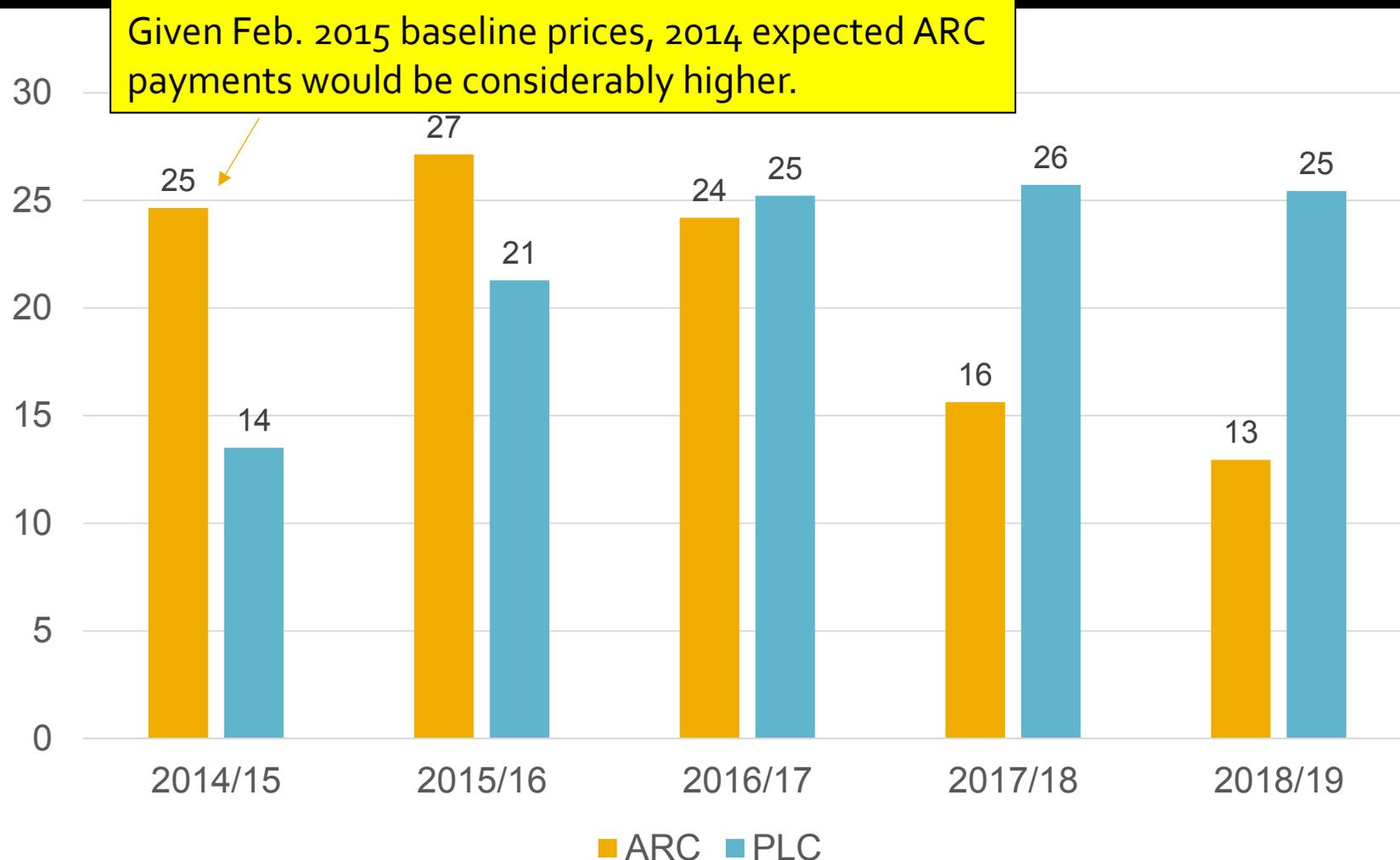
	Max of (national avg. farm price, reference price)	County yield	Revenue
2009/10	\$3.70/bu.	169 bu./a.	
2010/11	\$5.18	166	
2011/12	\$6.22	140	
2012/13	\$6.89	171	
2013/14	\$4.46	196	
Olympic average	\$5.29	169	
2014/15 benchmark revenue			\$892
86% of benchmark			\$767
1 st option triggering payments	\$3.65	<210	<\$767
2 nd option triggering payments	<\$4.27	180	<\$767

U.S. avg. corn ARC and PLC payments (Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

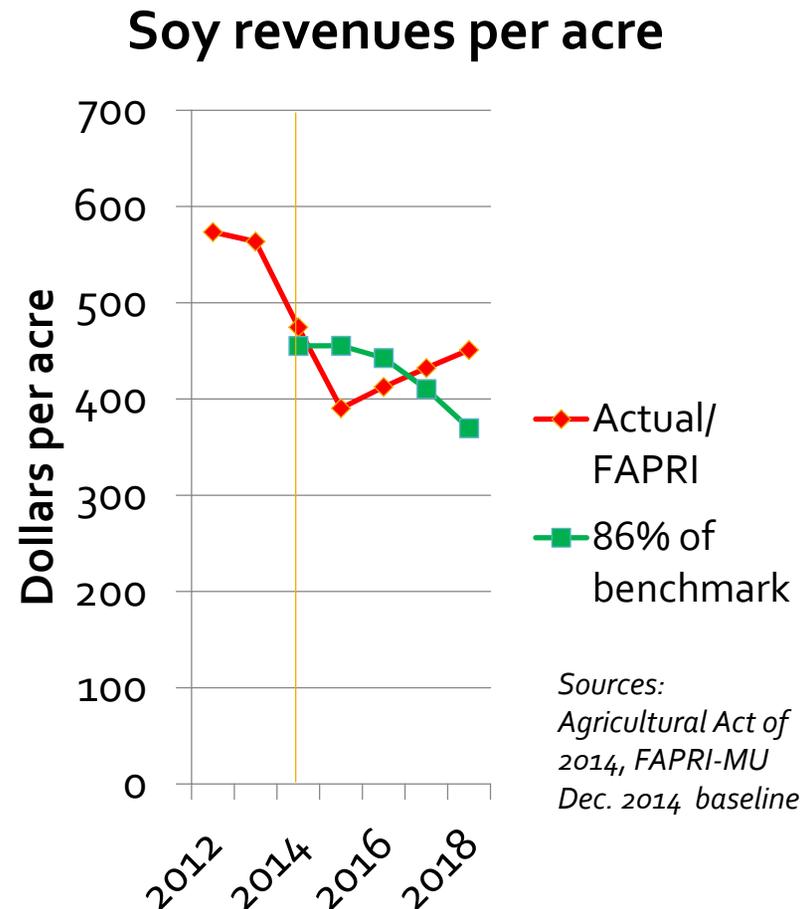
U.S. avg. corn ARC and PLC payments (Dollars per base acre for participating producers)



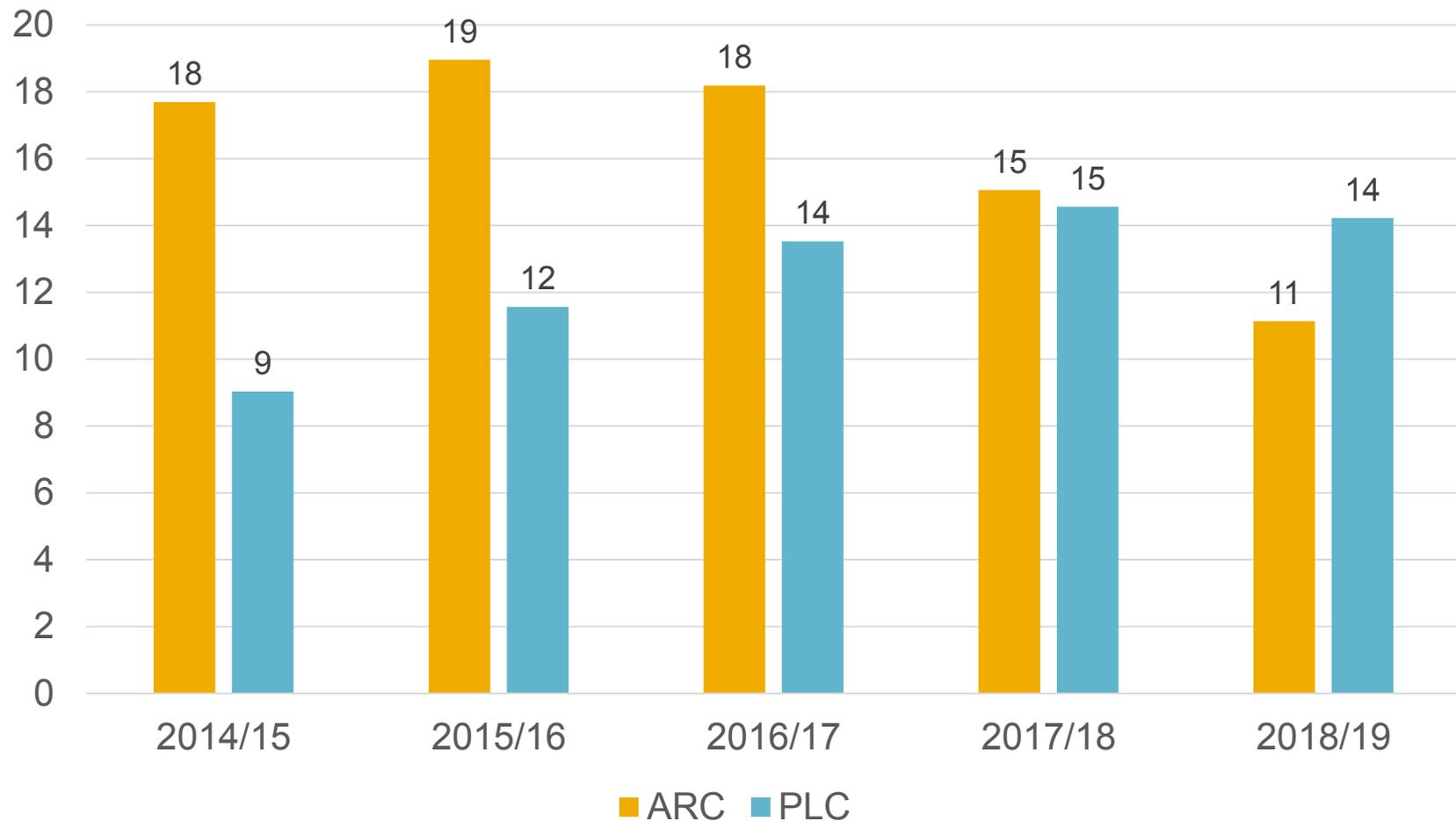
Source: FAPRI-MU March 2014 stochastic baseline

Revenue-based option for farm support

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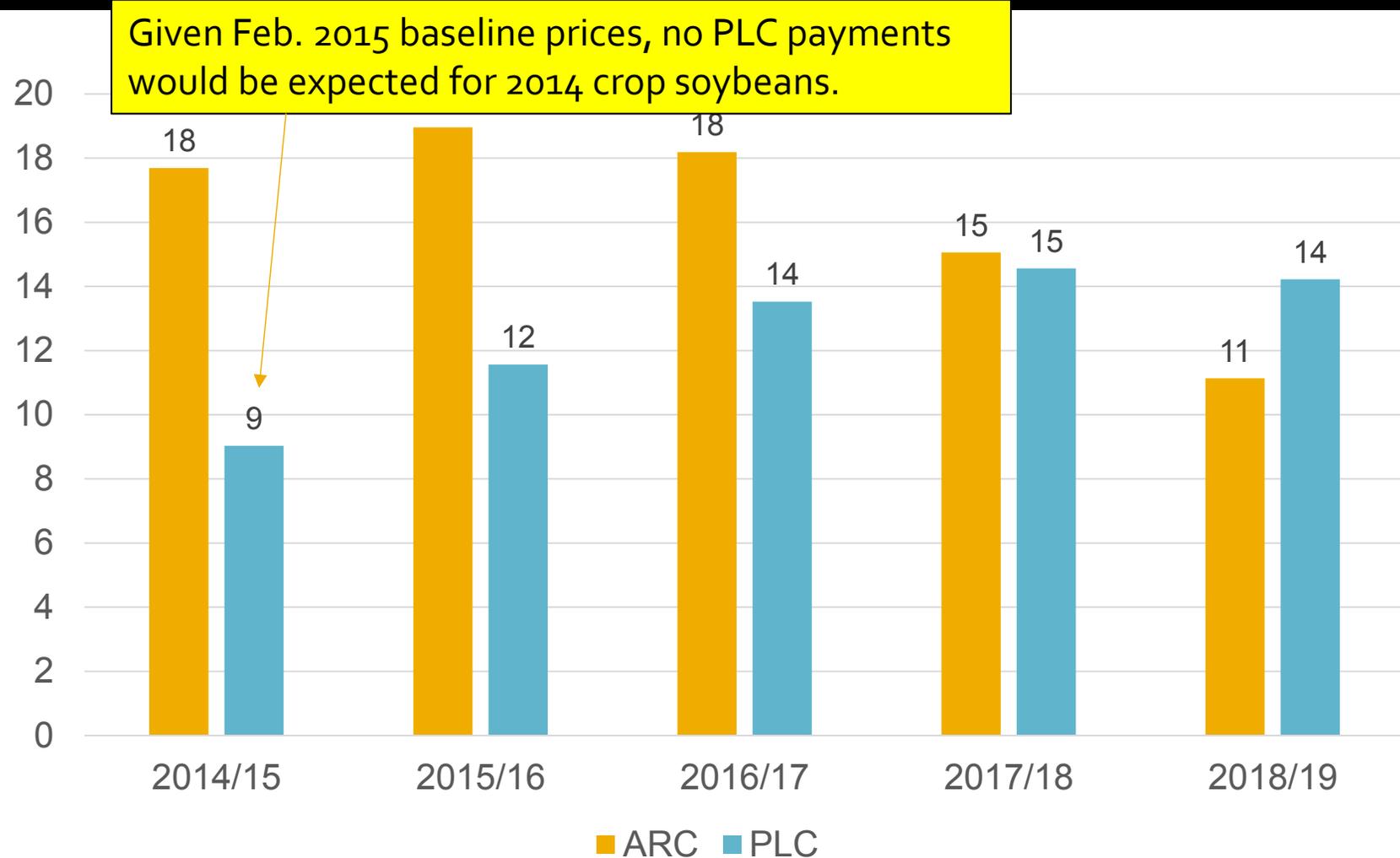


Avg. soybean ARC and PLC payments (Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

Avg. soybean ARC and PLC payments (Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

Back to Mississippi, Co., AR corn 2014/15 crop year payments

2014/15 national season-average corn price	PLC payment per base acre (program yield= 140 bu./a.)	ARC payment per base acre if county yield is 150 bu./a.	ARC payment per base acre if county yield is 180 bu./a.	ARC payment per base acre if county yield is 210 bu./a.
3.00	\$83.30	\$75.84	\$75.84	\$75.84
3.20	\$59.50	\$75.84	\$75.84	\$75.84
3.40	\$35.70	\$75.84	\$75.84	\$45.33
3.60	\$11.90	\$75.84	\$75.84	\$9.63
3.80	\$0	\$75.84	\$70.83	\$0
4.00	\$0	\$75.84	\$40.23	\$0

This is for just one county in one year, and it uses NASS county yields to calculate the benchmark, not the FSA yields that will be used. In other words, these tables will look different for every county in every year.

Decision aid

- FAPRI at the Univ. of Missouri and AFPC at Texas A&M have partnered to develop web based tools for:
 - Yield update
 - Base reallocation and PLC/ARC decision
 - Crop insurance
 - Generic base allocation
- Incorporates risk (yield and price variability)
- Initial version released September 25, 2014
- Link on FAPRI and AFPC home pages
 - <http://www.fapri.missouri.edu/2014farmbill>
 - <https://decisionaid.afpc.tamu.edu/>



Summary points

- Large corn and soybean crops weigh on grain and oilseed prices in short run
- Crop demand outlook is mixed
 - Global growth in animal protein sectors expected
 - But perhaps weaker growth (if any) in biofuels
 - And lots of international competition
- Net effect: average crop prices remain low by 2007-12 standards, but still above pre-2007 levels
- Actual prices will vary from these projections because of weather, oil prices, general economy...
- Farm bill program choices are complicated by this uncertainty

Thanks!

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