

Crop market outlook and program choices under the new farm bill

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Food and Agricultural
Policy Research Institute



Agenda

- FAPRI-MU crop market outlook
 - Price projections
 - Farm commodity supply and use that generate those prices
 - Uncertainty around the projections
- Why prices matter in making program choices

U.S. market price projections

FAPRI-MU, September 2014

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Corn (\$/bu.)	4.45	3.50	3.80	3.97	4.12	4.22
Soybeans (\$/bu.)	13.00	9.92	9.04	9.72	10.32	10.57
Wheat (\$/bu.)	6.87	5.91	5.42	5.61	5.81	5.93
Durum	7.46	6.78	6.19	6.42	6.66	6.80
Other spring	6.73	5.95	5.68	5.88	6.09	6.22
Winter	6.89	5.88	5.31	5.50	5.69	5.81
Upland cotton (cents/lb.)	77.50	64.63	59.97	58.76	59.53	60.85
Sorghum (\$/bu.)	4.25	3.33	3.64	3.75	3.88	3.96
Rice (\$/cwt)	16.10	14.31	13.40	13.16	13.21	13.37
Long grain	15.40	13.01	12.33	12.10	12.13	12.27
Medium/short (exc. Japonica)	16.10	14.34	13.67	13.44	13.51	13.70
Japonica	18.40	18.93	17.09	16.80	16.89	17.12
Barley (\$/bu.)	6.06	4.85	4.47	4.54	4.71	4.81
Oats (\$/bu.)	3.75	3.11	3.07	3.19	3.30	3.35
Peanuts (cents/lb.)	24.90	19.59	22.96	22.03	22.43	22.49
Sunflower seed (\$/cwt)	21.50	20.38	18.65	19.22	20.11	20.38
Canola (\$/cwt)	20.60	17.76	17.74	17.91	19.15	19.32

U.S. market price projections

FAPRI-MU, September 2014

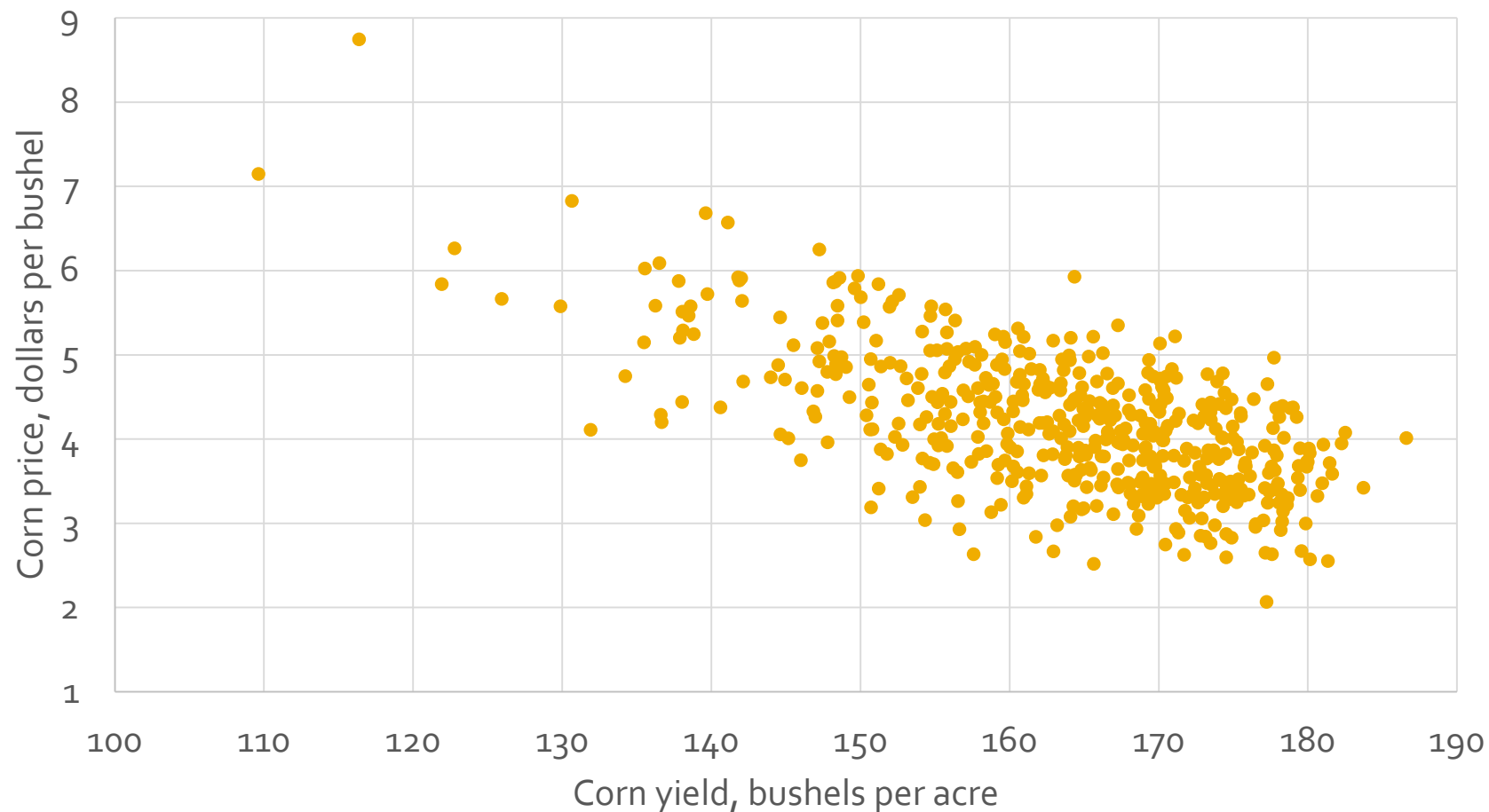
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Flaxseed (\$/bu.)	13.80	12.26	11.63	12.08	12.48	12.65
Lentils (\$/cwt)	19.90	17.92	16.79	17.57	18.27	18.58
Safflower (\$/cwt)	23.70	20.65	19.38	20.25	21.03	21.38
Mustard seed (\$/cwt)	36.00	31.25	29.60	30.65	31.61	32.05
Dry peas (\$/cwt)	14.60	12.60	11.81	12.25	12.67	12.88
Rapeseed (\$/cwt)	25.60	21.74	20.24	21.31	22.29	22.71
Large chickpeas (\$/cwt)	31.10	26.46	24.59	25.66	26.66	27.15
Small chickpeas (\$/cwt)	22.80	19.27	17.87	18.67	19.42	19.79
Crambe (\$/cwt)	35.80	32.54	30.67	31.74	32.74	33.23
Sesame seed (\$/cwt)	44.00	44.79	42.13	43.68	45.11	45.82

So where did those come from?

- FAPRI-MU has been making market projections for 30 years
 - Complex models of U.S. and world markets + analyst expertise
 - DC review of models and projections each December
 - Annual baseline released in early March
- Updates
 - August update each year
 - For this project, monthly updates—September is first official
 - Reflect new information on crop production, demand, etc.
- We know actual prices will differ
 - We solve for 500 different futures given different assumptions

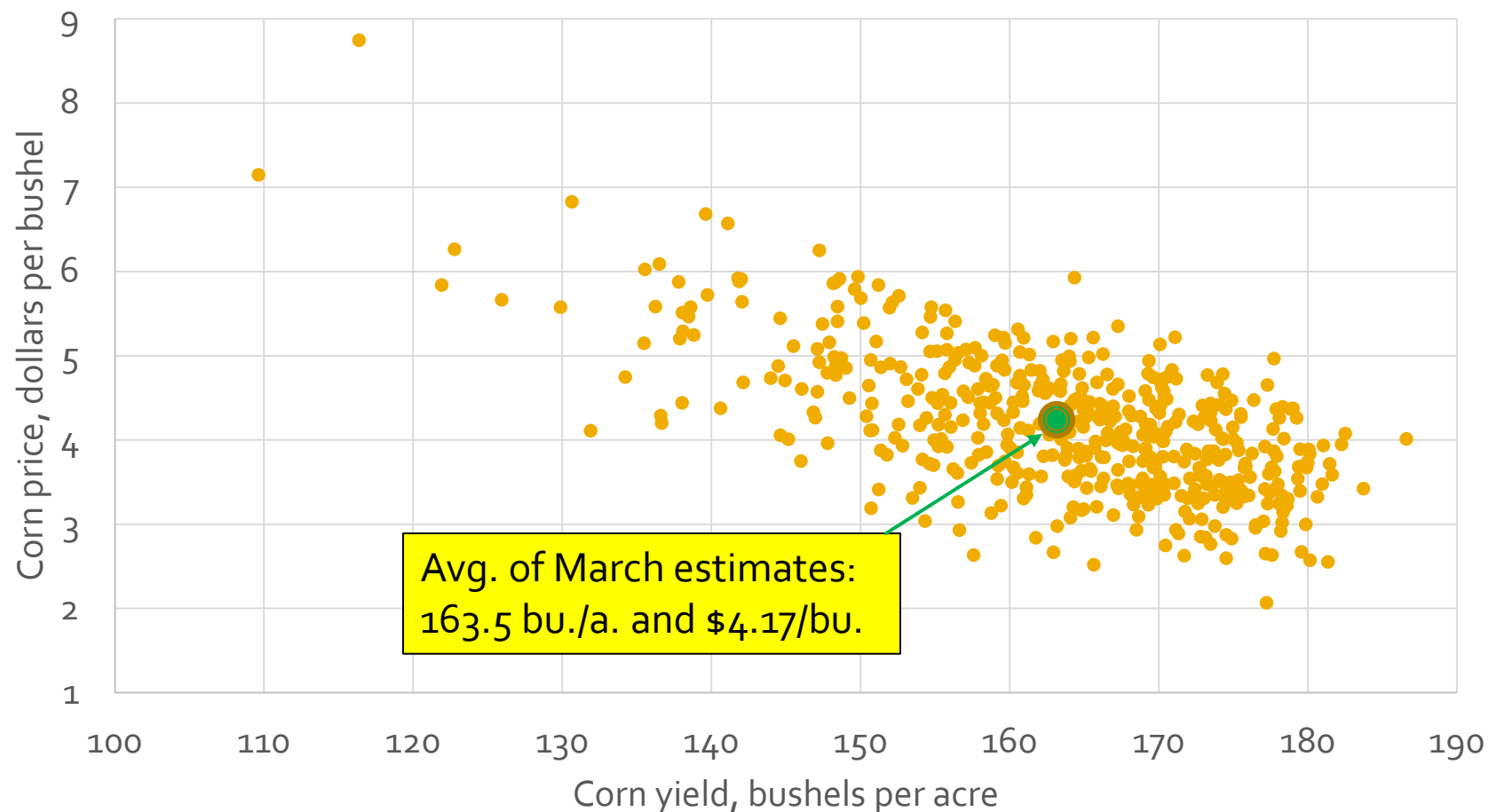
2014/15 corn yields and prices

FAPRI-MU stochastic baseline, March 2014



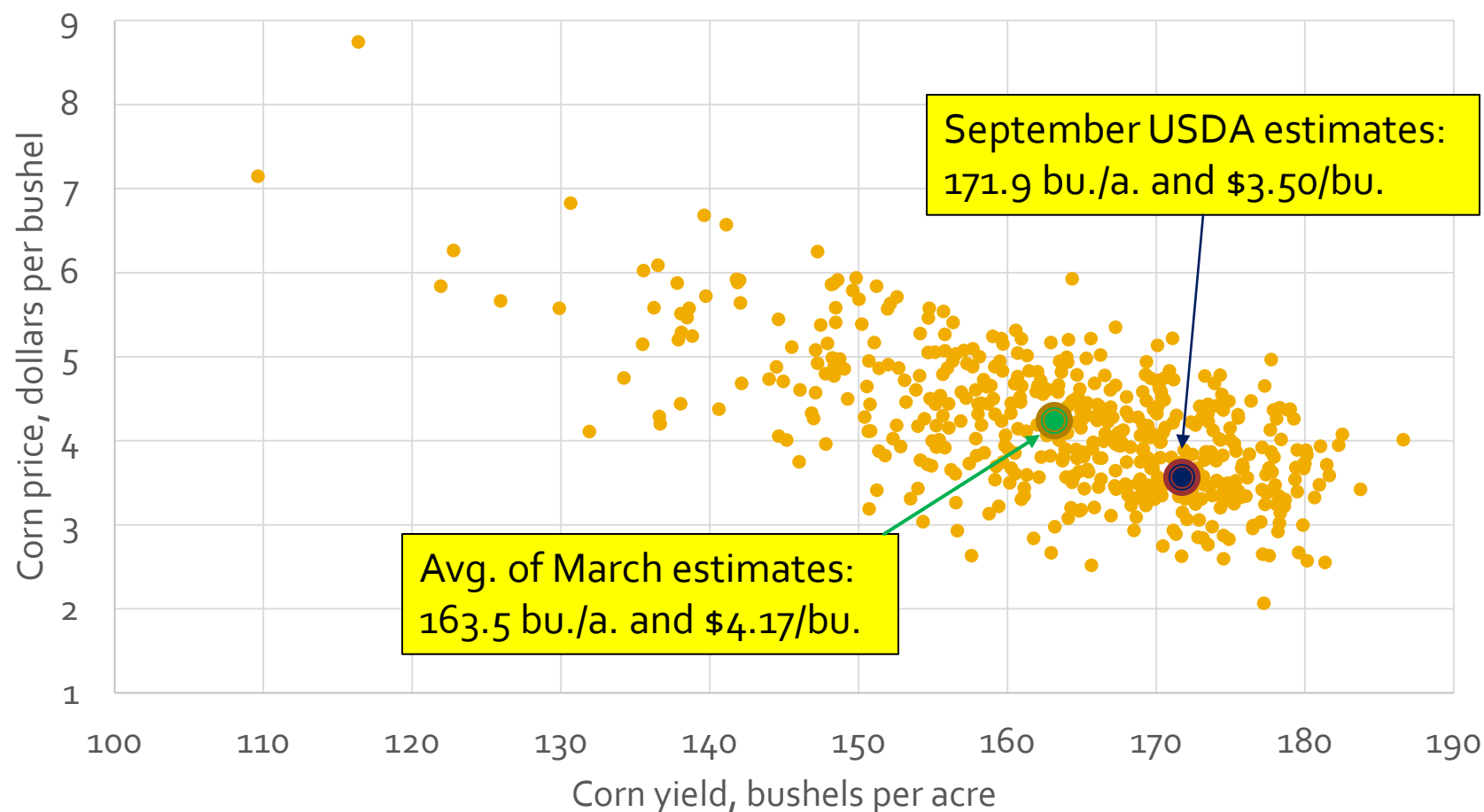
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2014/15 corn yields and prices

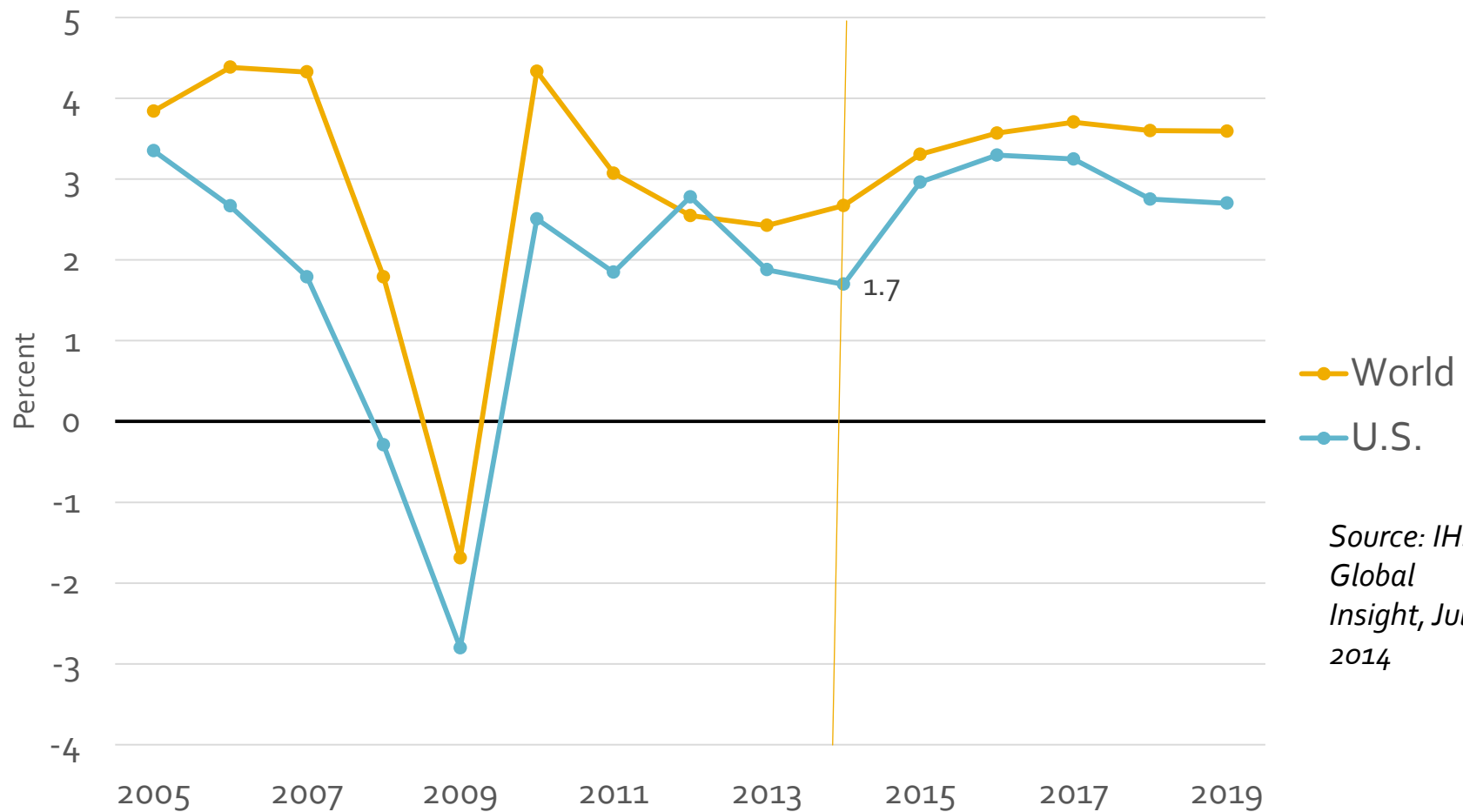
FAPRI-MU stochastic baseline, March 2014



Some factors driving the baseline projections

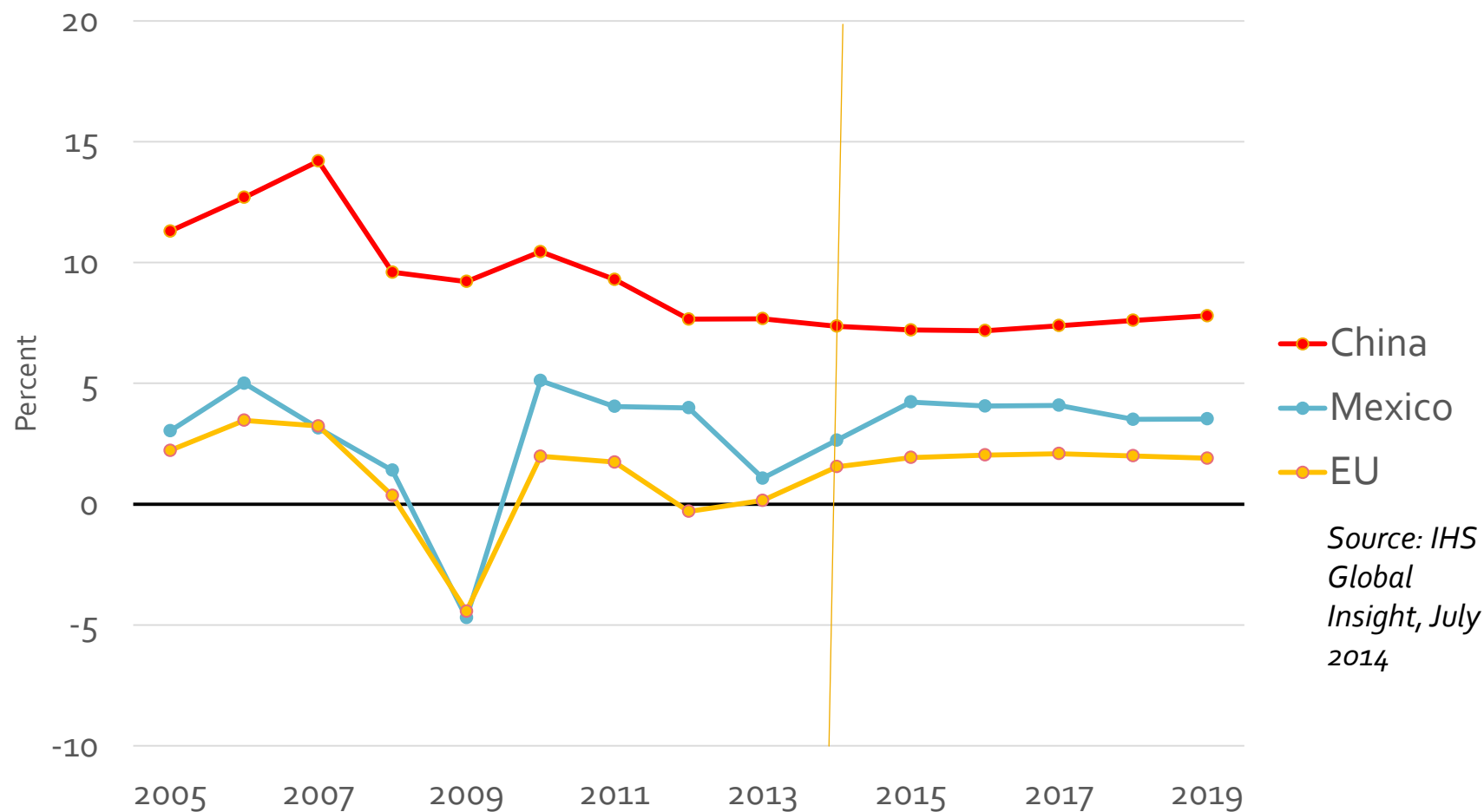
- Economic growth, exchange rates, etc.
- Policy (generally keep current policies)
- Technology (generally trend growth in crop yields, etc.)
- Economic choices by producers and consumers
- Weather and other factors that make markets volatile

U.S. and world real GDP growth

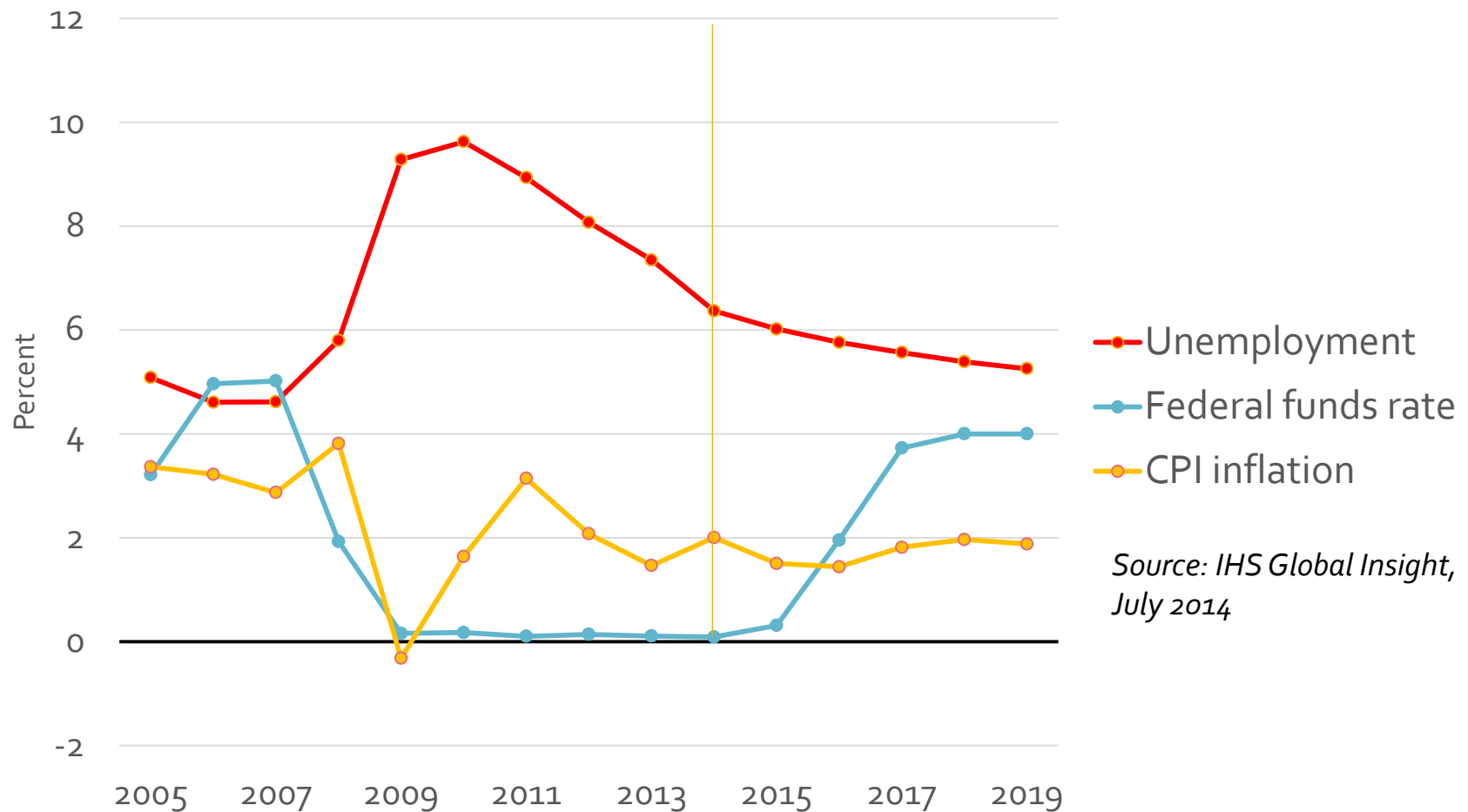


Source: IHS
Global
Insight, July
2014

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



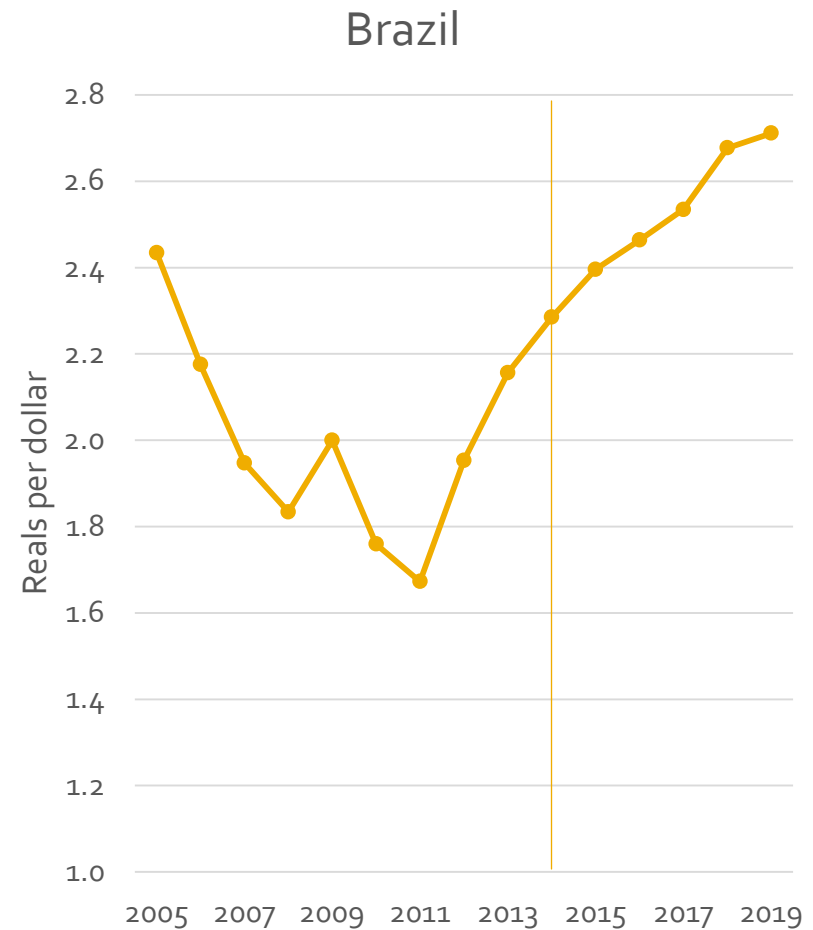
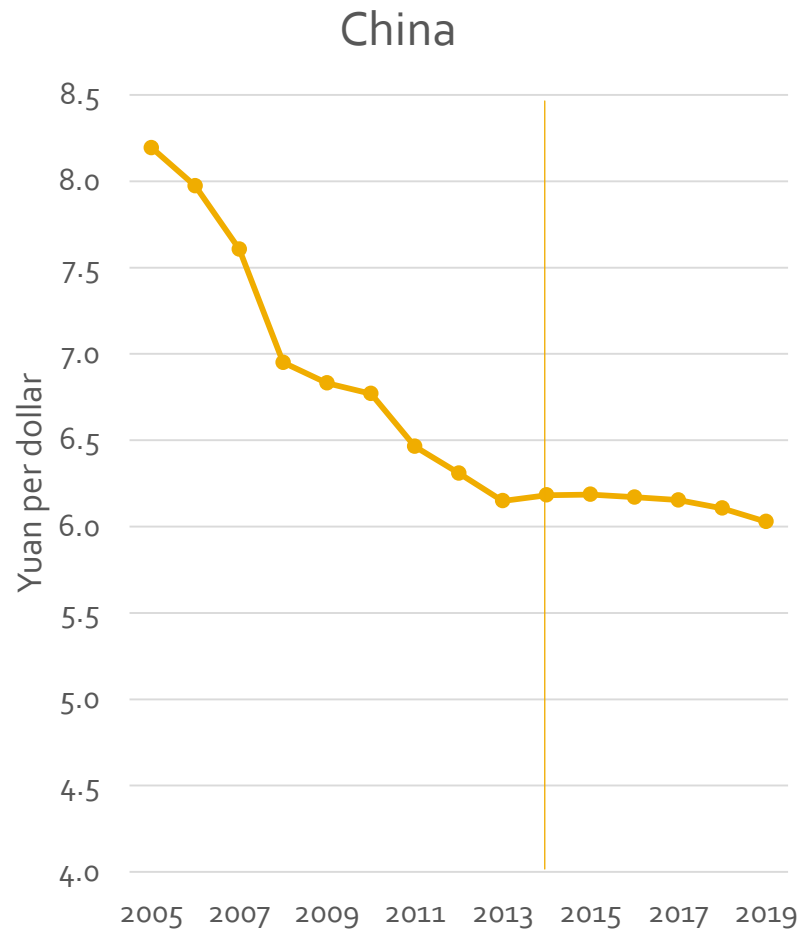
U.S. interest and inflation rates



Source: IHS Global Insight,
July 2014

Exchange rates

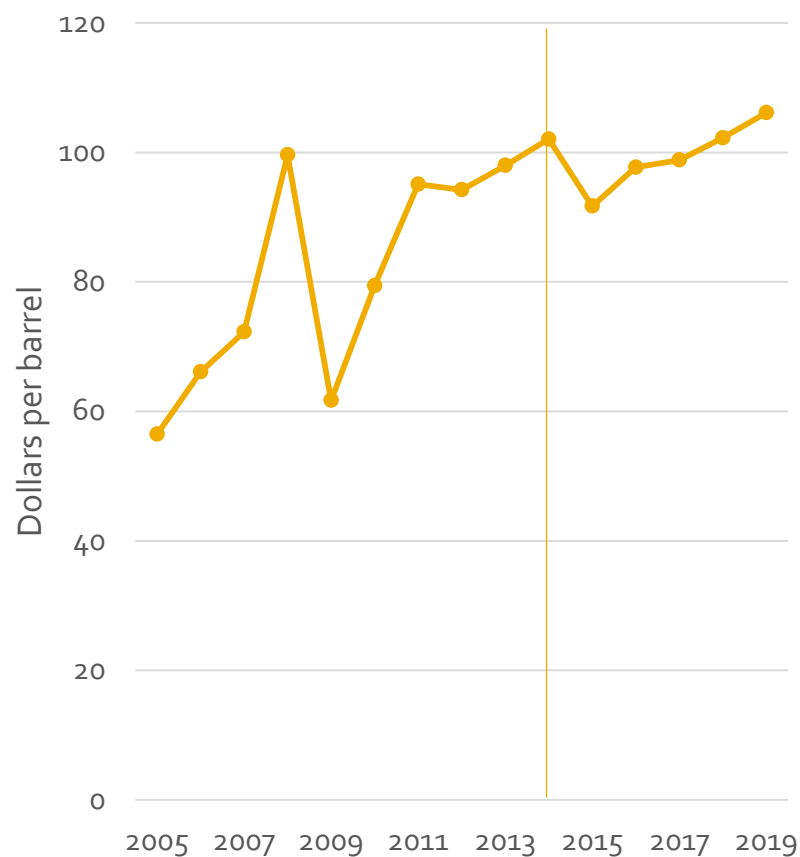
(IHS Global Insight, July 2014)



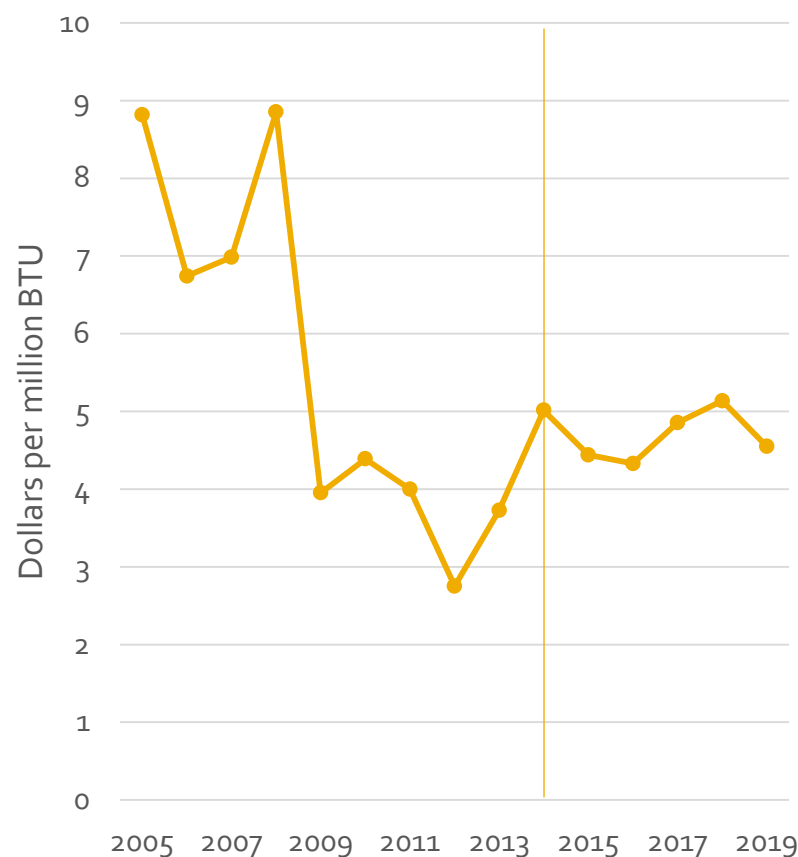
Oil and natural gas prices

(IHS Global Insight, July 2014)

West Texas Intermediate oil

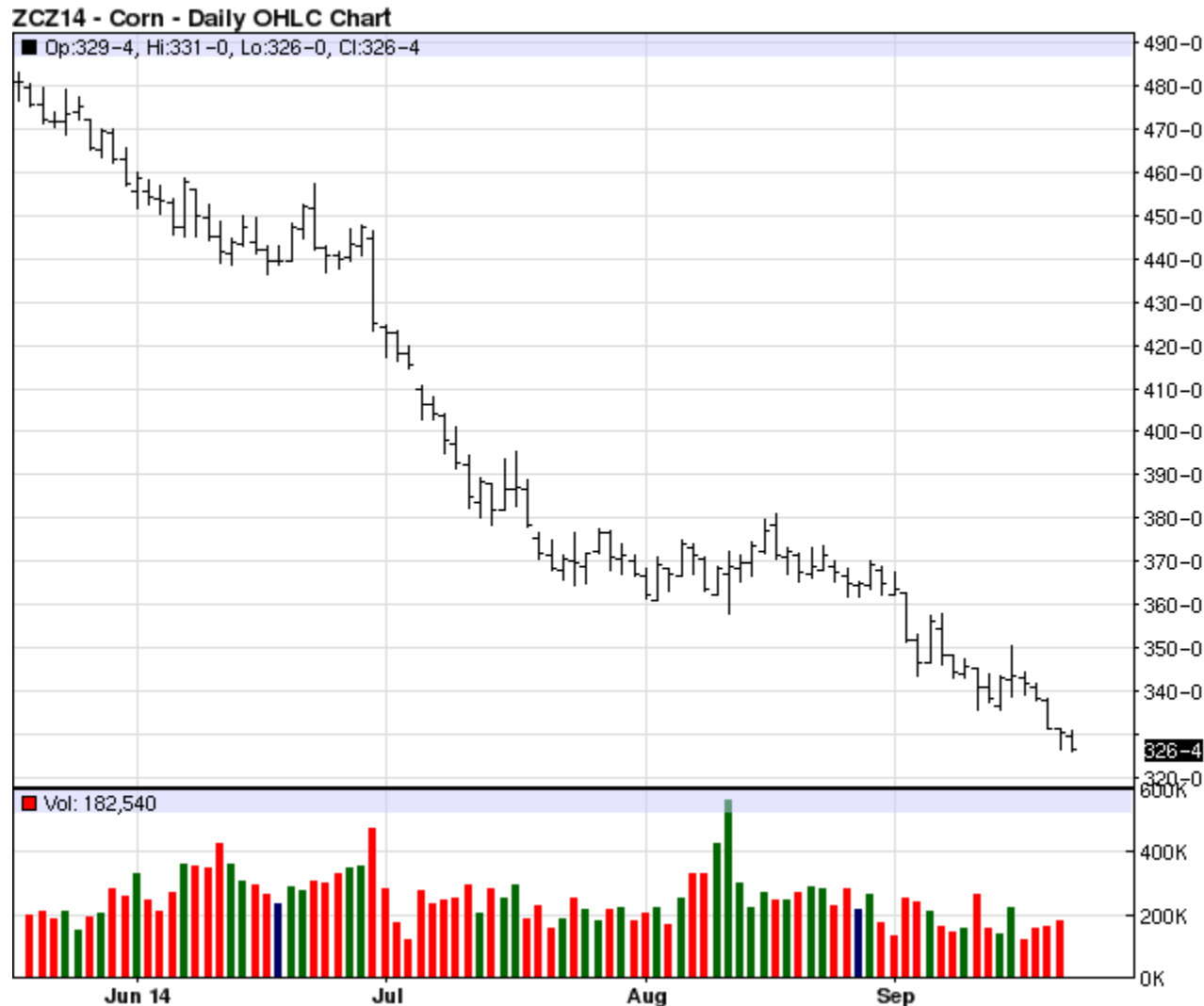


Henry Hub natural gas



December 2014 corn futures

(May-Sep. 23, 2014, Great Pacific Trading Co.)



U.S. corn supply and use

(USDA WASDE, Sep. 2014)

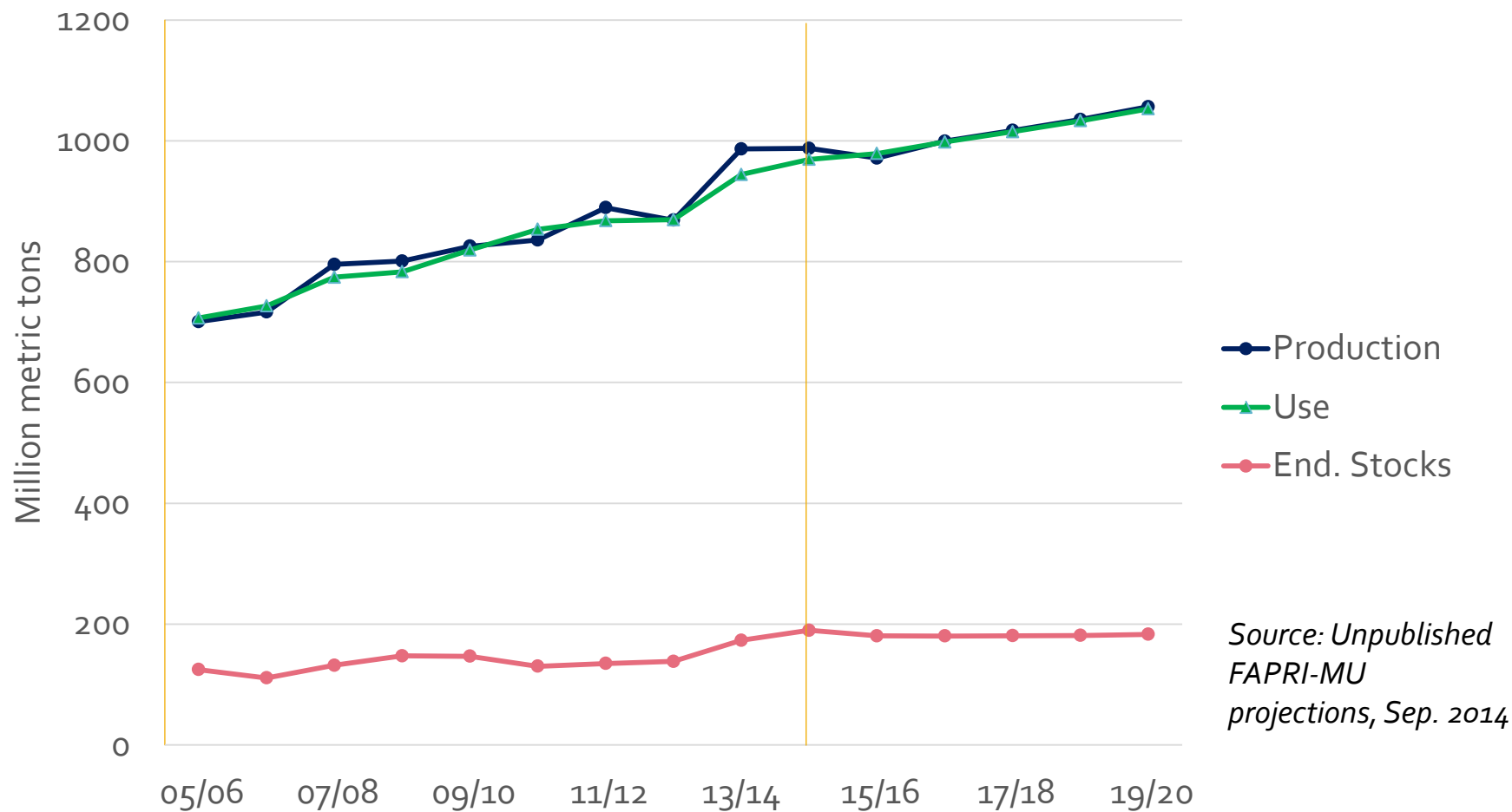
	2012/13	2013/14	2014/15
Planted area (mil. a.)	97.2	95.4	91.6
Harvested area (mil. a.)	87.4	87.7	83.8
Yield (bu./a.)	123.4	158.8	171.7
Production (mil. bu.)	10,780	13,925	14,395
Feed & residual (mil. bu.)	4,339	5,175	5,325
Ethanol & coproducts (mil. bu.)	4,641	5,125	5,125
Other domestic use (mil. bu.)	1,398	1,375	1,405
Exports (mil. bu.)	730	1,925	1,750
Ending stocks (mil. bu.)	821	1,181	2,002
Farm price per bushel	\$6.89	\$4.45	\$3.20-\$3.80

U.S. corn supply and use

FAPRI-MU, September 2014

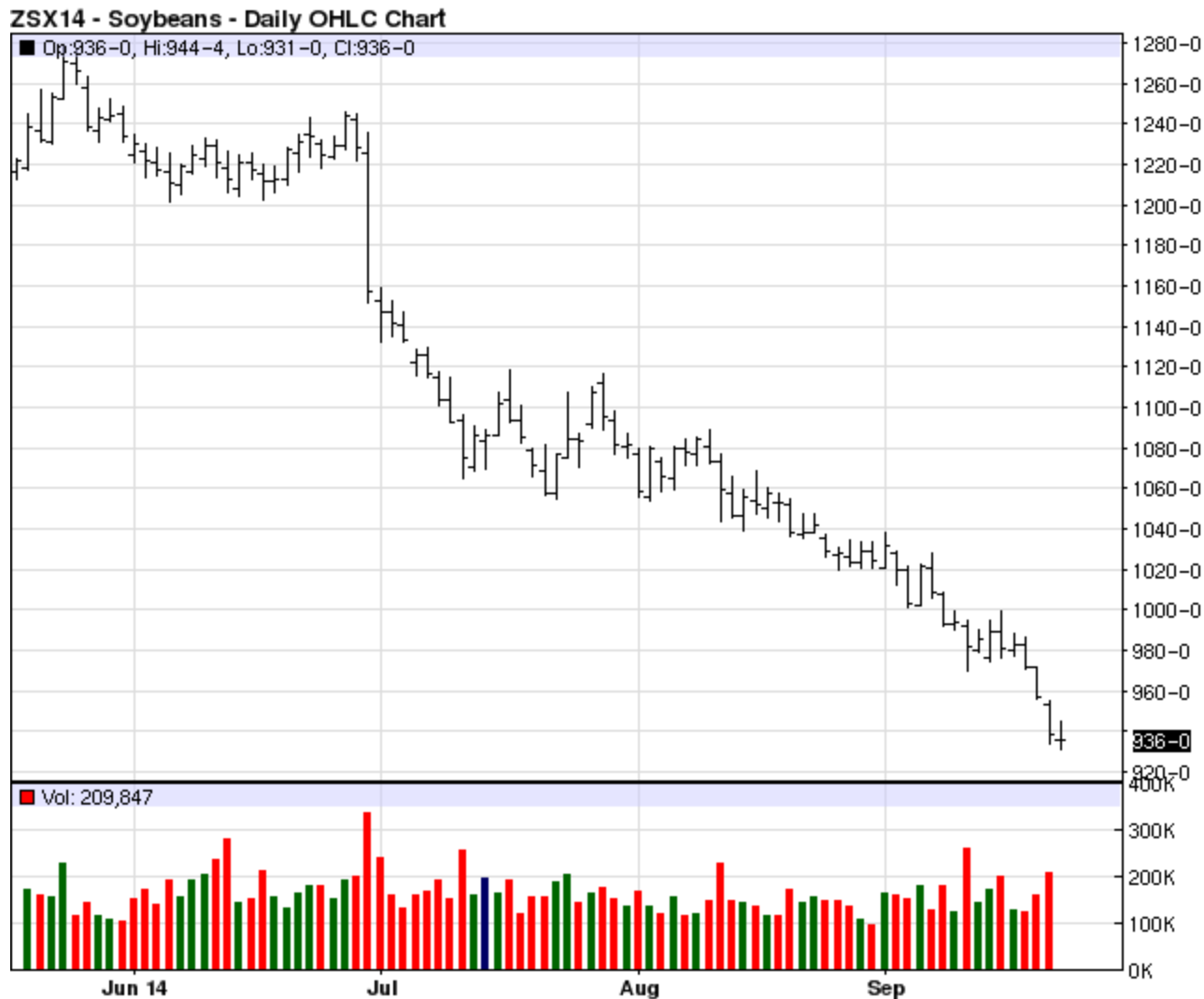
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	million acres					
Area harvested	87.7	83.8	81.4	83.6	83.6	83.9
	bushels per acre					
Yield	158.8	171.7	162.7	164.5	166.2	167.7
	million bushels					
Production	13,925	14,395	13,239	13,755	13,891	14,061
Imports	35	30	30	30	30	30
Beginning stocks	821	1,181	1,962	1,566	1,509	1,484
Total supply	14,781	15,607	15,230	15,352	15,429	15,575
Feed use	5,175	5,285	5,173	5,289	5,302	5,283
Other domestic use	6,500	6,551	6,603	6,600	6,584	6,662
Exports	1,925	1,810	1,888	1,954	2,060	2,173
Total use	13,600	13,645	13,664	13,843	13,946	14,118
Ending stocks	1,181	1,962	1,566	1,509	1,484	1,457
	dollars per bushel					
Price, U.S. farm	4.45	3.50	3.80	3.97	4.12	4.22

World corn supply and use



November 2014 soybean futures

(May-Sep. 23, 2014, Great Pacific Trading Co.)



U.S. soybean supply and use

(USDA WASDE, Sep. 2014)

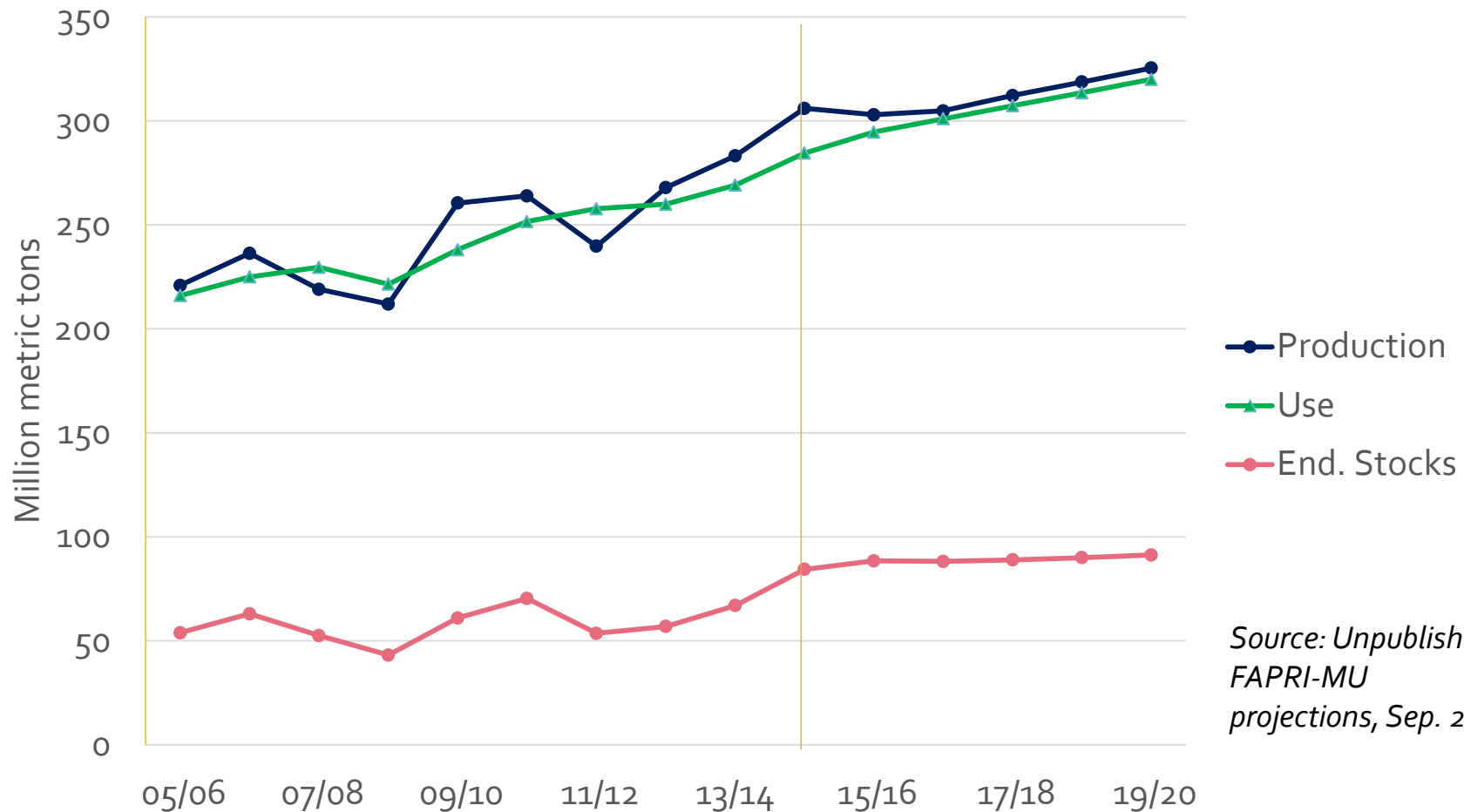
	2012/13	2013/14	2014/15
Planted area (mil. a.)	77.2	76.5	84.8
Harvested area (mil. a.)	76.2	75.9	84.1
Yield (bu./a.)	39.8	43.3	46.6
Production (mil. bu.)	3,034	3,289	3,913
Crush (mil. bu.)	1,689	1,730	1,770
Seed and residual (mil. bu.)	97	-5	114
Exports (mil. bu.)	1,317	1,645	1,700
Ending stocks (mil. bu.)	141	130	475
Farm price per bushel	\$14.40	\$13.00	\$9.00-\$11.00

U.S. soybean supply and use

FAPRI-MU, September 2014

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	million acres					
Area harvested	75.9	84.1	83.0	80.1	81.1	81.3
	bushels per acre					
Yield	43.3	46.6	44.0	44.6	45.0	45.3
	million bushels					
Production	3,289	3,913	3,657	3,573	3,649	3,688
Imports	80	15	15	15	15	15
Beginning stocks	141	130	433	434	381	374
Total supply	3,509	4,058	4,105	4,022	4,045	4,077
Crush	1,730	1,809	1,848	1,840	1,851	1,864
Other domestic use	4	105	102	103	103	103
Exports	1,645	1,712	1,720	1,698	1,717	1,741
Total use	3,379	3,626	3,670	3,641	3,671	3,708
Ending stocks	130	433	434	381	374	369
	dollars per bushel					
Price, U.S. farm	13.00	9.92	9.04	9.72	10.32	10.57
	ratio					
Soybean/corn price ratio	2.92	2.83	2.38	2.45	2.50	2.50

World soybean supply and use



Source: Unpublished
FAPRI-MU
projections, Sep. 2014

U.S. wheat supply and use

FAPRI-MU, September 2014

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	million acres					
Area harvested	45.2	46.2	46.7	45.8	45.8	45.7
	bushels per acre					
Yield	47.1	43.9	46.2	46.4	46.8	47.1
	million bushels					
Production	2,130	2,030	2,155	2,126	2,145	2,156
Imports	169	170	165	165	165	165
Beginning stocks	718	590	668	720	714	705
Total supply	3,016	2,789	2,987	3,011	3,024	3,026
Feed use	222	161	187	191	188	190
Other domestic use	1,028	1,039	1,045	1,052	1,058	1,065
Exports	1,176	922	1,034	1,055	1,072	1,072
Total use	2,426	2,122	2,267	2,297	2,318	2,328
Ending stocks	590	668	720	714	705	698
	dollars per bushel					
Price, U.S. farm	6.87	5.91	5.42	5.61	5.81	5.93

U.S. cotton supply and use

FAPRI-MU, September 2014

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Area harvested	7.54	9.88	8.74	8.80	8.76	8.74
			million acres			
Yield	822	803	820	829	837	844
			pounds per acre			
Production	12.91	16.54	14.92	15.21	15.27	15.37
Imports	0.01	0.01	0.01	0.01	0.01	0.01
Beginning stocks	3.90	2.45	5.18	5.26	5.36	5.39
Total supply	16.82	18.99	20.11	20.48	20.64	20.76
			million bales			
Domestic use and residual	3.84	3.84	3.94	4.06	4.11	4.12
Exports	10.53	9.97	10.90	11.06	11.14	11.24
Total use	14.37	13.81	14.84	15.11	15.25	15.36
Ending stocks	2.45	5.18	5.26	5.36	5.39	5.40
			cents per pound			
Price, U.S. farm	77.5	64.6	60.0	58.8	59.5	60.9

U.S. rice supply and use

FAPRI-MU, September 2014

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	million acres					
Area harvested	2.47	2.91	2.74	2.77	2.74	2.72
	pounds per acre					
Yield	7,692	7,499	7,507	7,578	7,644	7,699
	million hundredweight, rough equivalent					
Production	189.9	218.3	205.6	209.7	209.2	209.1
Imports	22.8	21.3	21.9	22.3	22.8	23.4
Beginning stocks	35.9	32.1	37.9	38.3	40.1	41.6
Total supply	248.5	271.7	265.4	270.3	272.2	274.1
Domestic use and residual	124.0	133.1	134.9	136.2	137.1	138.2
Exports	92.7	100.7	92.2	94.0	93.4	93.1
Total use	216.7	233.8	227.0	230.2	230.6	231.3
Ending stocks	31.8	37.9	38.3	40.1	41.6	42.8
	dollars per hundredweight					
Price, U.S. farm	16.10	14.31	13.40	13.16	13.21	13.37

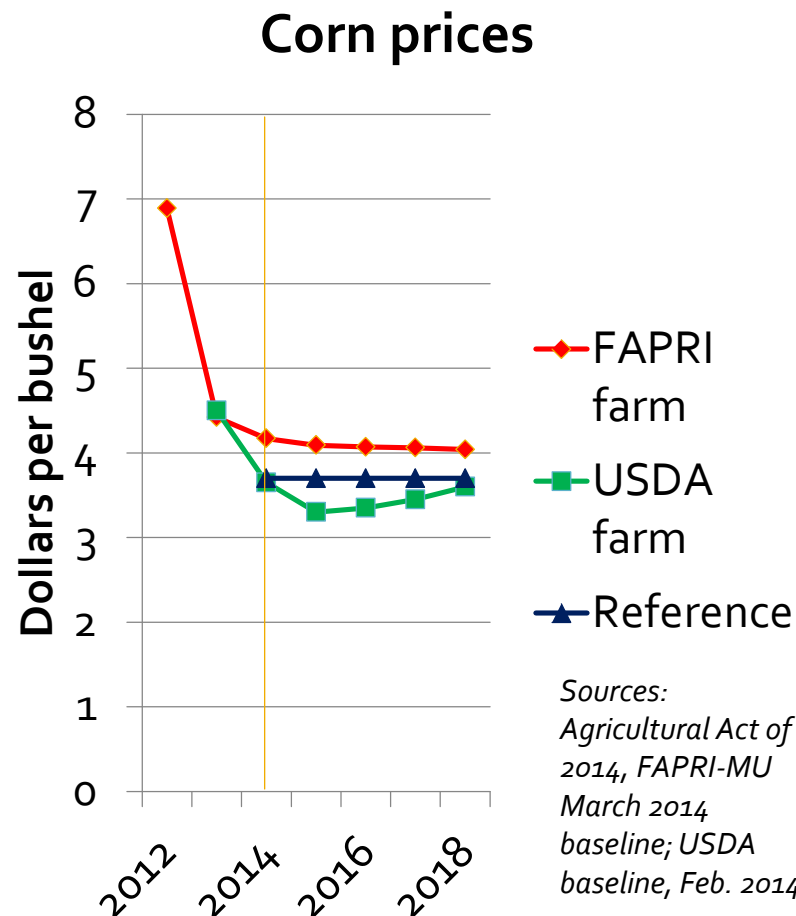
Why prices matter

- Both ARC and PLC depend on U.S. season-average prices
- Lower prices increase payments under both programs, all else equal
- But actual payments under the two programs can differ—sometimes by a lot

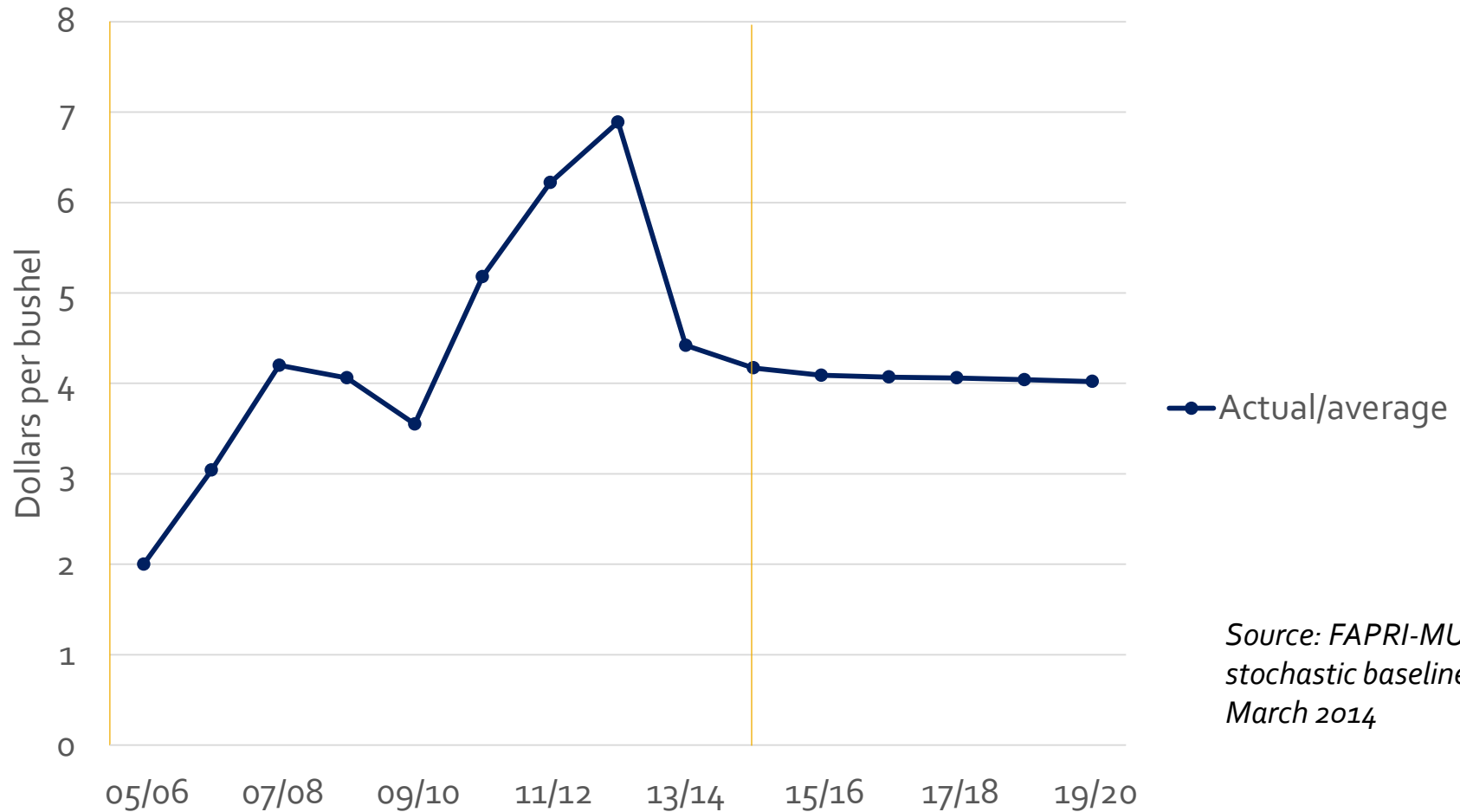
Price-based option for farm support

■ 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)

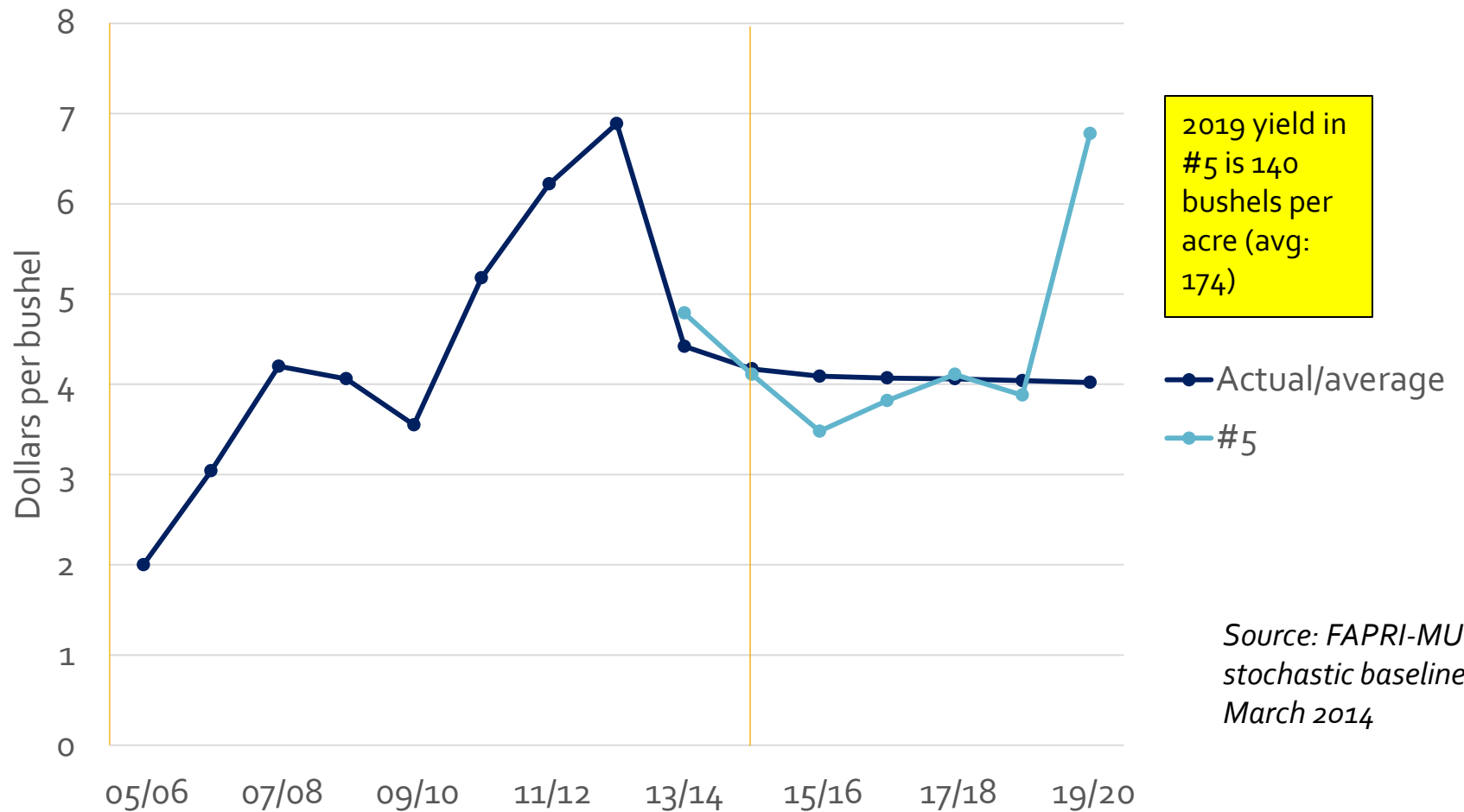


U.S. farm prices for corn



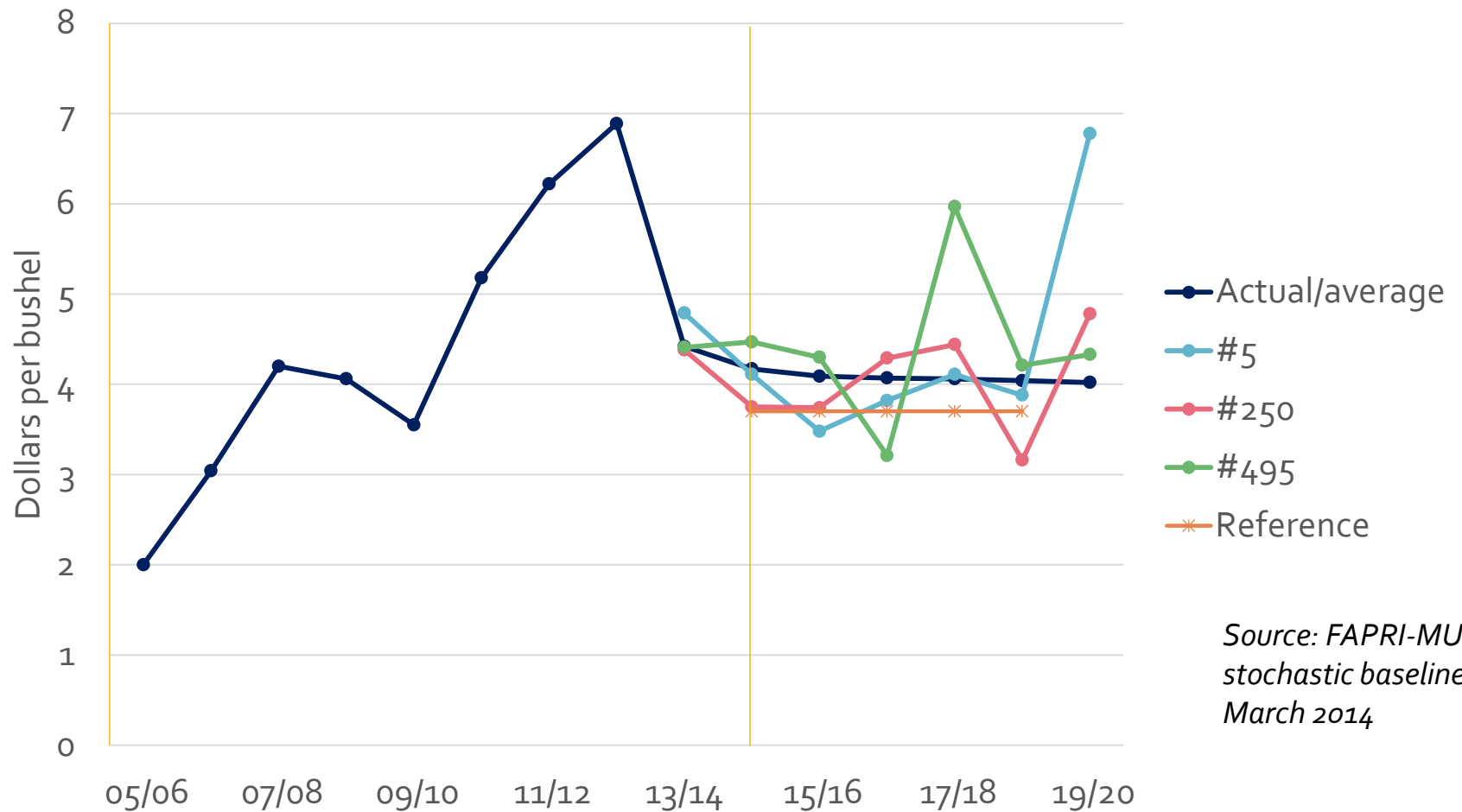
Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm prices for corn



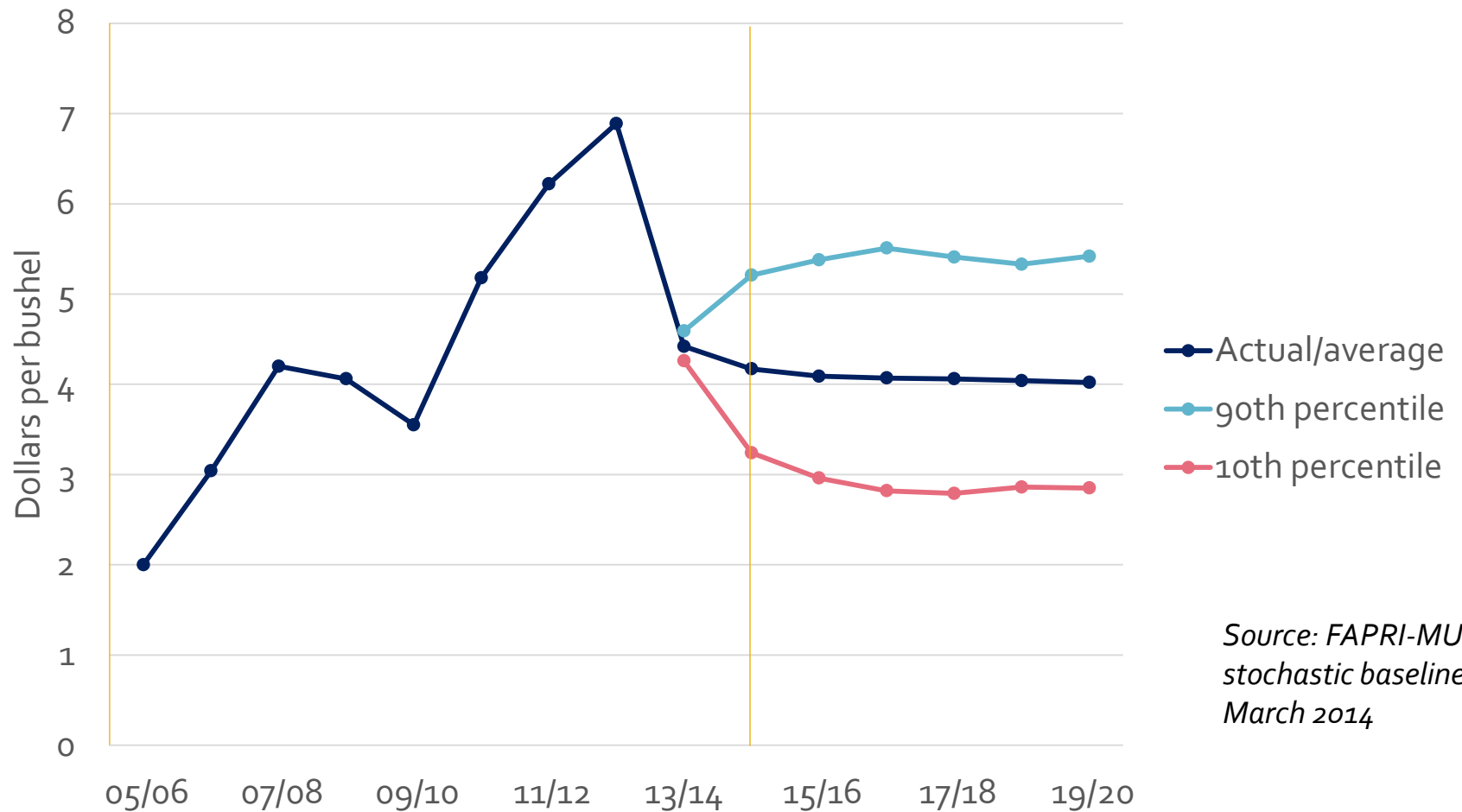
Source: FAPRI-MU
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U.S. farm prices for corn



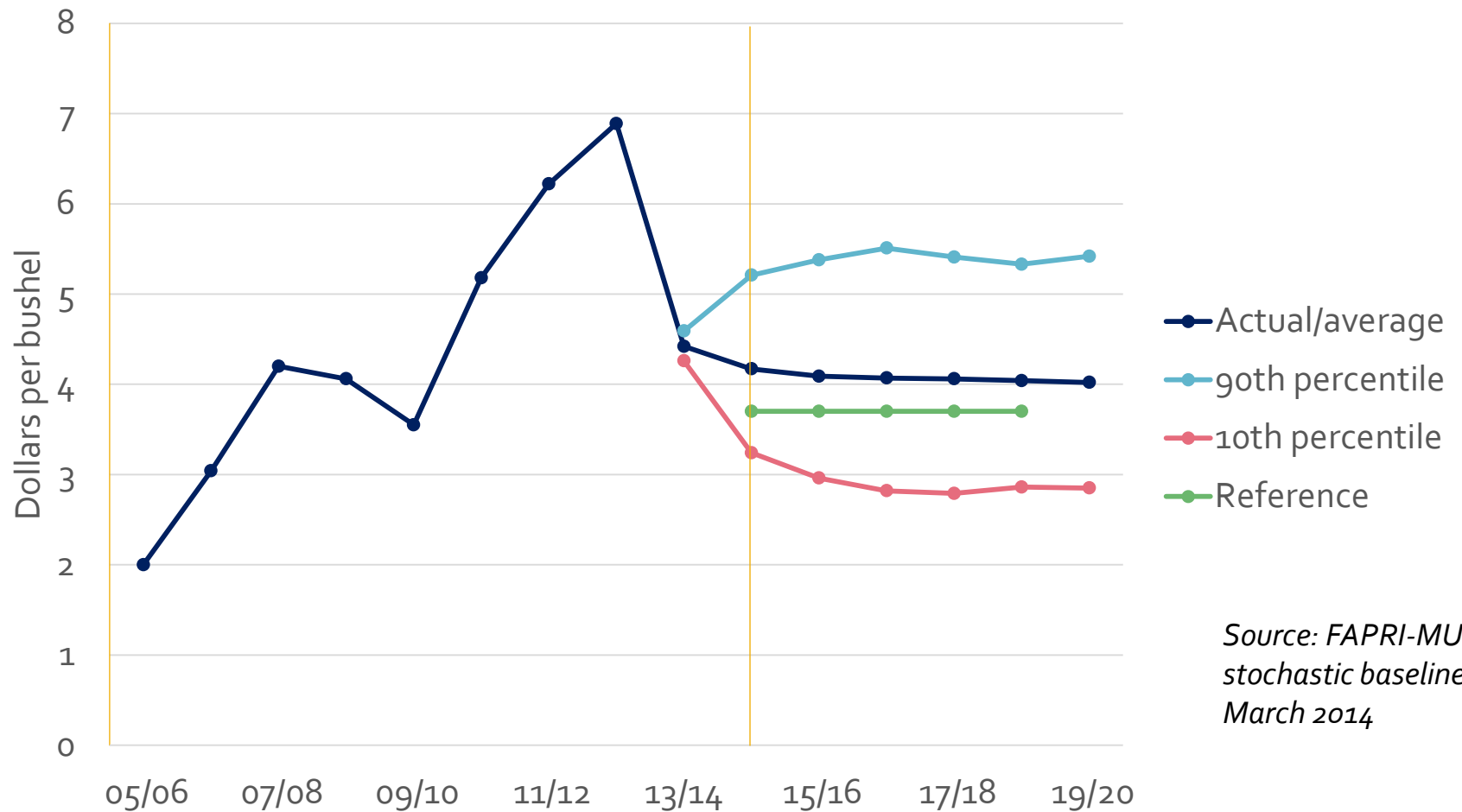
Source: FAPRI-MU
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March 2014

U.S. farm prices for corn



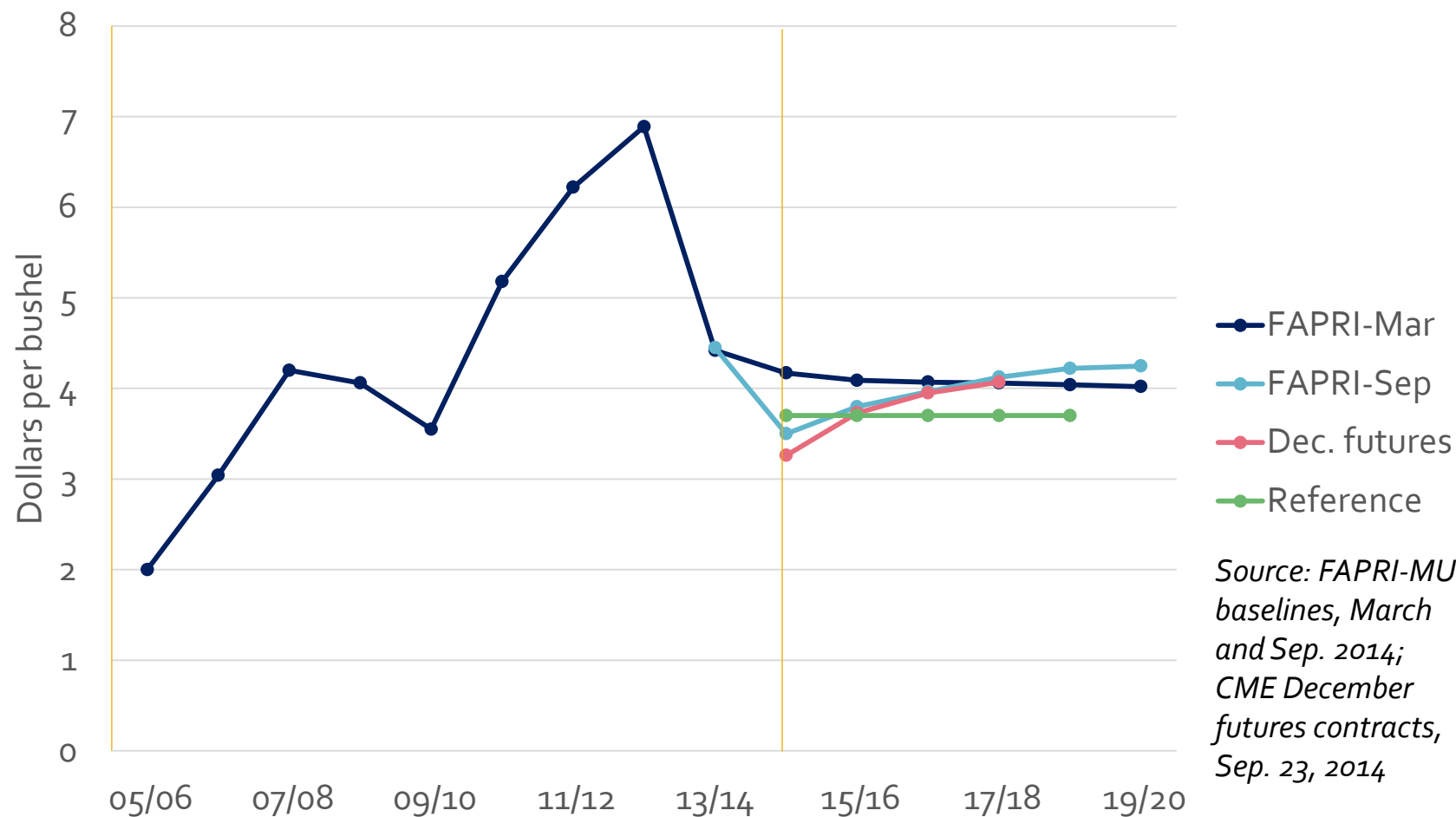
Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm prices for corn



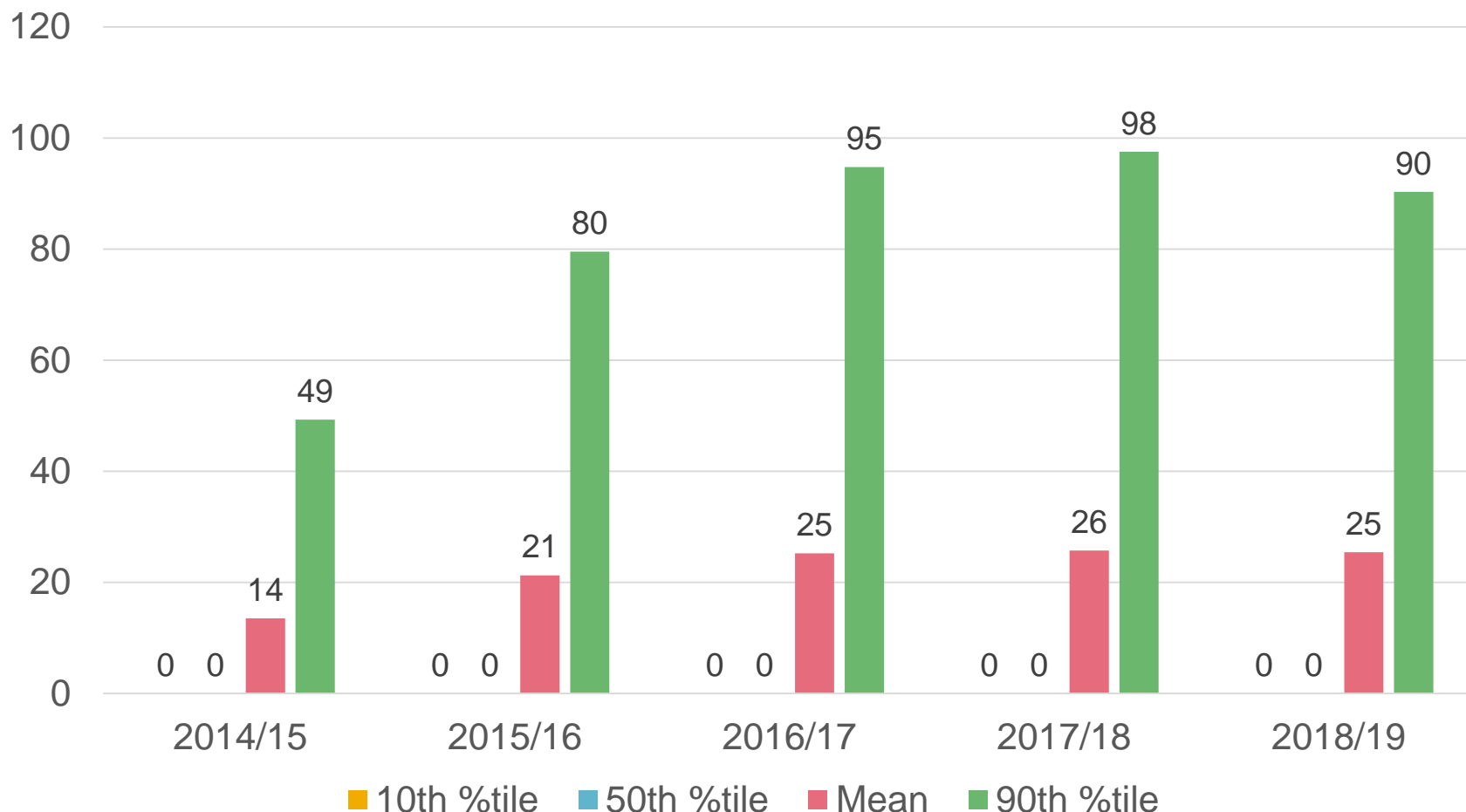
Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm and futures prices for corn



Corn PLC payments

(Dollars per base acre for participating producers)

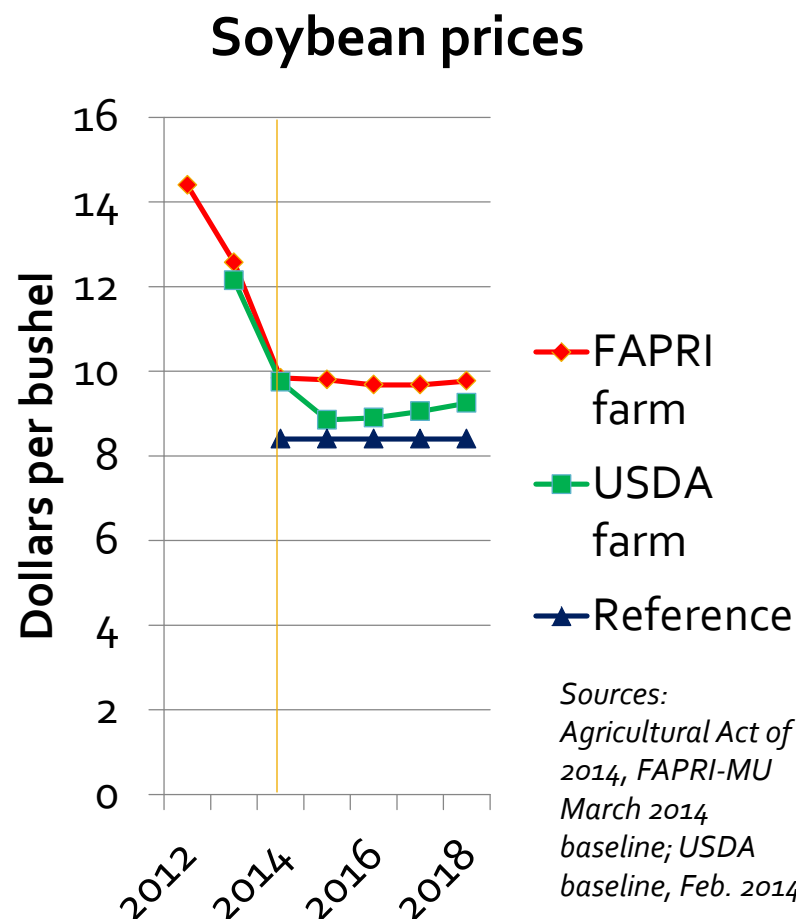


Source: FAPRI-MU March 2014 stochastic baseline

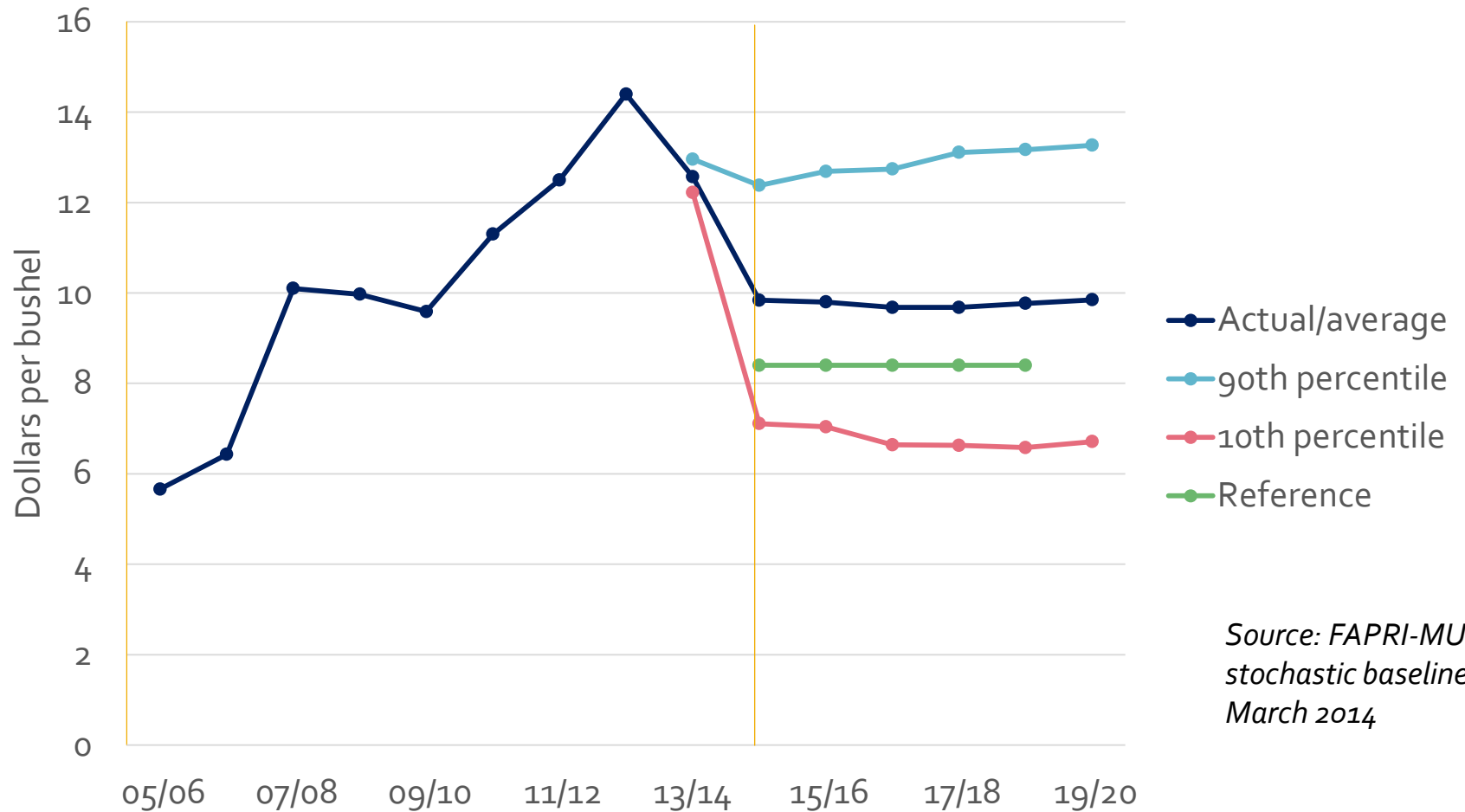
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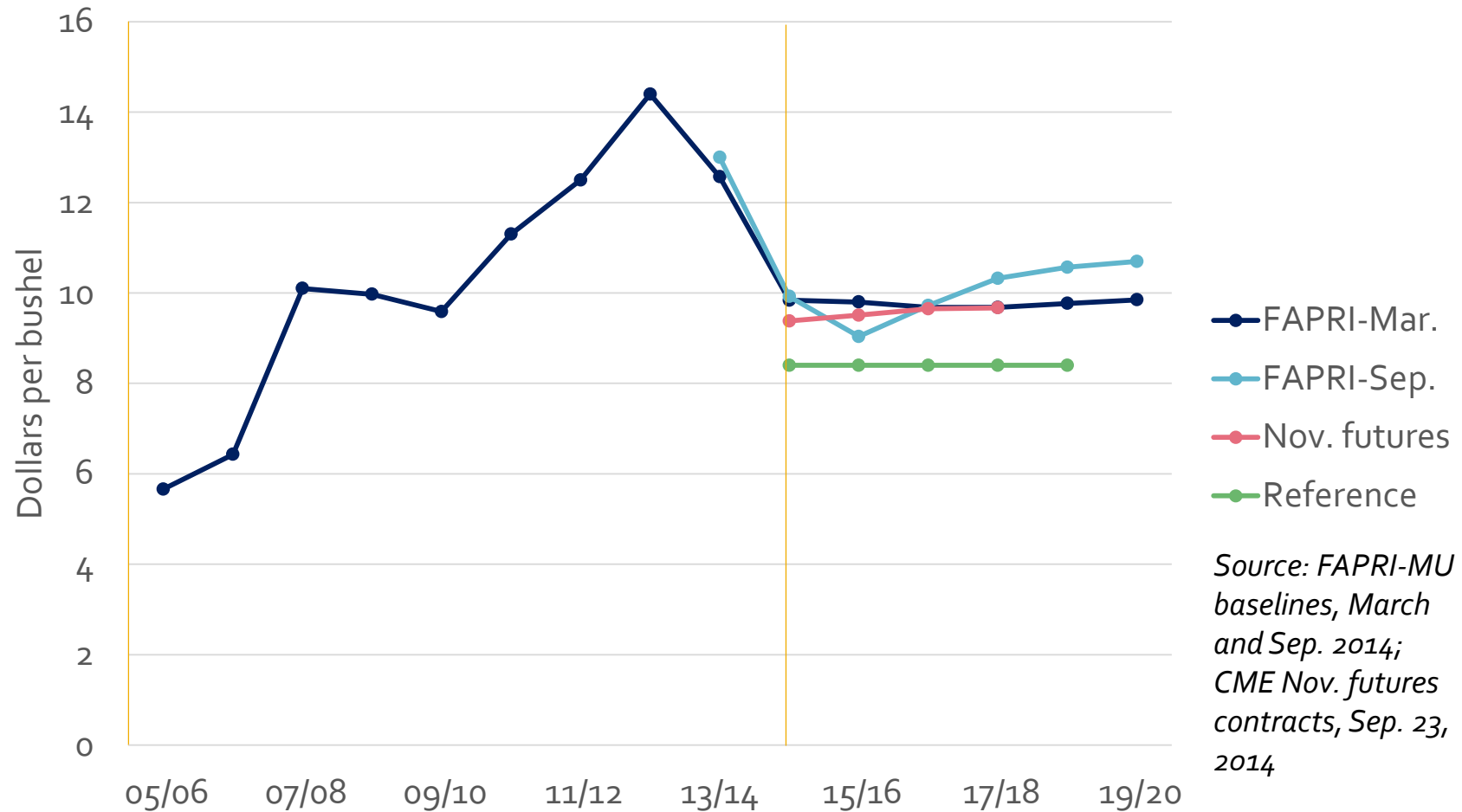


U.S. farm prices for soybeans



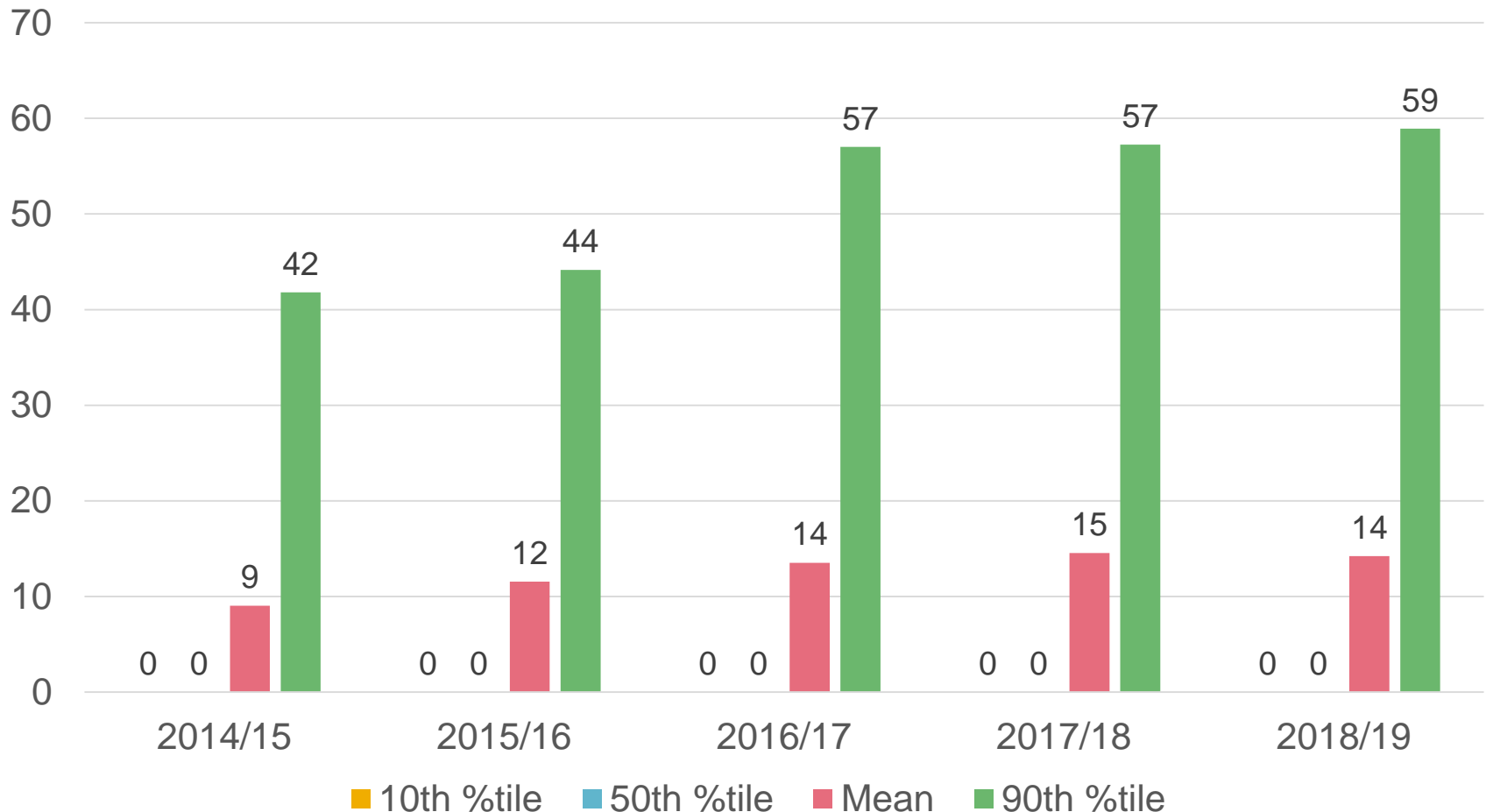
Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm and futures prices for soybeans



Soybean PLC payments

(Dollars per base acre for participating producers)



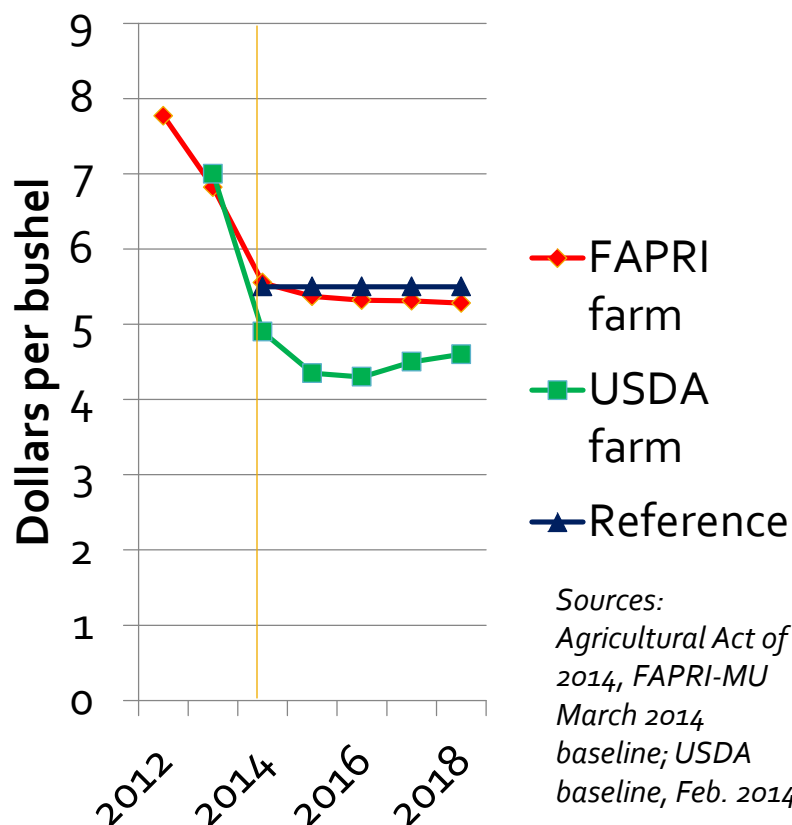
Source: FAPRI-MU March 2014 stochastic baseline

Price-based option for farm support

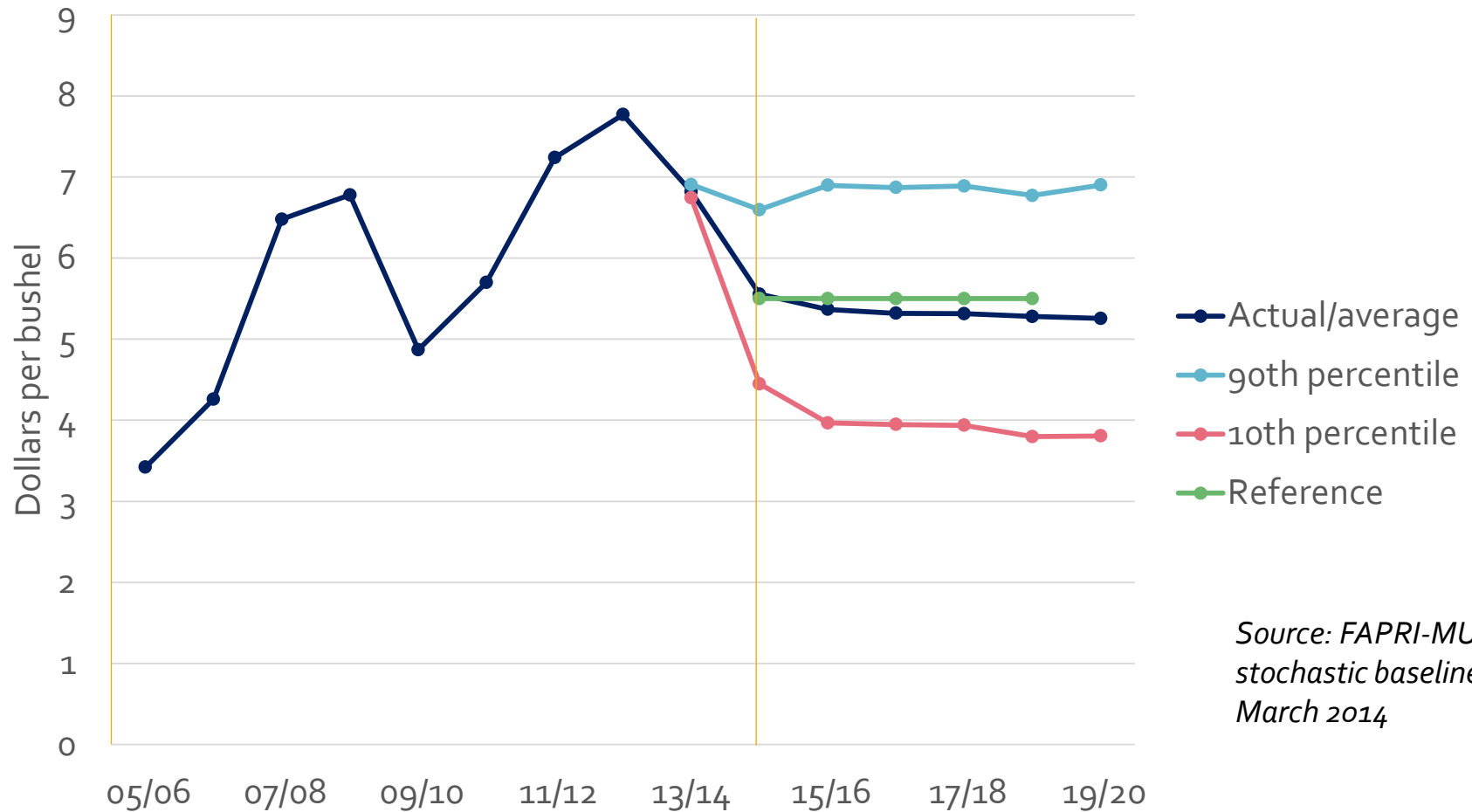
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Wheat prices

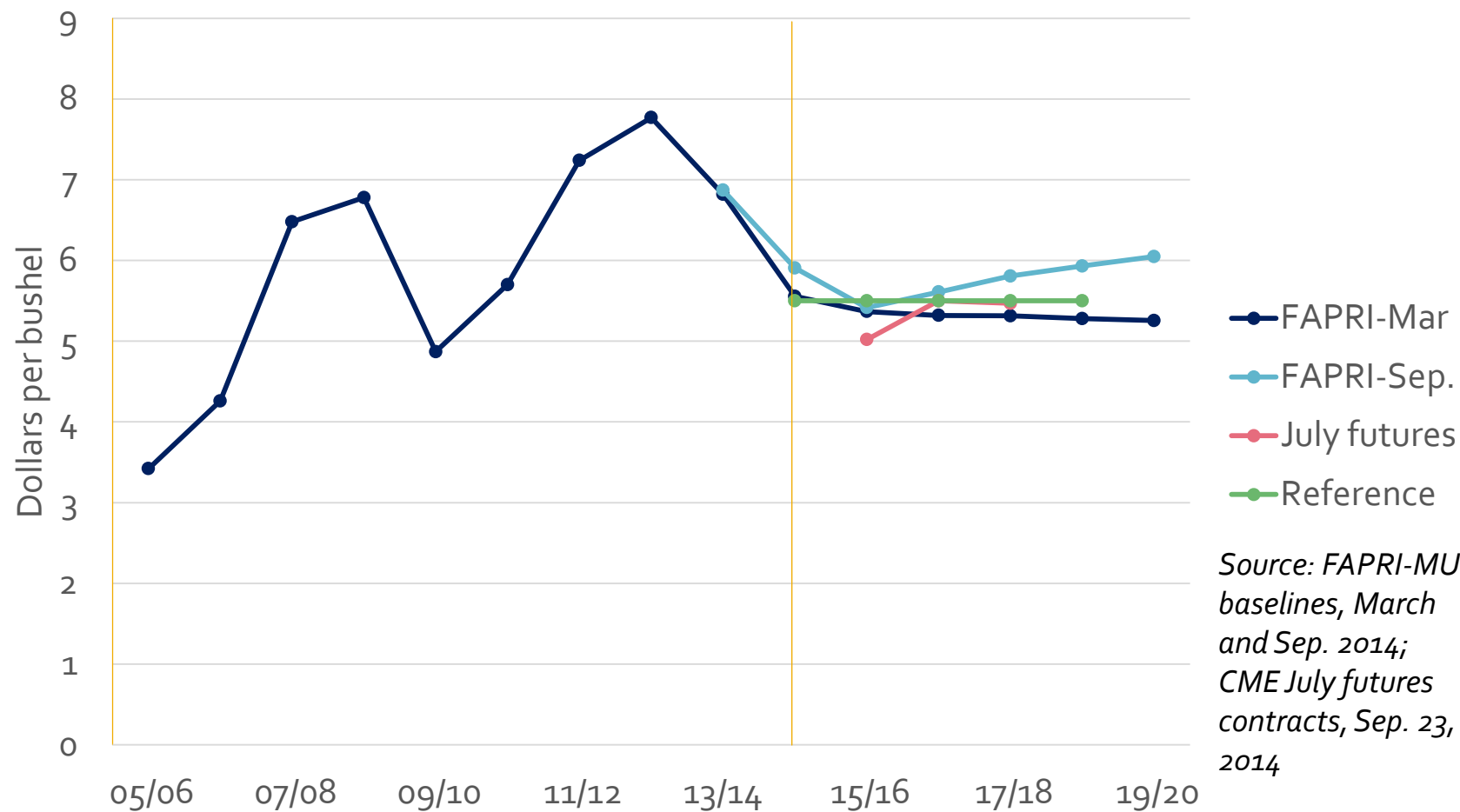


U.S. farm prices for wheat



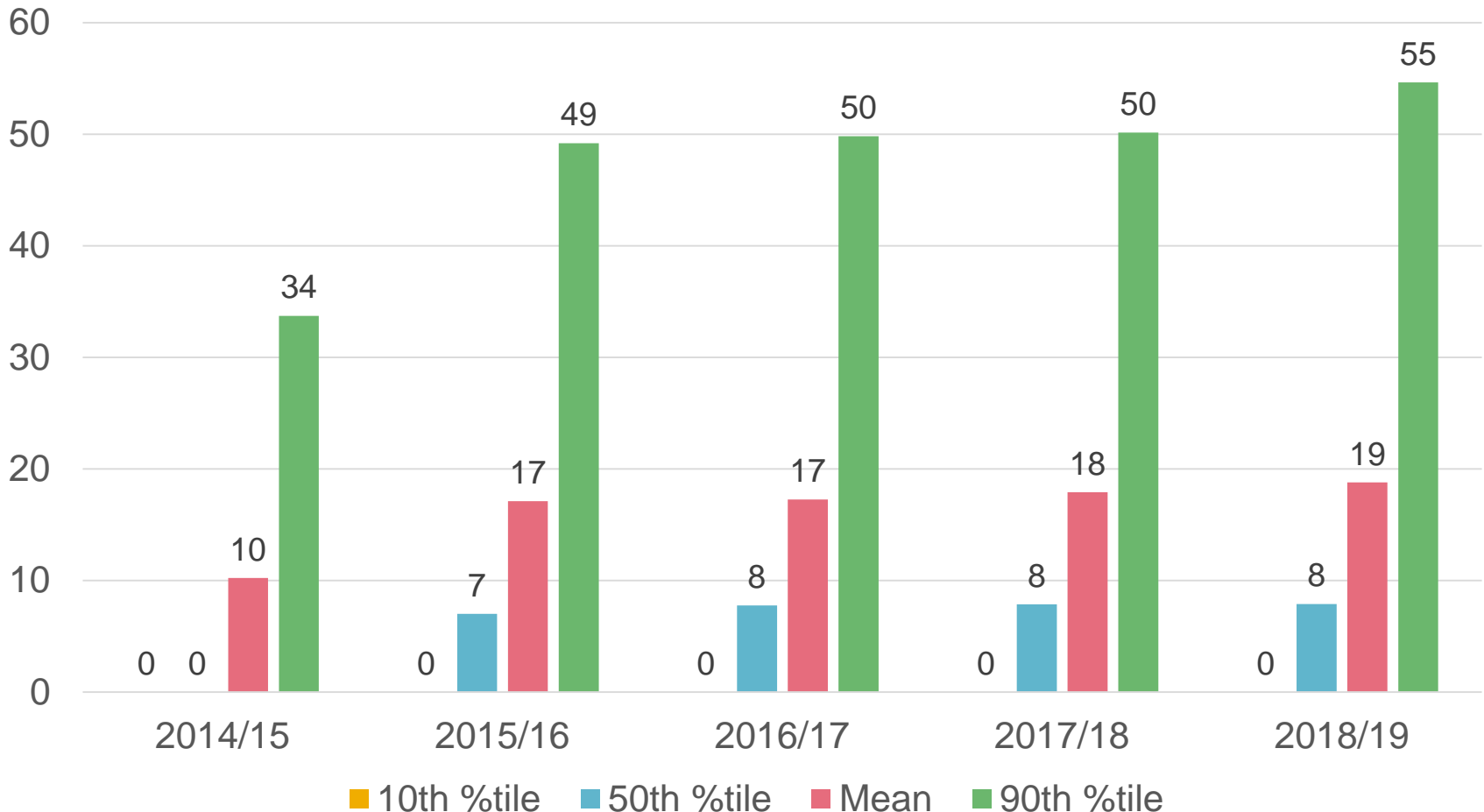
Source: FAPRI-MU
stochastic baseline,
March 2014

U.S. farm and futures prices for wheat



Wheat PLC payments

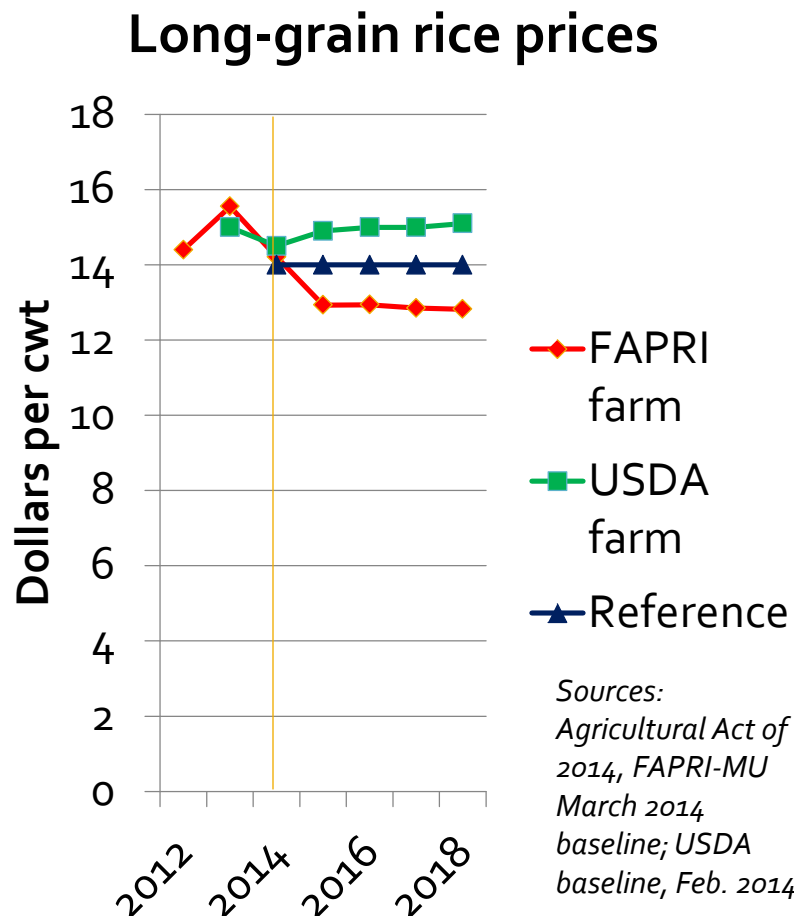
(Dollars per base acre for participating producers)



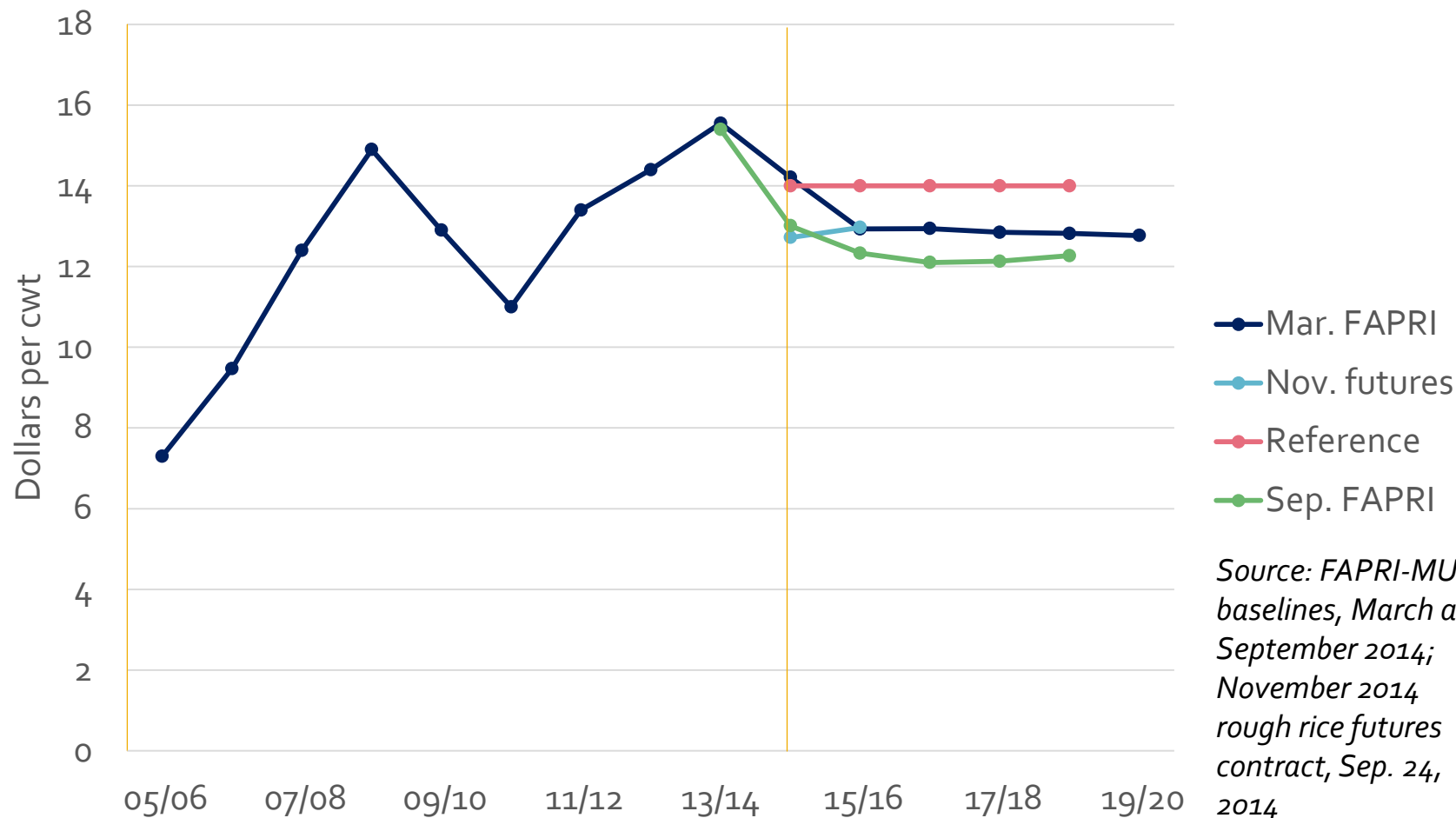
Source: FAPRI-MU March 2014 stochastic baseline

Price-based option for farm support

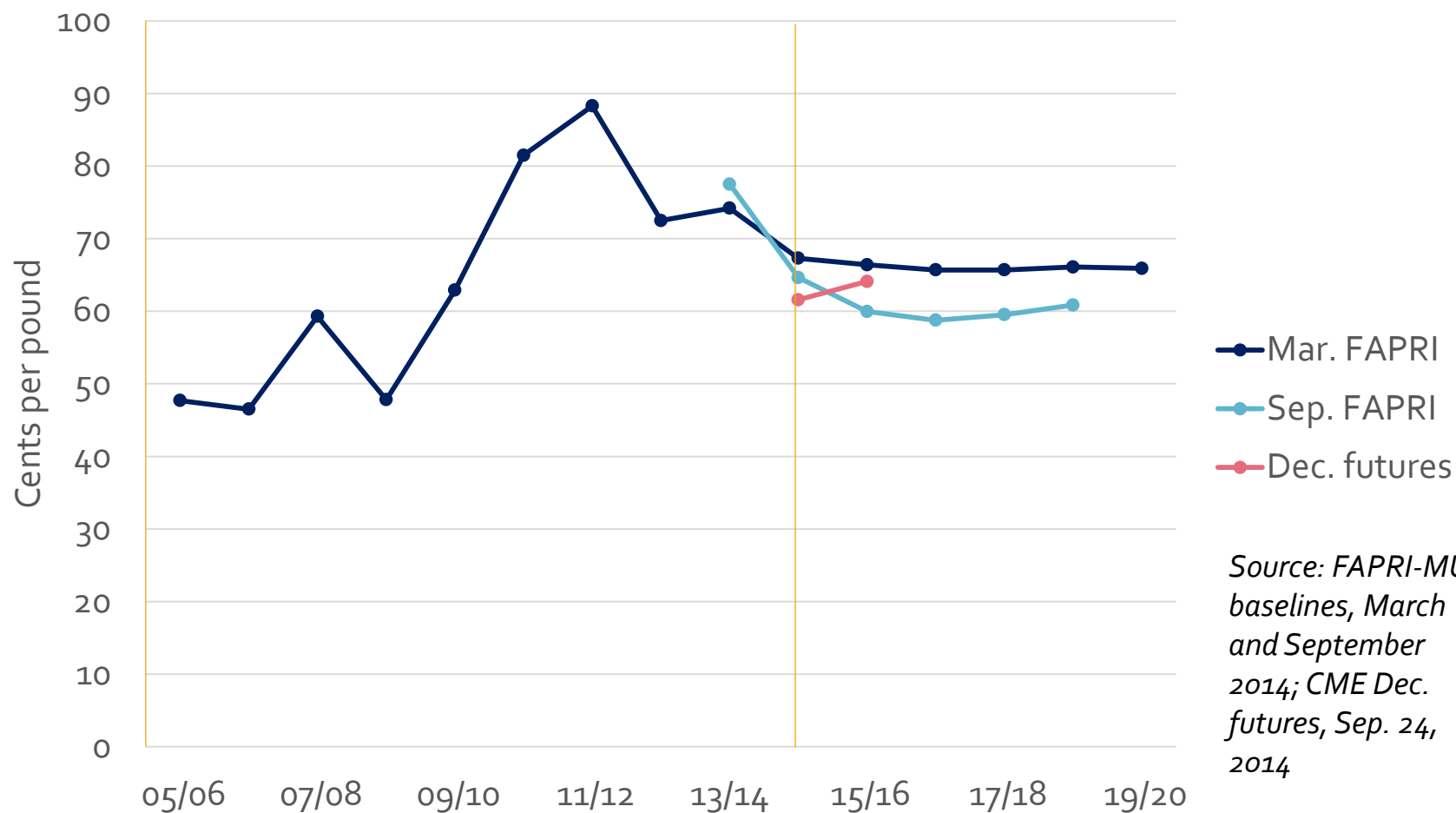
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U.S. farm prices for long-grain rice



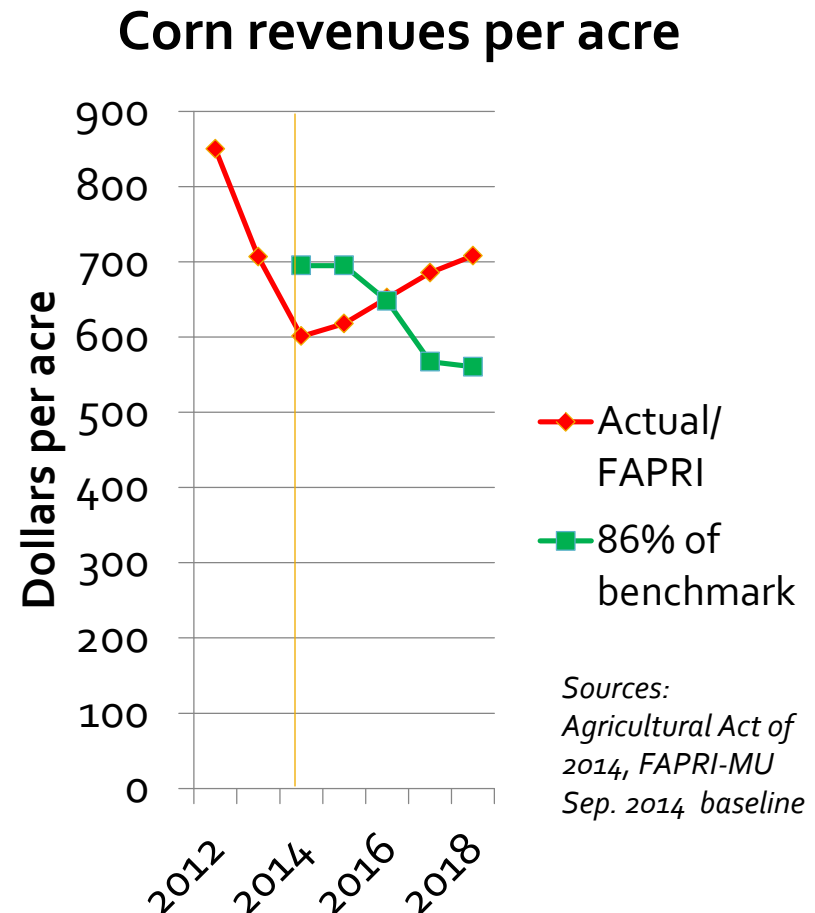
U.S. farm prices for upland cotton



Source: FAPRI-MU
baselines, March
and September
2014; CME Dec.
futures, Sep. 24,
2014

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)



ARC-CO calculation example

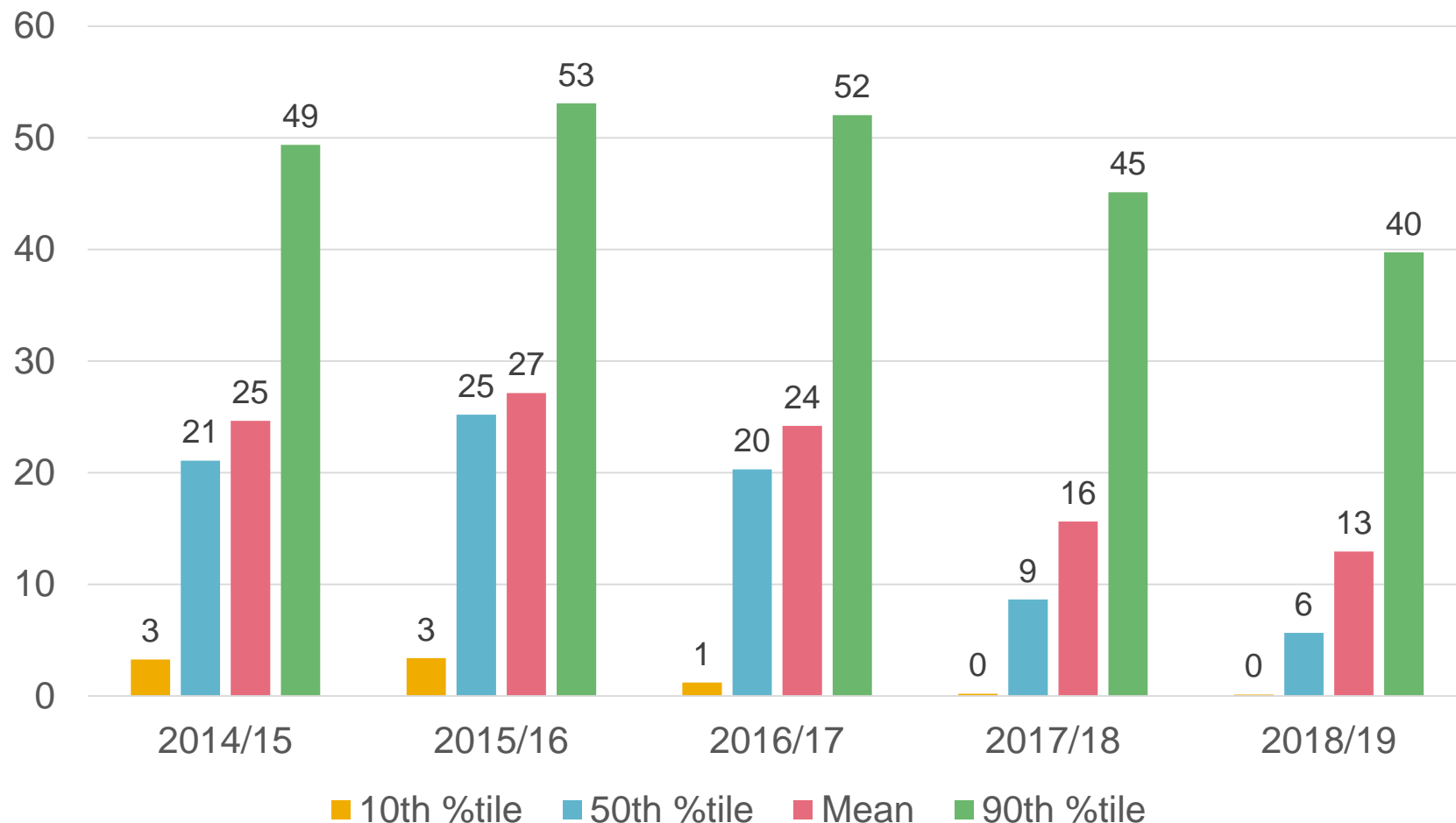
Audrain Co., MO corn, using NASS yields

	Max of (national avg. farm price, reference price)	County yield	Revenue
2009/10	\$3.70/bu.	146.0 bu./a.	
2010/11	\$5.18	122.3	
2011/12	\$6.22	105.2	
2012/13	\$6.89	33.4*	
2013/14	\$4.45	124.3	
Olympic average	\$5.28	117.3	
2014/15 benchmark revenue			\$620
86% of benchmark			\$533
1 st option triggering payments	\$3.90	<137	<\$533
2 nd option triggering payments	<\$3.55	150	<\$533

*Note: this yield would be replaced by a plug yield, but regardless, it is dropped as the lowest of the five years.

Corn ARC payments

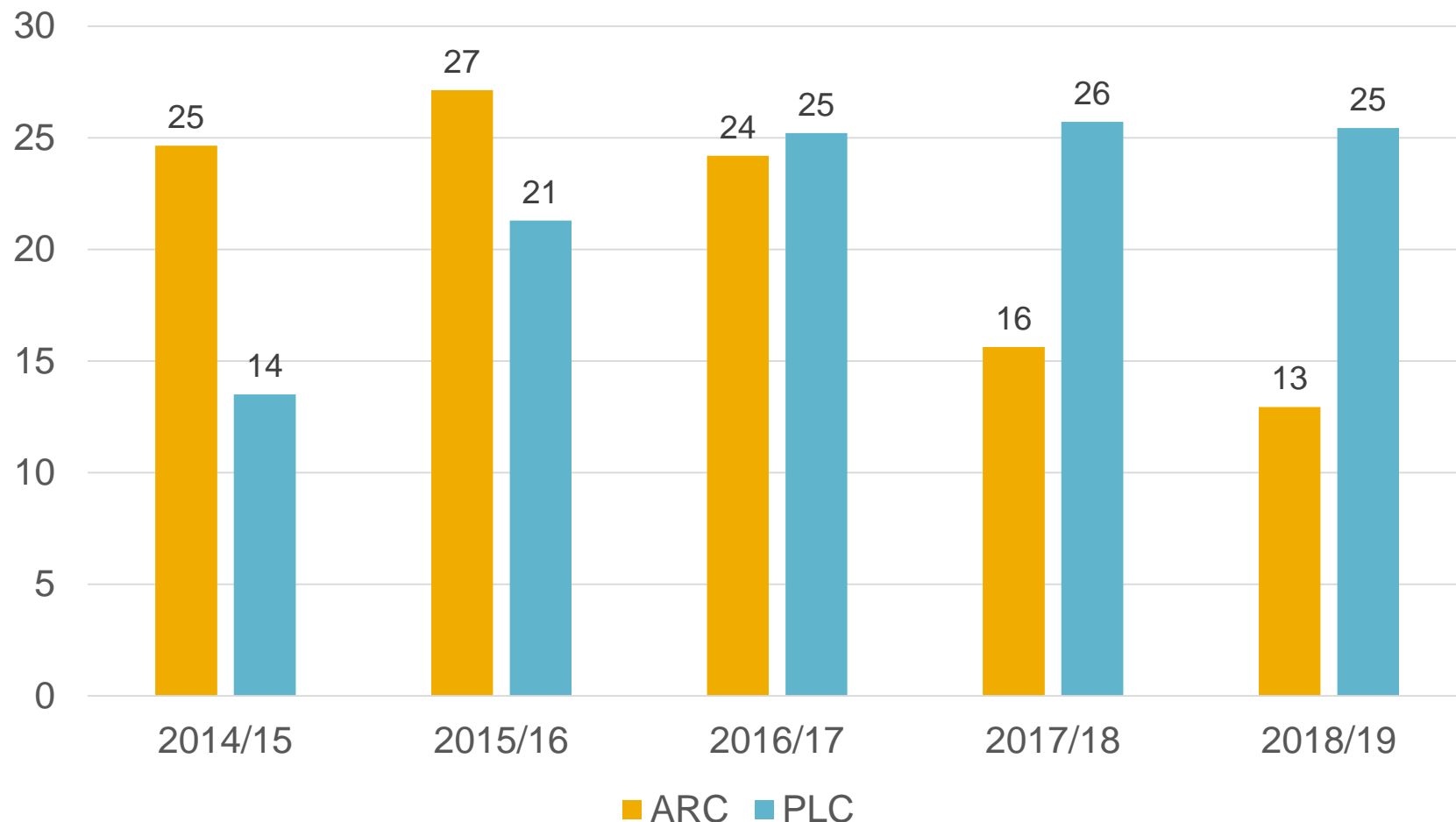
(Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

Avg. corn ARC and PLC payments

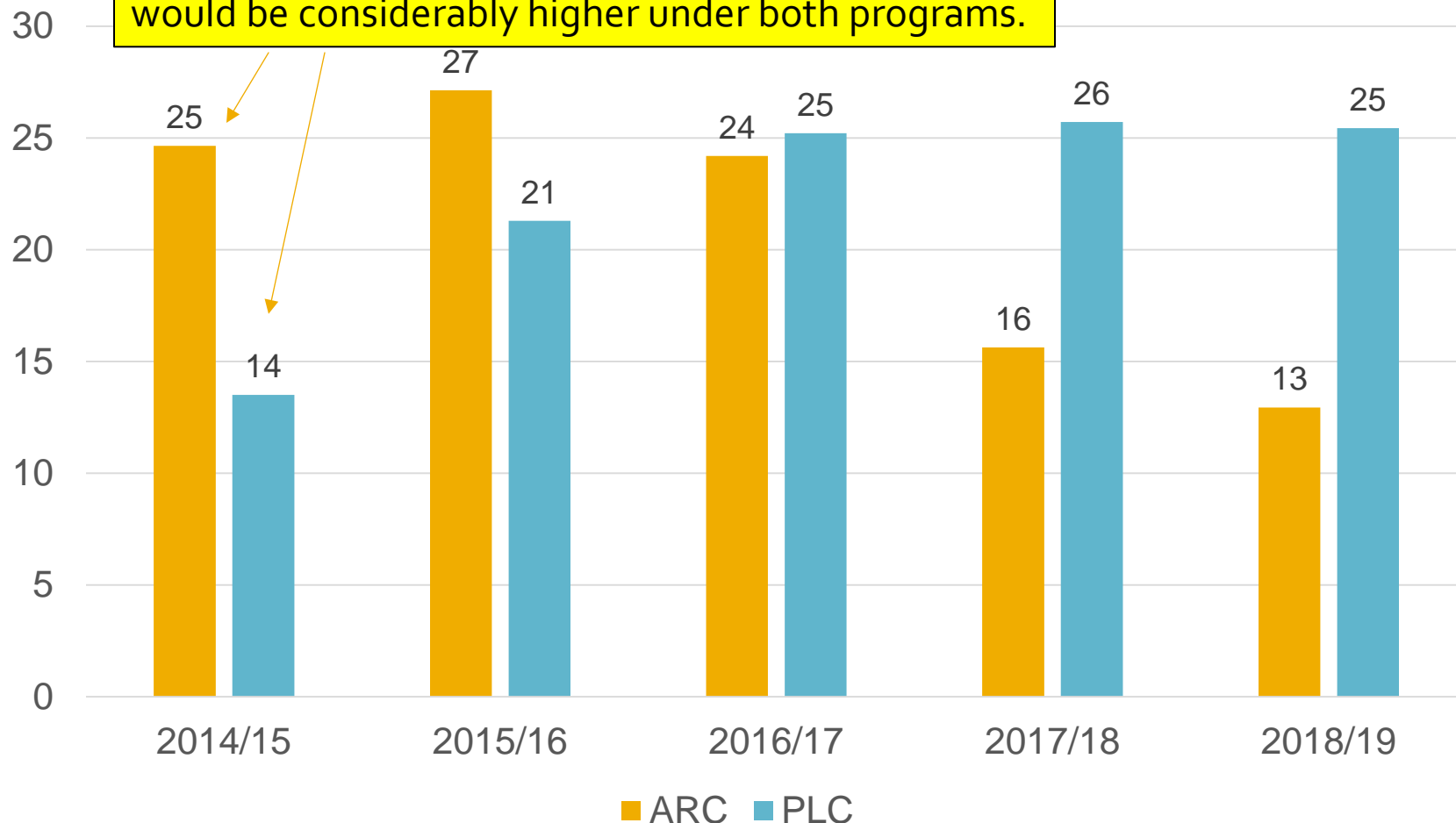
(Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

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

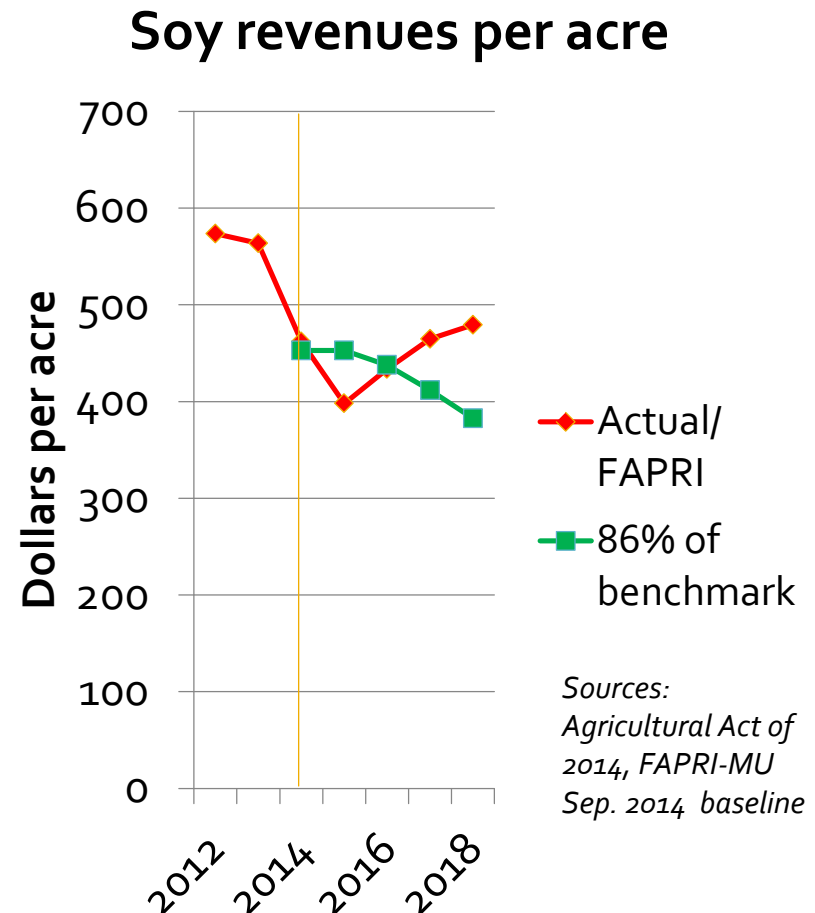
Given Sep. baseline prices, 2014 expected payments would be considerably higher under both programs.



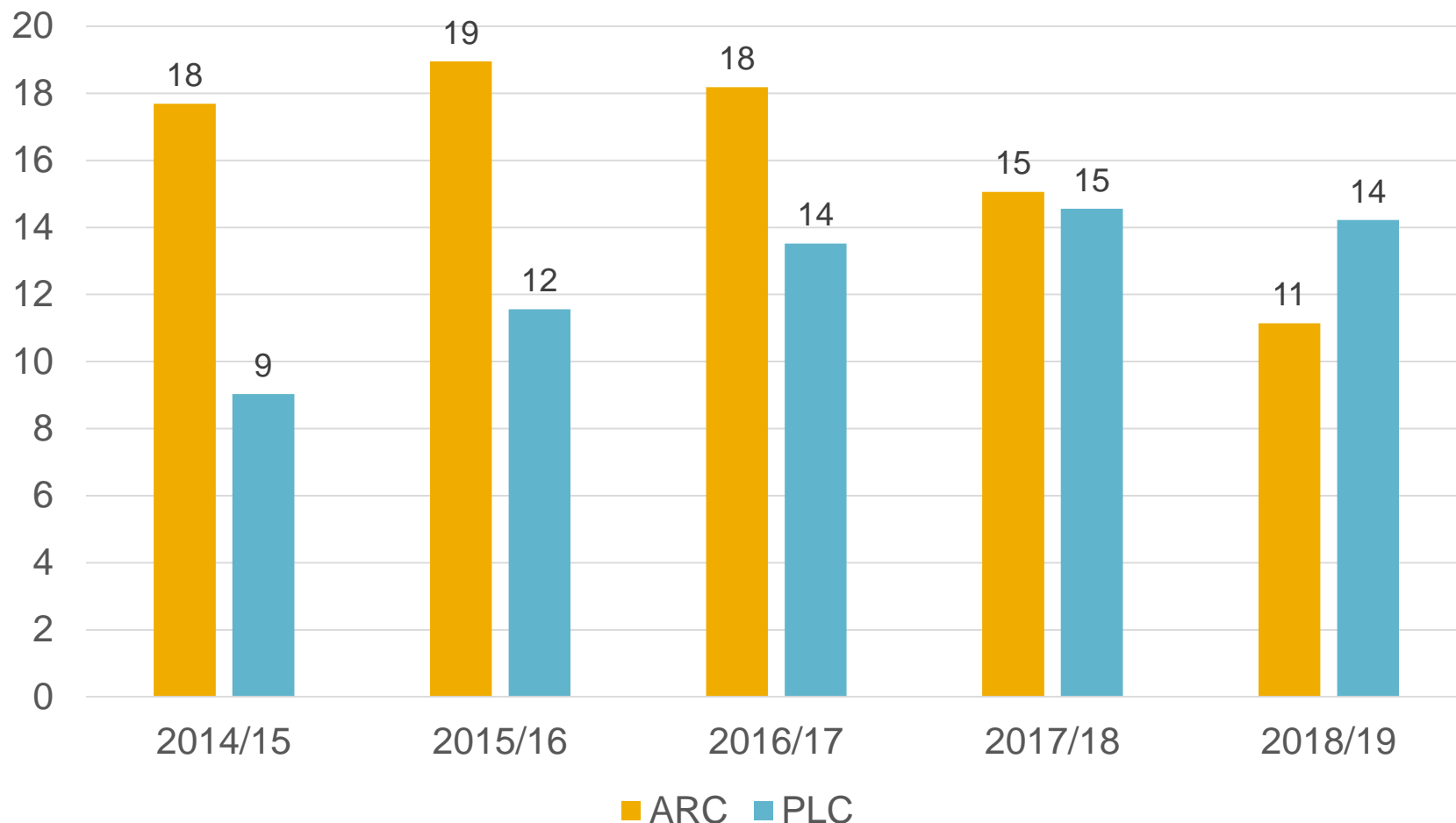
Source: FAPRI-MU March 2014 stochastic baseline

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)



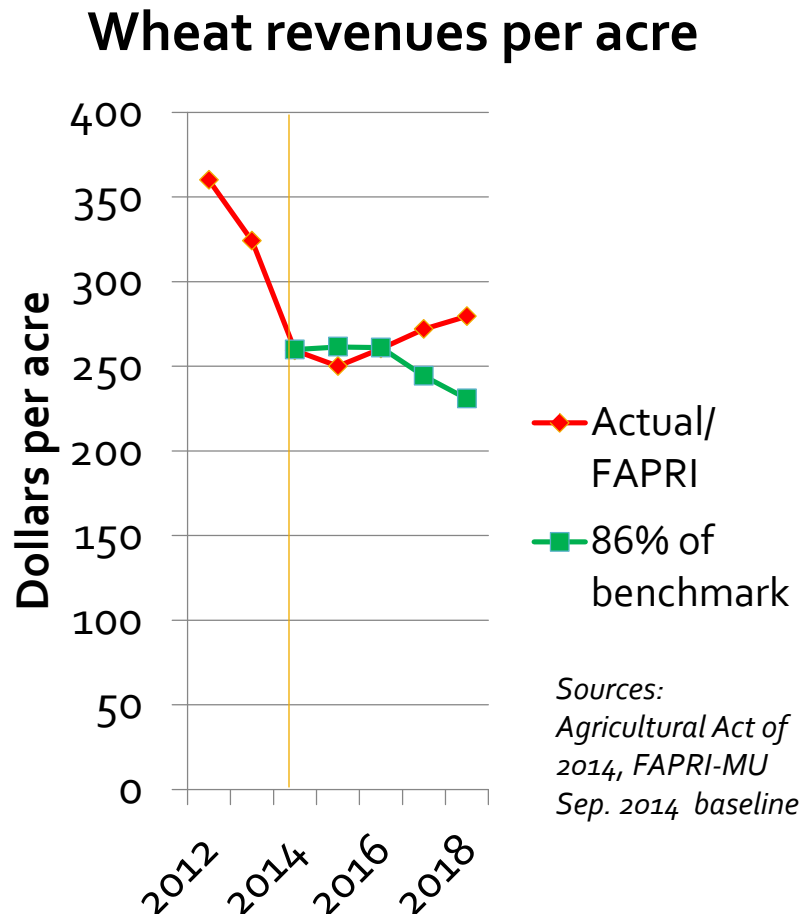
Avg. soybean ARC and PLC payments (Dollars per base acre for participating producers)



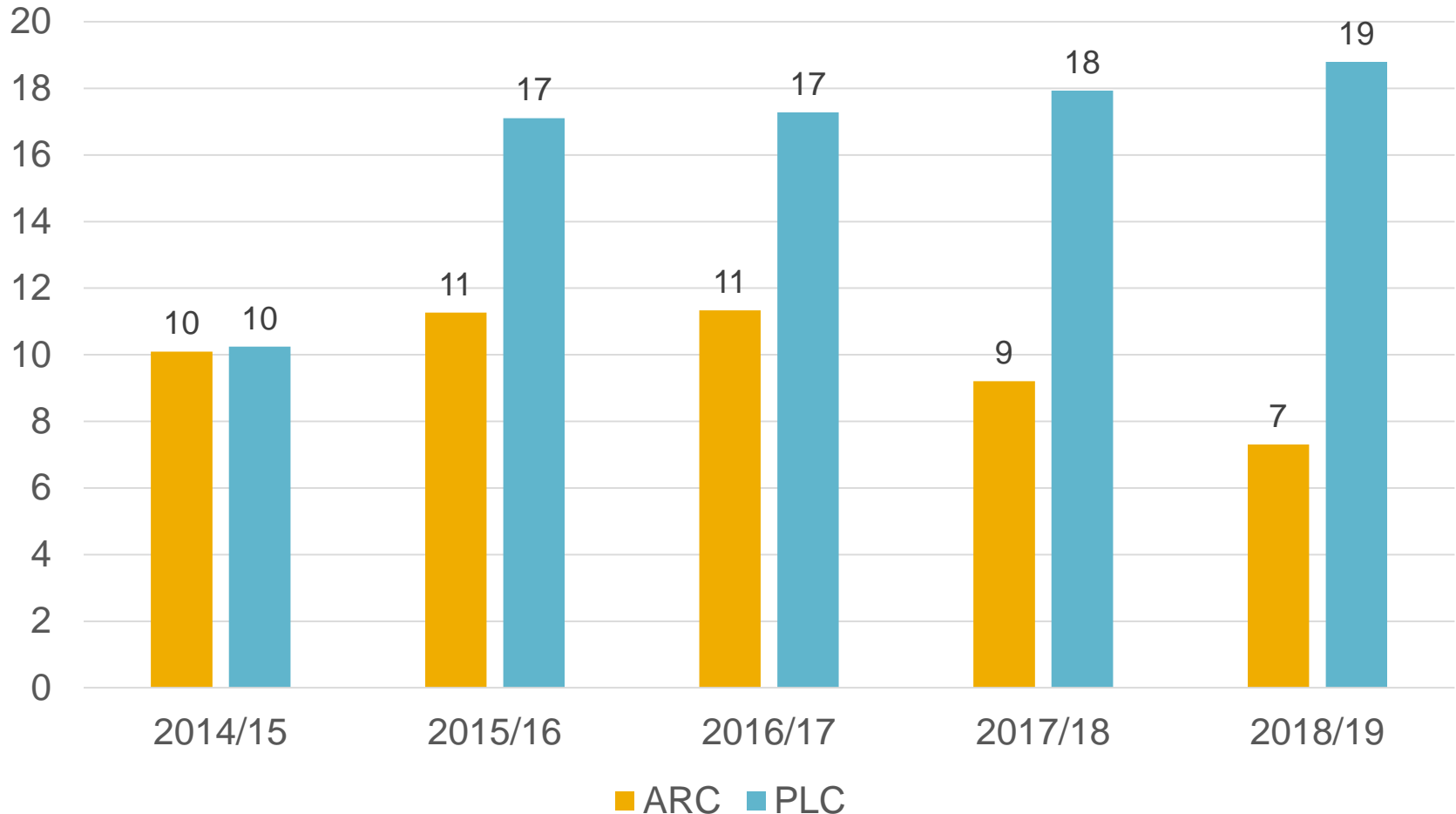
Source: FAPRI-MU March 2014 stochastic baseline

Revenue-based option for farm support

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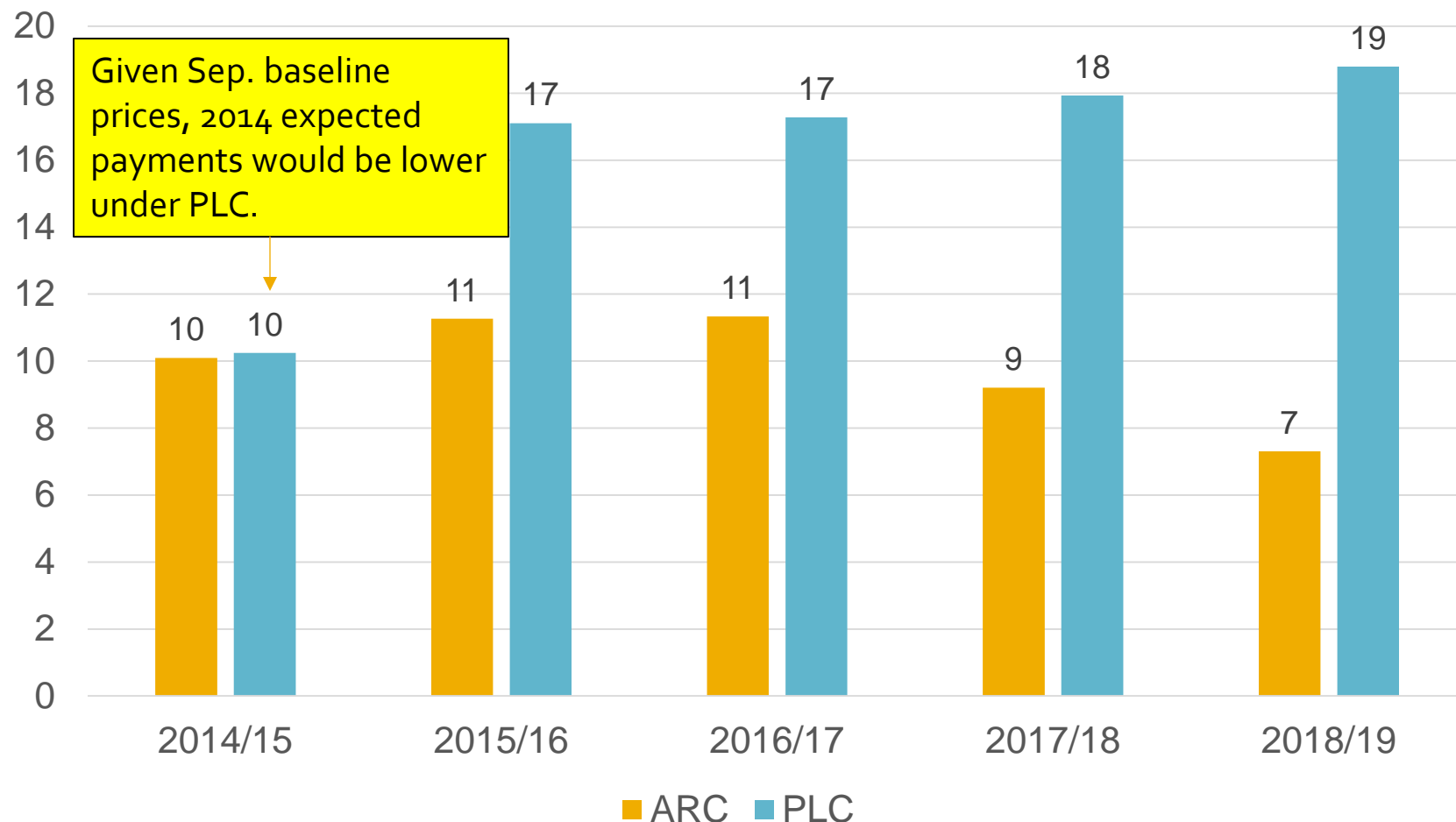
Avg. wheat ARC and PLC payments (Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

Avg. wheat ARC and PLC payments

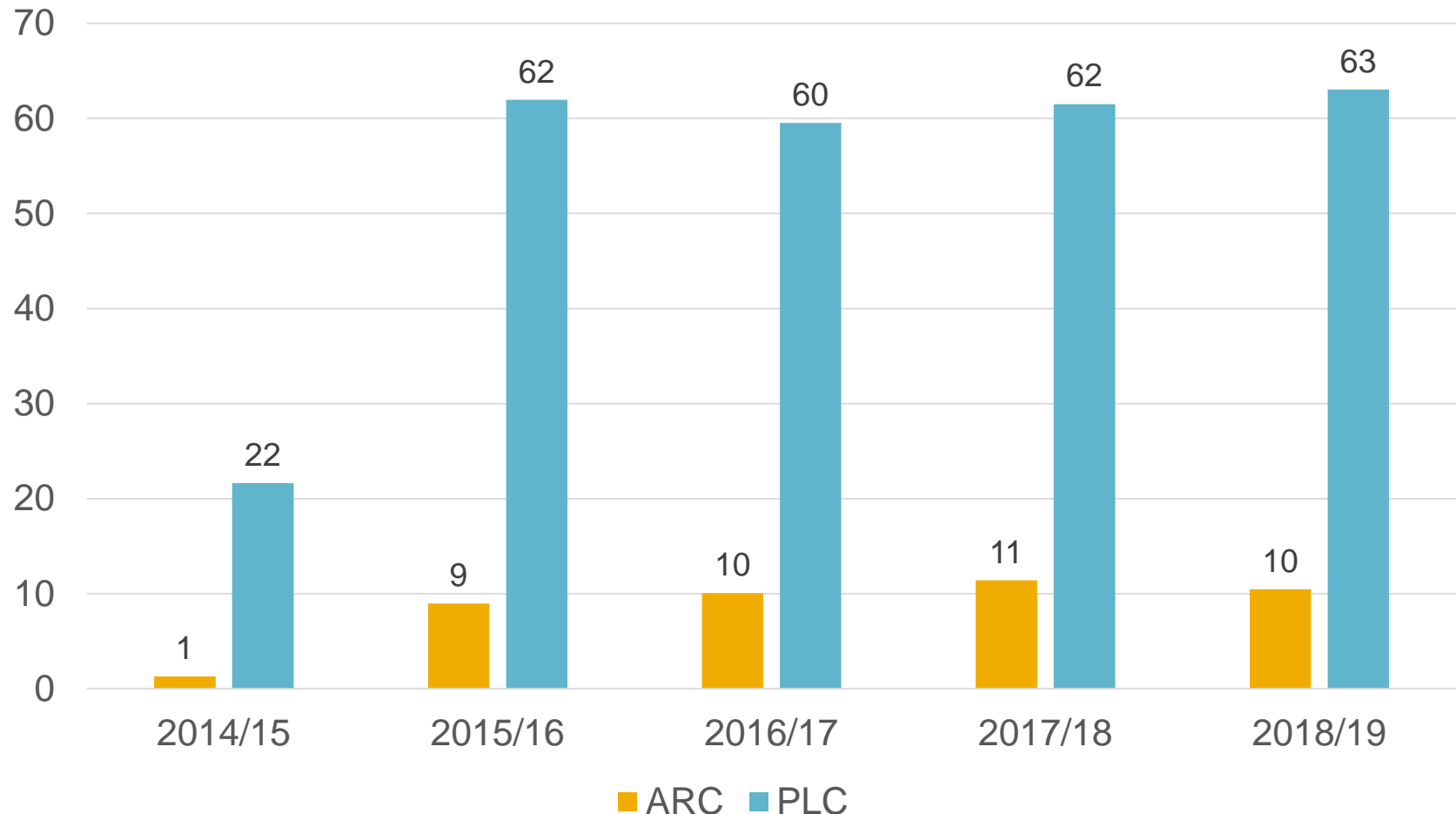
(Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

Avg. rice ARC and PLC payments

(Dollars per base acre for participating producers)



Source: FAPRI-MU March 2014 stochastic baseline

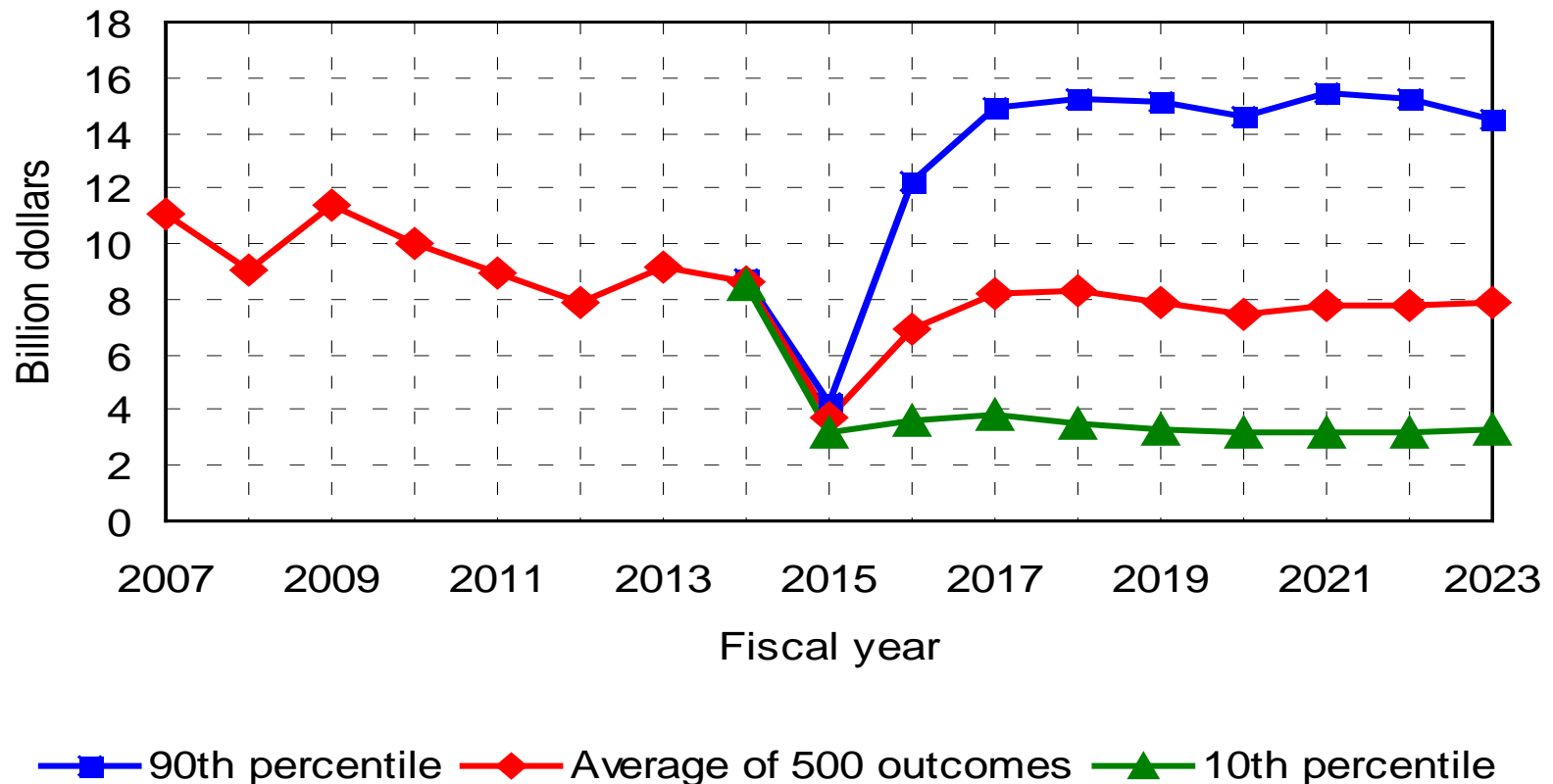
Back to Audrain Co., MO corn

2014/15 crop year payments

2014/15 national season- average corn price	PLC payment per base acre (program yield= 100 bu./a.)	ARC payment per base acre if county yield is 110 bu./a.	ARC payment per base acre if county yield is 130 bu./a.	ARC payment per base acre if county yield is 150 bu./a.
3.00	\$59.50	\$52.66	\$52.66	\$52.66
3.20	\$42.50	\$52.66	\$52.66	\$44.90
3.40	\$25.50	\$52.66	\$52.66	\$19.40
3.60	\$8.50	\$52.66	\$52.66	\$0.00
3.80	\$0.00	\$52.66	\$33.00	\$0.00
4.00	\$0.00	\$52.66	\$10.90	\$0.00
4.20	\$0.00	\$52.66	\$0.00	\$0.00
4.40	\$0.00	\$41.50	\$0.00	\$0.00
4.60	\$0.00	\$22.80	\$0.00	\$0.00

With new programs, actual spending and payments uncertain

CCC net outlays could vary greatly from averages



Source: "U.S. Baseline Briefing Book," March 2014, page 49

Thanks!

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