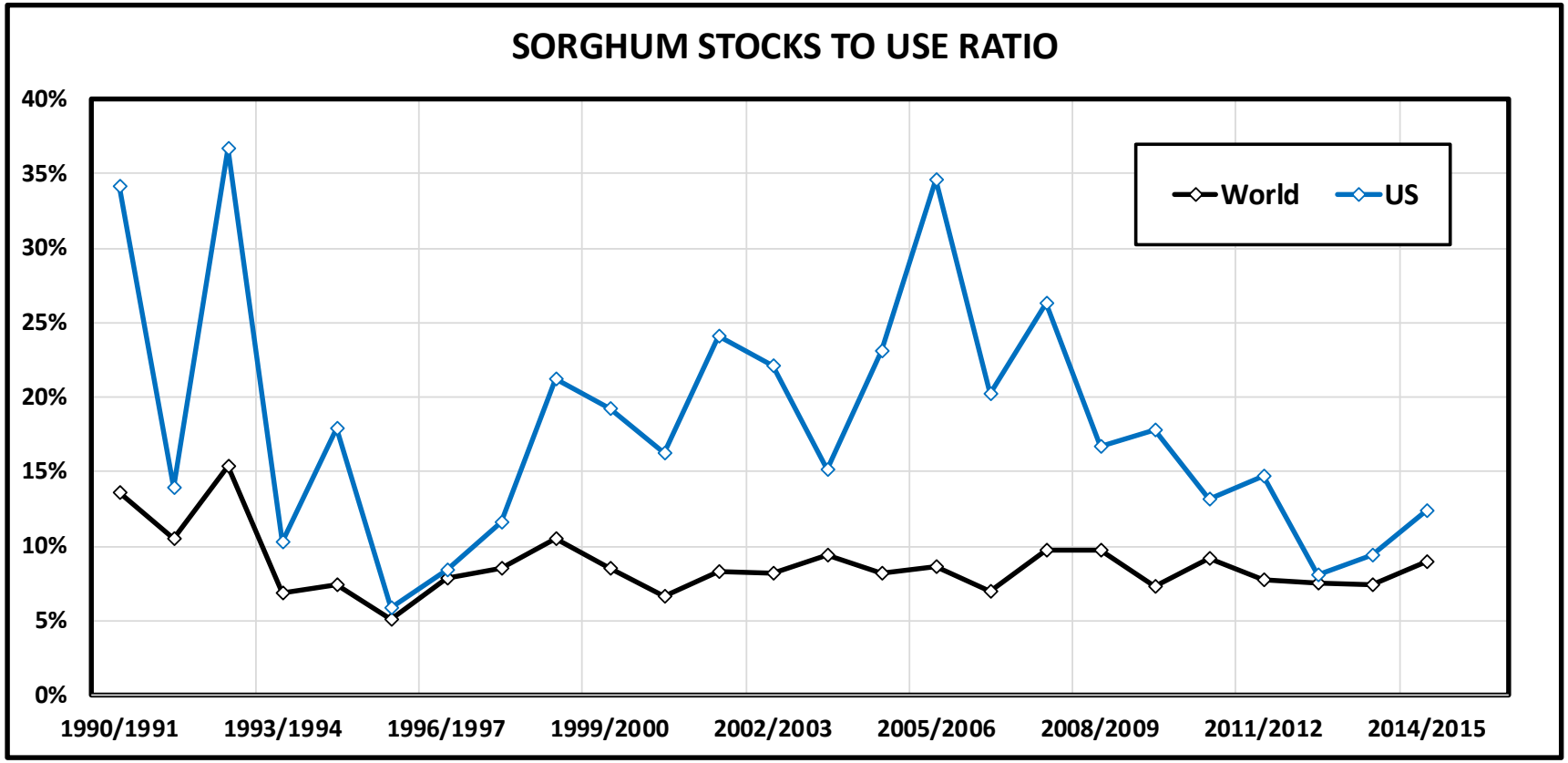
SORGHUM
PRODUCTION, SUPPLY & DISTRIBUTION
AND
PRICING

MAY 20, 2014

BILL HOLBROOK
THE PROEXPORTER NETWORK
bill.holbrook@proexporter.com

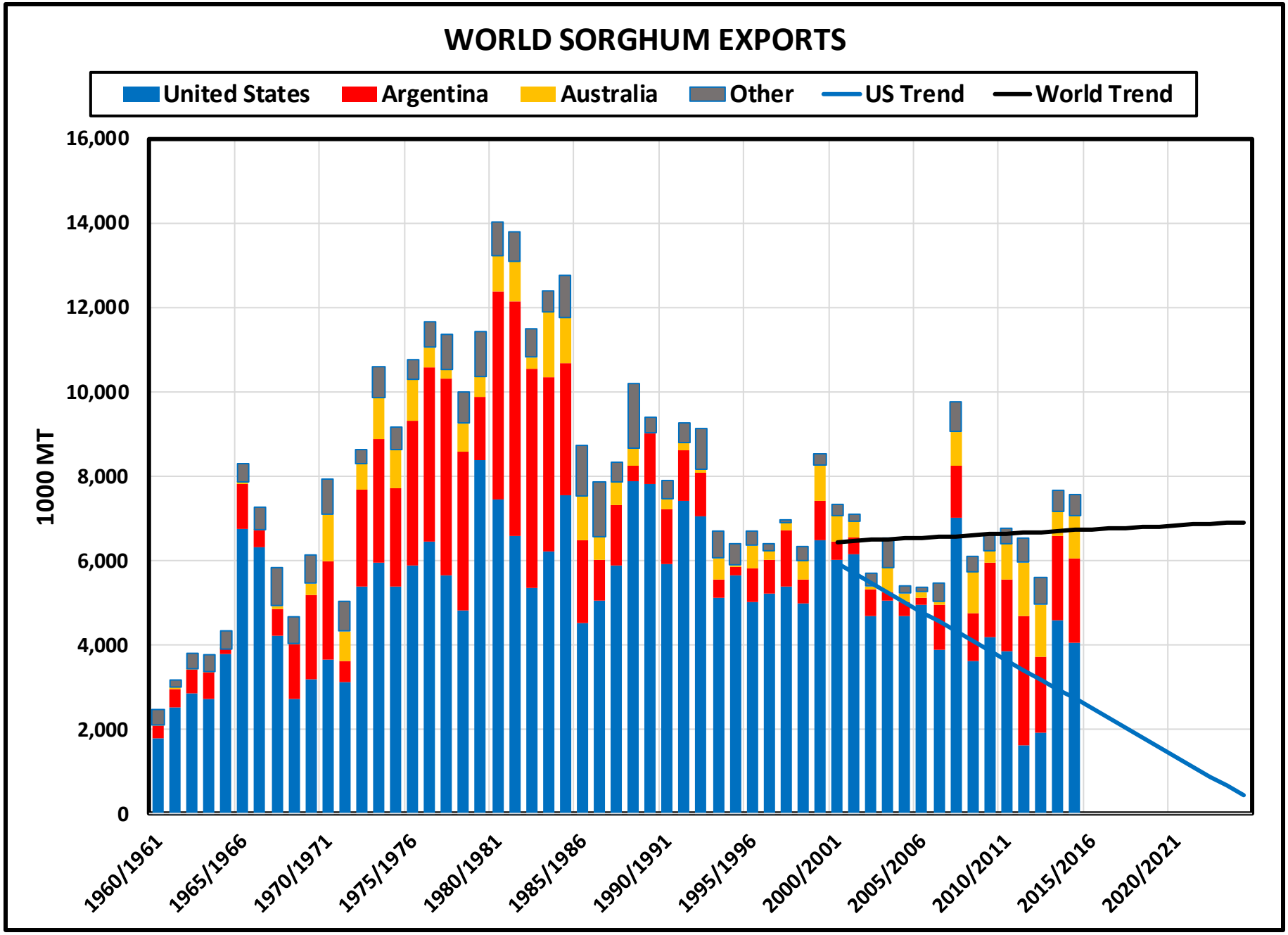
WORLD SORGHUM SUPPLY-DEMAND

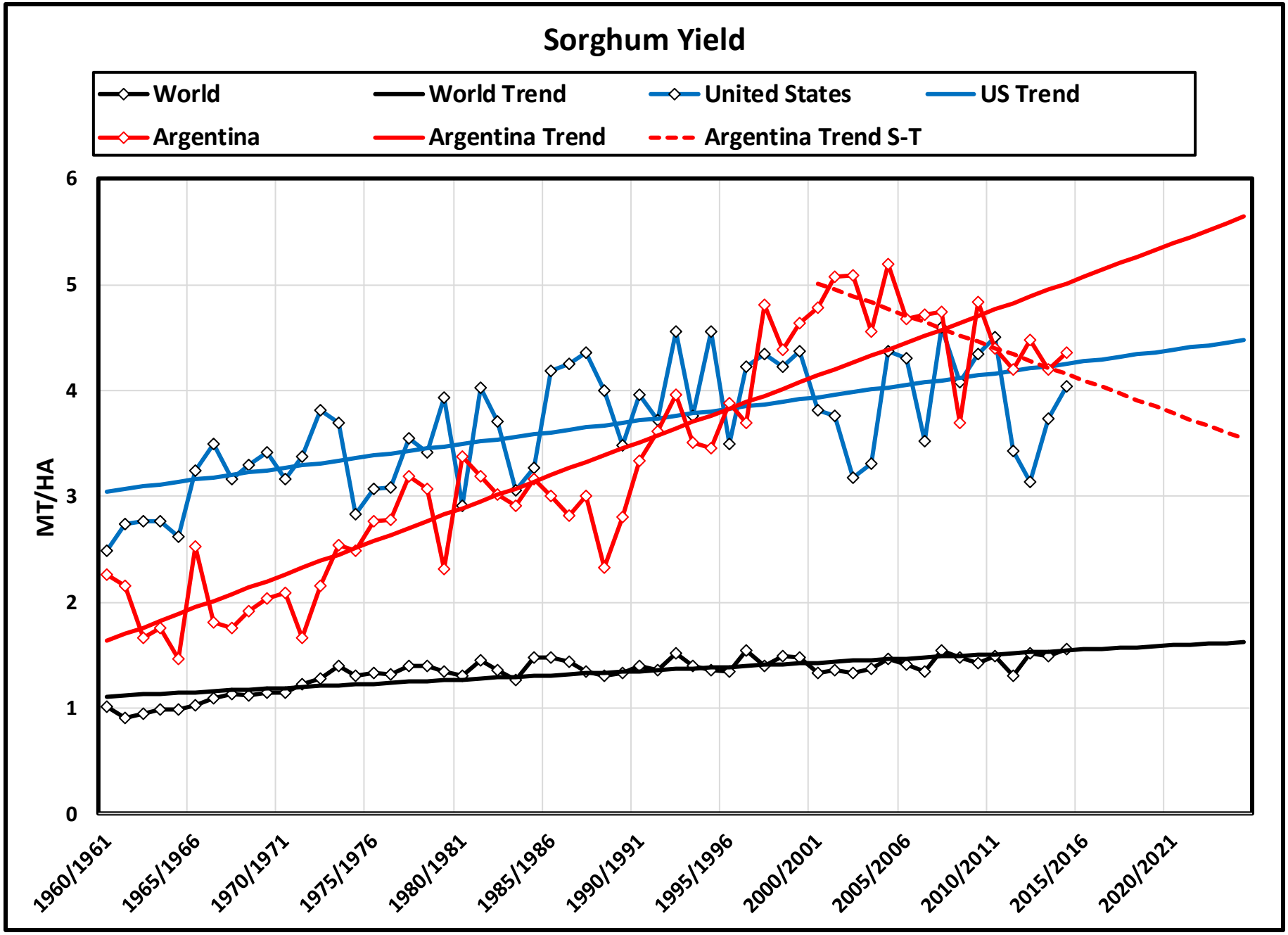
World Crop Year	Area Harvested	Yield	Production	Beginning Stocks	Imports	Supply	Exports	Food and Industrial Use	Feed and Residual Use	Domestic Consumption	Total Distribution	Ending Stocks	Ending Stocks vs. Use
	000HA	MT/HA	000mt	000mt	000mt	000mt	000mt	000mt	000mt	000mt	000mt	000mt	pct
WORLD													
10-11	41,146	1.5	61,335	4,297	6,719	72,351	6,752	33,424	26,624	60,048	72,351	5,551	9.2
11-12	43,603	1.3	57,206	5,551	5,007	67,764	6,525	33,905	22,944	56,849	67,764	4,390	7.7
12-13	38,020	1.5	57,690	4,390	6,780	68,860	5,601	34,347	24,493	58,840	68,860	4,419	7.5
13-14	40,371	1.5	60,143	4,419	7,070	71,632	7,652	33,206	26,356	59,562	71,632	4,418	7.4
14-15	40,624	1.6	62,814	4,994	6,905	74,713	7,554	35,288	26,344	61,632	74,713	5,527	9.0
Change versus previous year													
	253	0	2,671	575	(165)	3,081	(98)	2,082	(12)	2,070	3,081	1,109	1.6

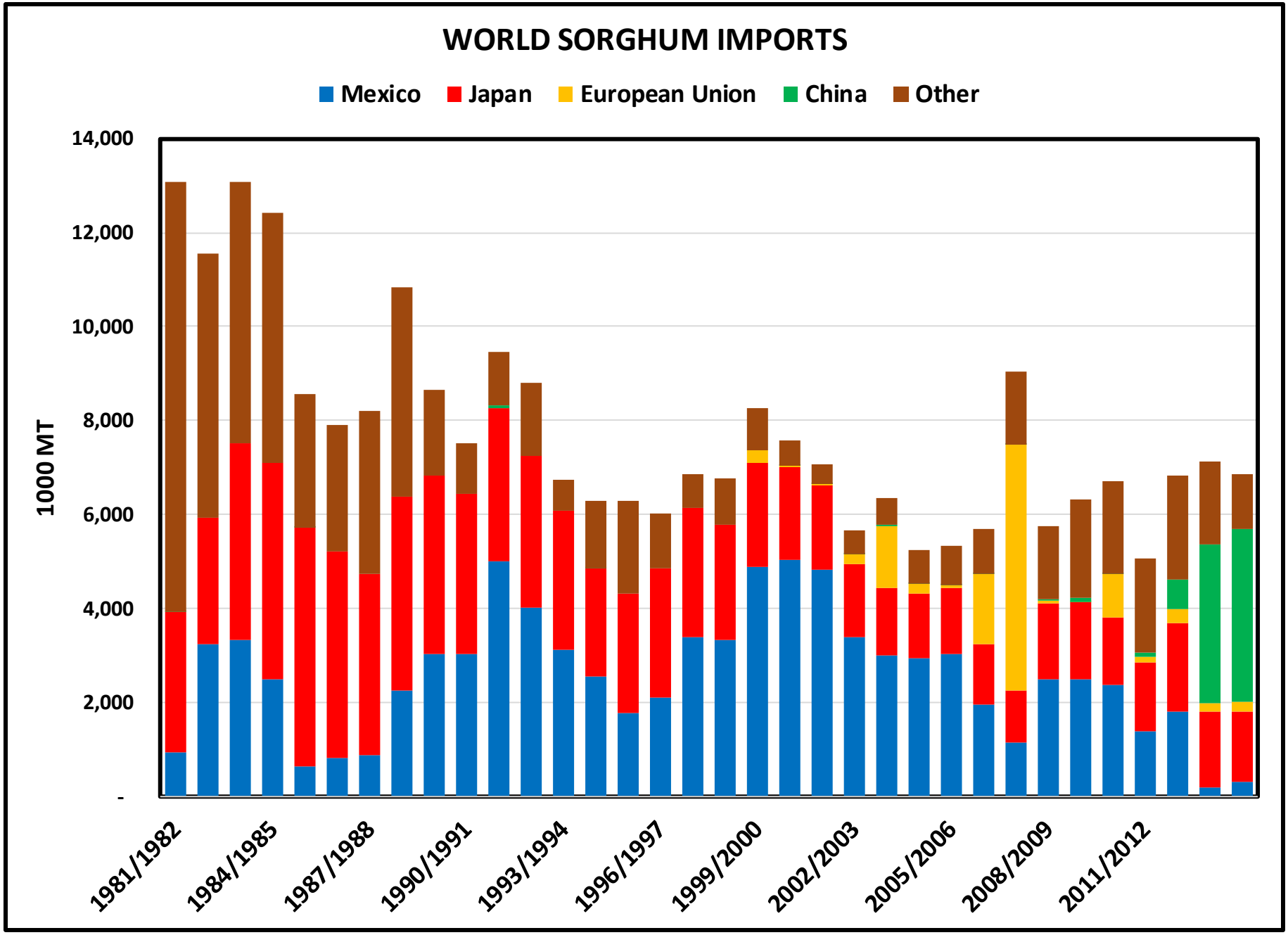


WORLD SORGHUM SUPPLY-DEMAND

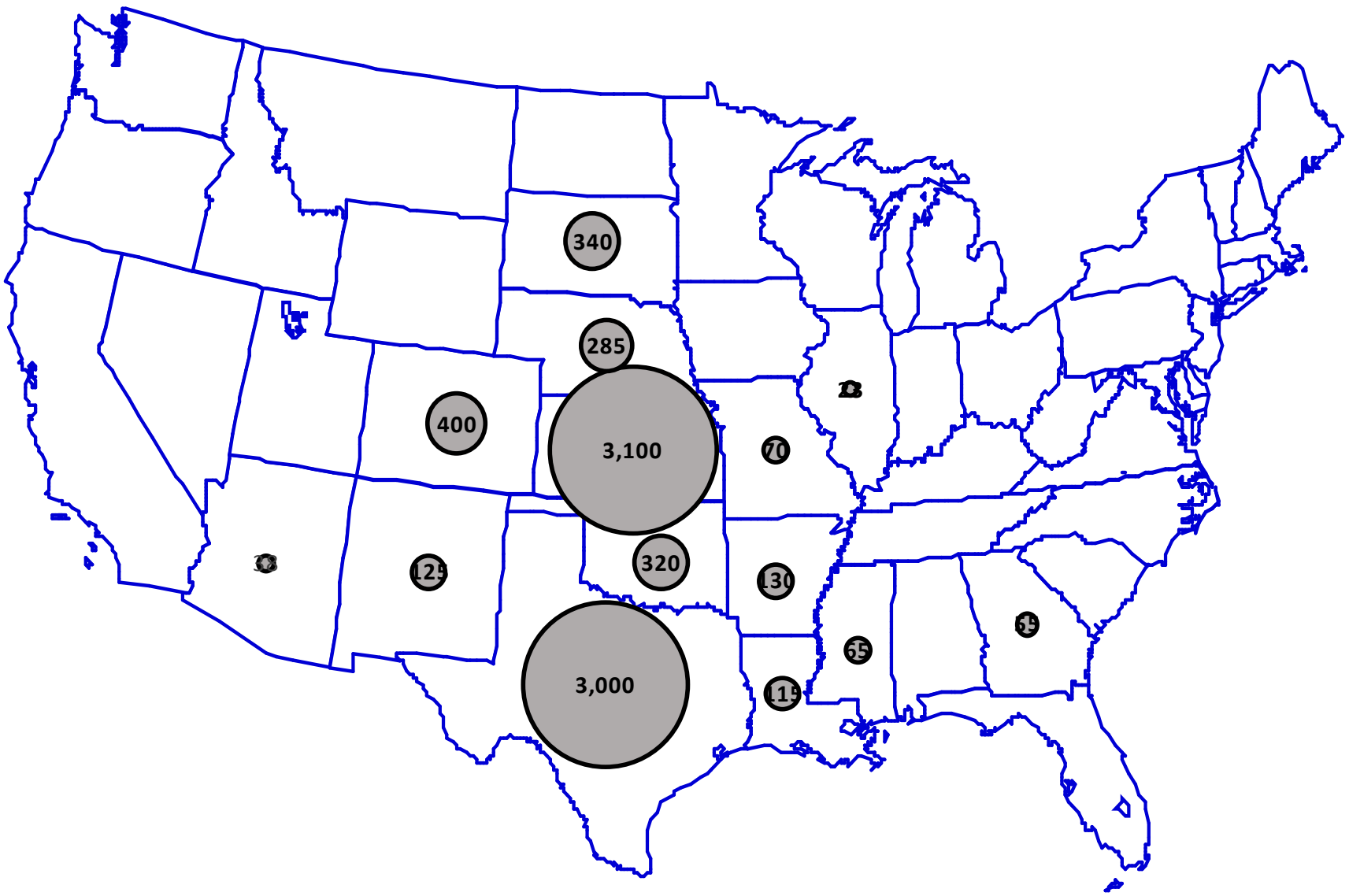
World Crop Year	Area Harvested	Yield	Production	Beginning Stocks	Imports	Supply	Exports	Food and Industrial Use	Feed and Residual Use	Domestic Consumption	Total Distribution	Ending Stocks	Ending Stocks vs. Use
	000HA	MT/HA	000mt	000mt	000mt	000mt	000mt	000mt	000mt	000mt	000mt	000mt	pct
WORLD													
10-11	41,146	1	61,335	4,297	6,719	72,351	6,752	33,424	26,624	60,048	72,351	5,551	9.2
11-12	43,603	1	57,206	5,551	5,007	67,764	6,525	33,905	22,944	56,849	67,764	4,390	7.7
12-13	38,020	2	57,690	4,390	6,780	68,860	5,601	34,347	24,493	58,840	68,860	4,419	7.5
13-14	40,371	1	60,143	4,419	7,070	71,632	7,652	33,206	26,356	59,562	71,632	4,418	7.4
14-15	40,624	2	62,814	4,994	6,905	74,713	7,554	35,288	26,344	61,632	74,713	5,527	9.0
Change versus previous year													
	253	0	2,671	575	(165)	3,081	(98)	2,082	(12)	2,070	3,081	1,109	1.6
FOREIGN													
10-11	39,198	1.3	52,556	3,249	6,718	62,523	2,899	31,264	23,506	54,770	62,523	4,854	8.9
11-12	42,013	1.2	51,759	4,854	5,004	61,617	4,914	31,745	21,151	52,896	61,617	3,807	7.2
12-13	36,015	1.4	51,418	3,807	6,537	61,762	3,671	31,928	22,129	54,057	61,762	4,034	7.5
13-14	37,728	1.3	50,261	4,034	7,070	61,365	3,080	30,793	23,562	54,355	61,365	3,930	7.2
14-15	38,358	1.4	53,670	4,506	6,905	65,081	3,490	32,621	24,058	56,679	65,081	4,912	8.7
Change versus previous year													
	630	0	3,409	472	(165)	3,716	410	1,828	496	2,324	3,716	982	1.4
UNITED STATES													
10-11	1,948	4.5	8,779	1,048	1	9,828	3,853	2,160	3,118	5,278	9,828	697	13.2
11-12	1,590	3.4	5,447	697	3	6,147	1,611	2,160	1,793	3,953	6,147	583	14.7
12-13	2,005	3.1	6,272	583	243	7,098	1,930	2,419	2,364	4,783	7,098	385	8.0
13-14	2,643	3.7	9,882	385	-	10,267	4,572	2,413	2,794	5,207	10,267	488	9.4
14-15	2,266	4.0	9,144	488	-	9,632	4,064	2,667	2,286	4,953	9,632	615	12.4
Change versus previous year													
	(377)	0	(738)	103	-	(635)	(508)	254	(508)	(254)	(635)	127	3.0



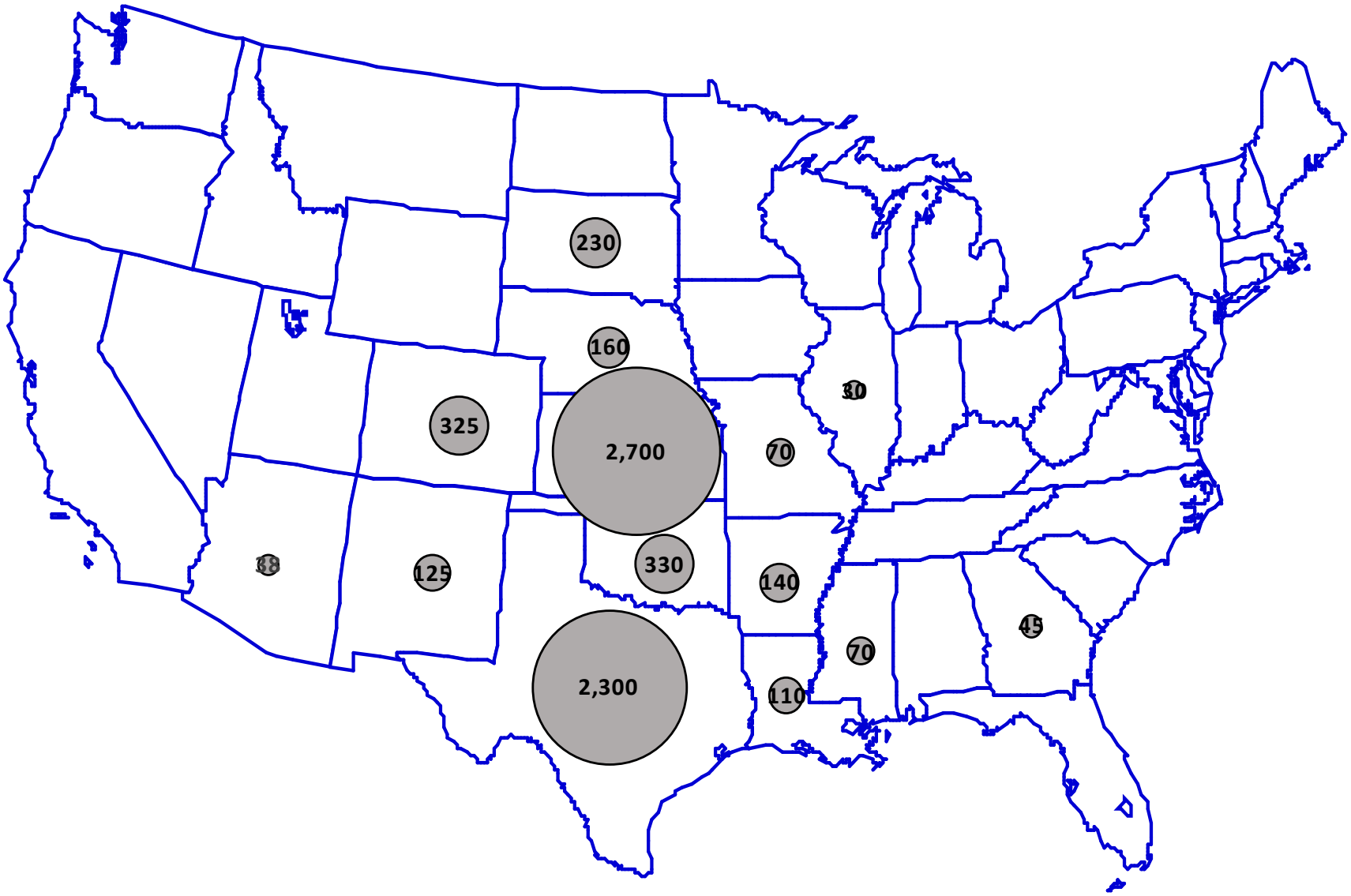




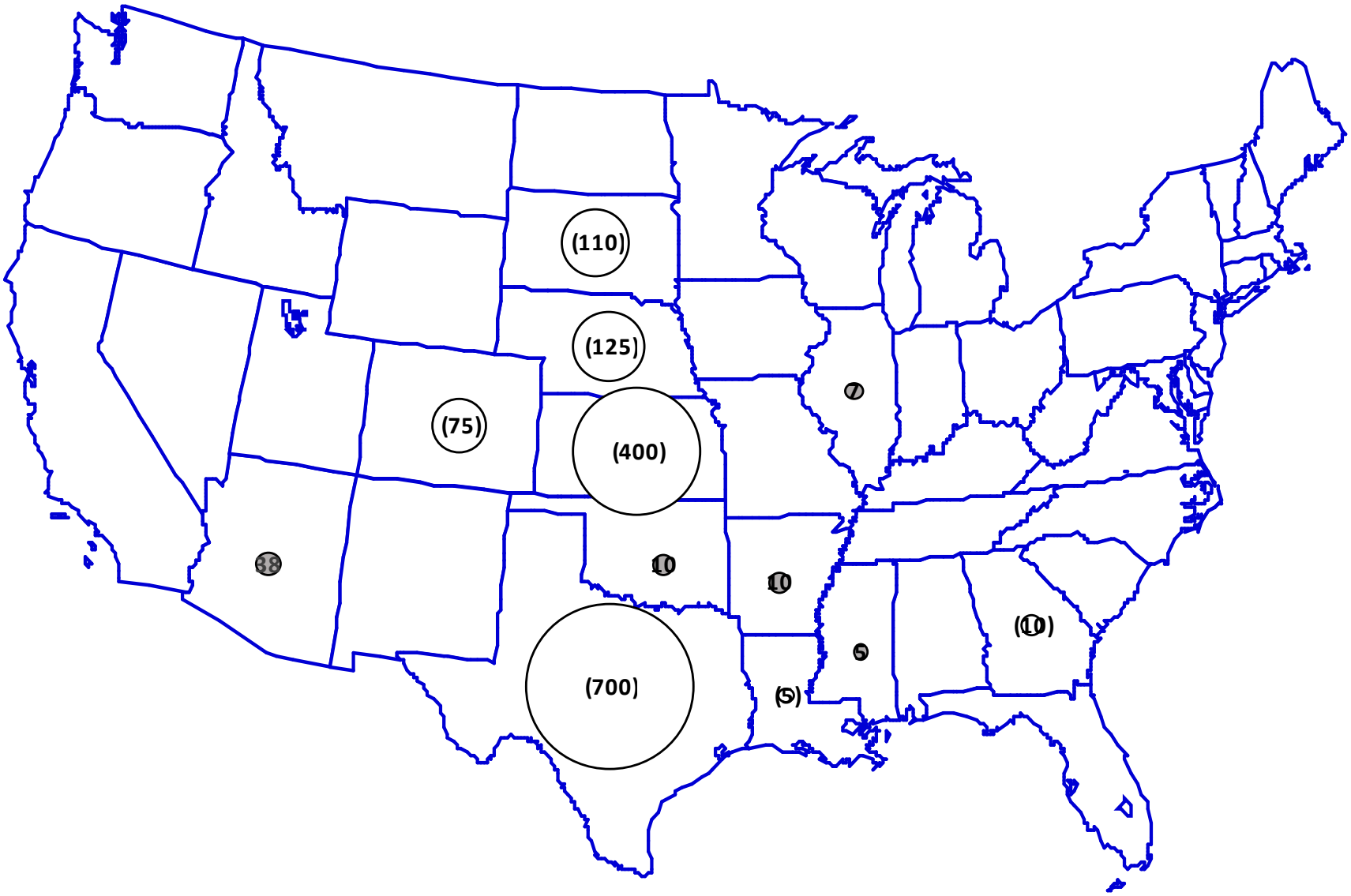
SORGHUM PLANTED ACRES, 2013

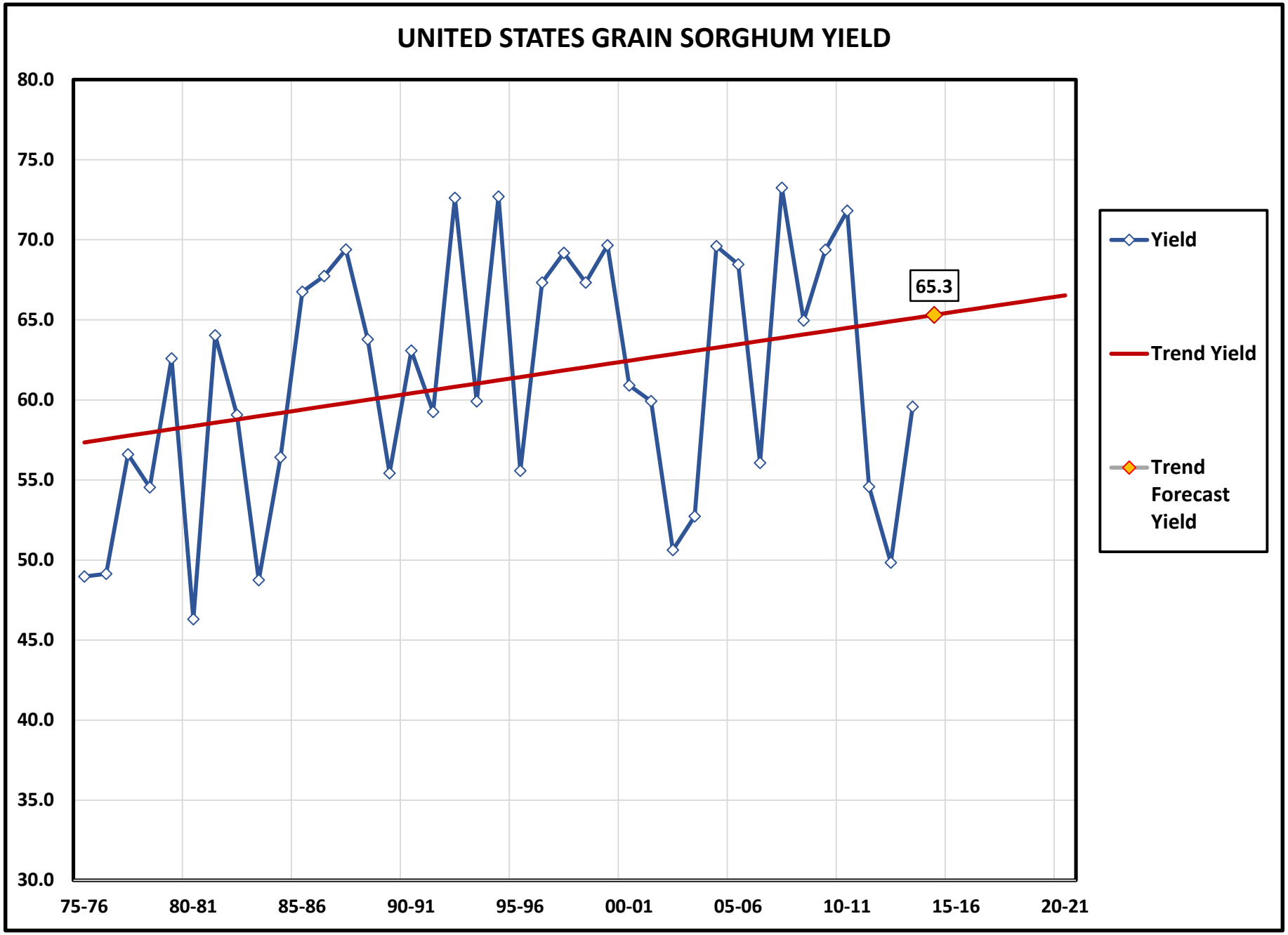


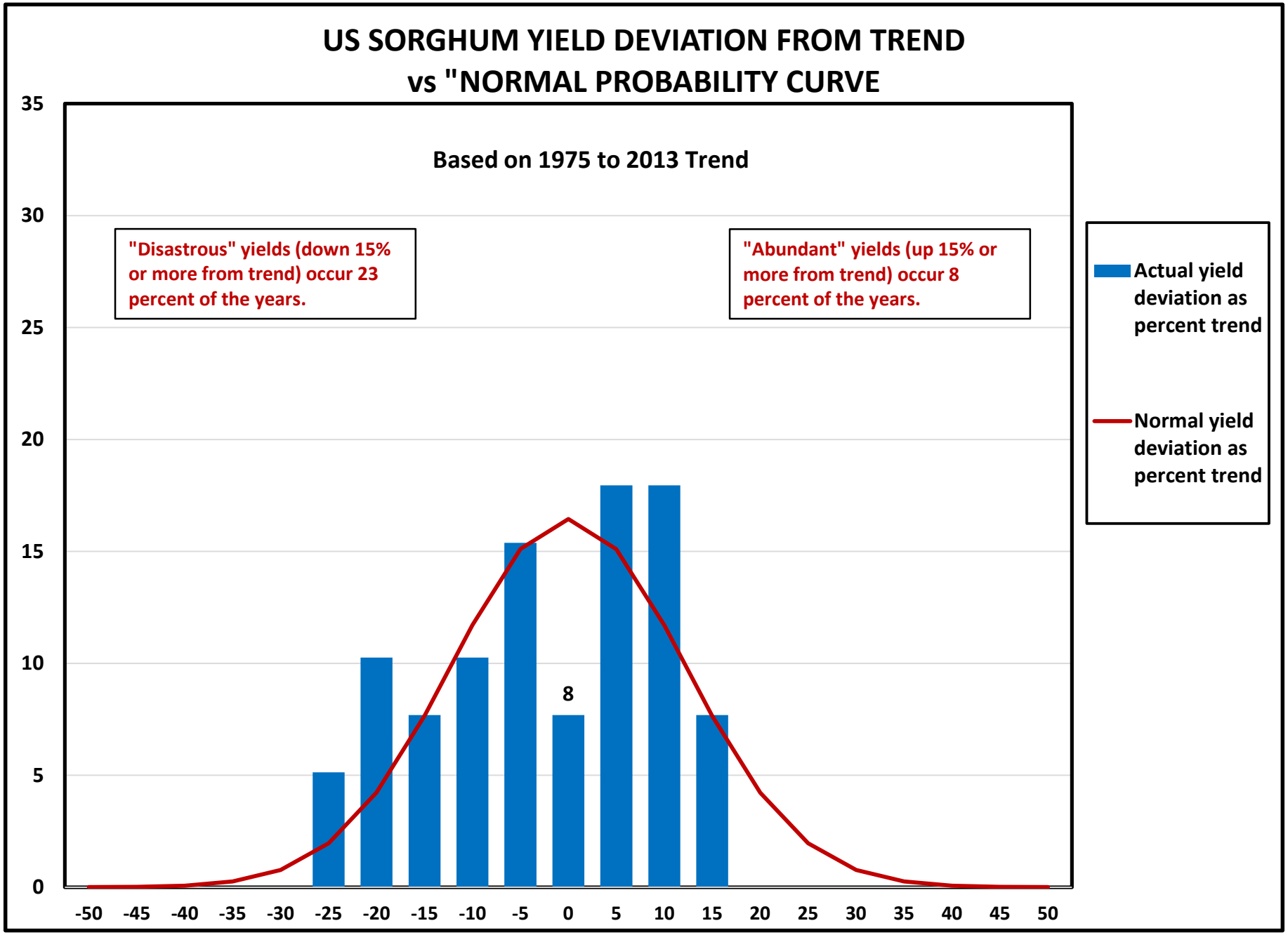
SORGHUM PLANTED ACRES, 2014



SORGHUM PLANTED ACRES CHANGE, 2013 TO 2014

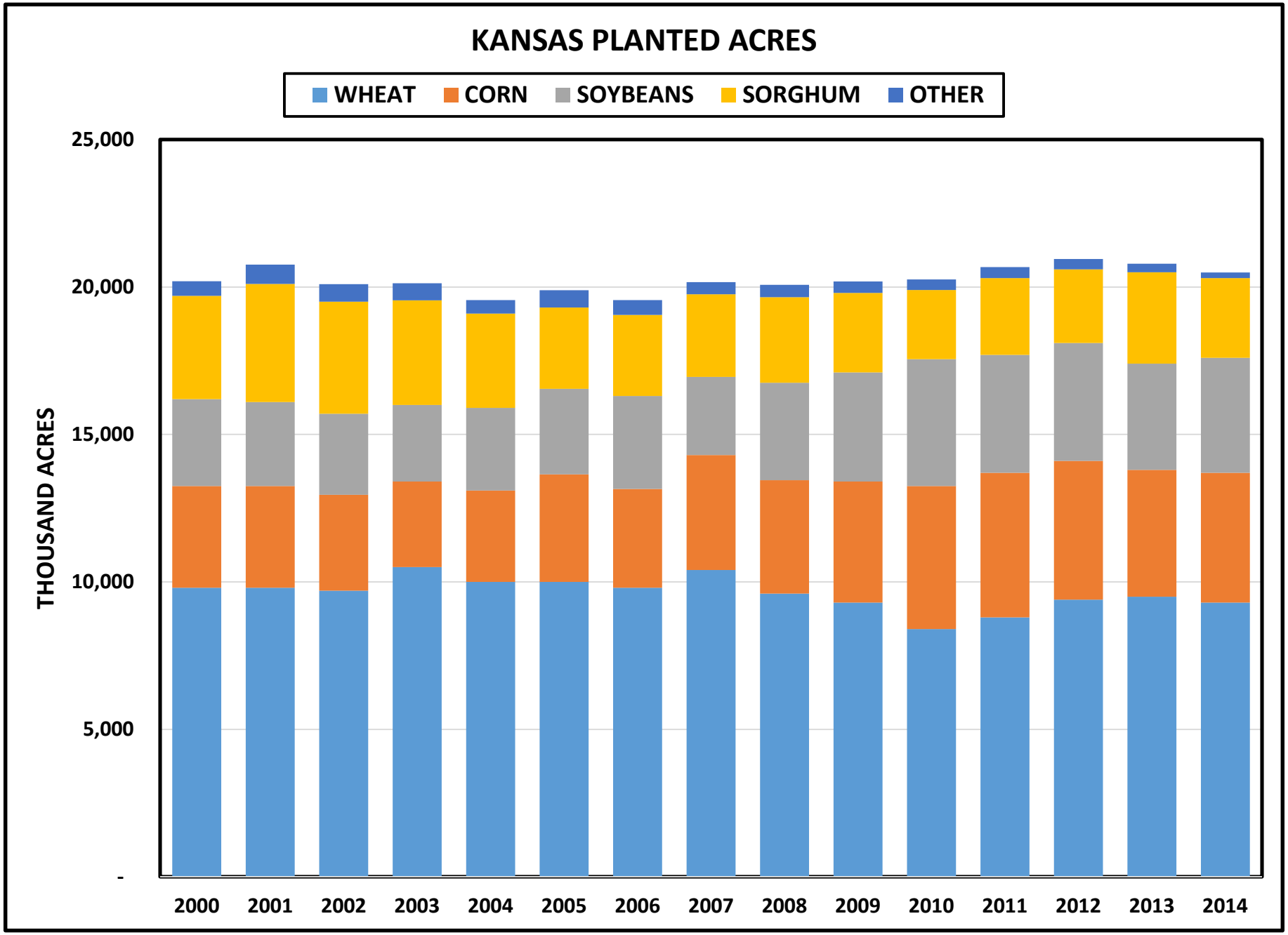






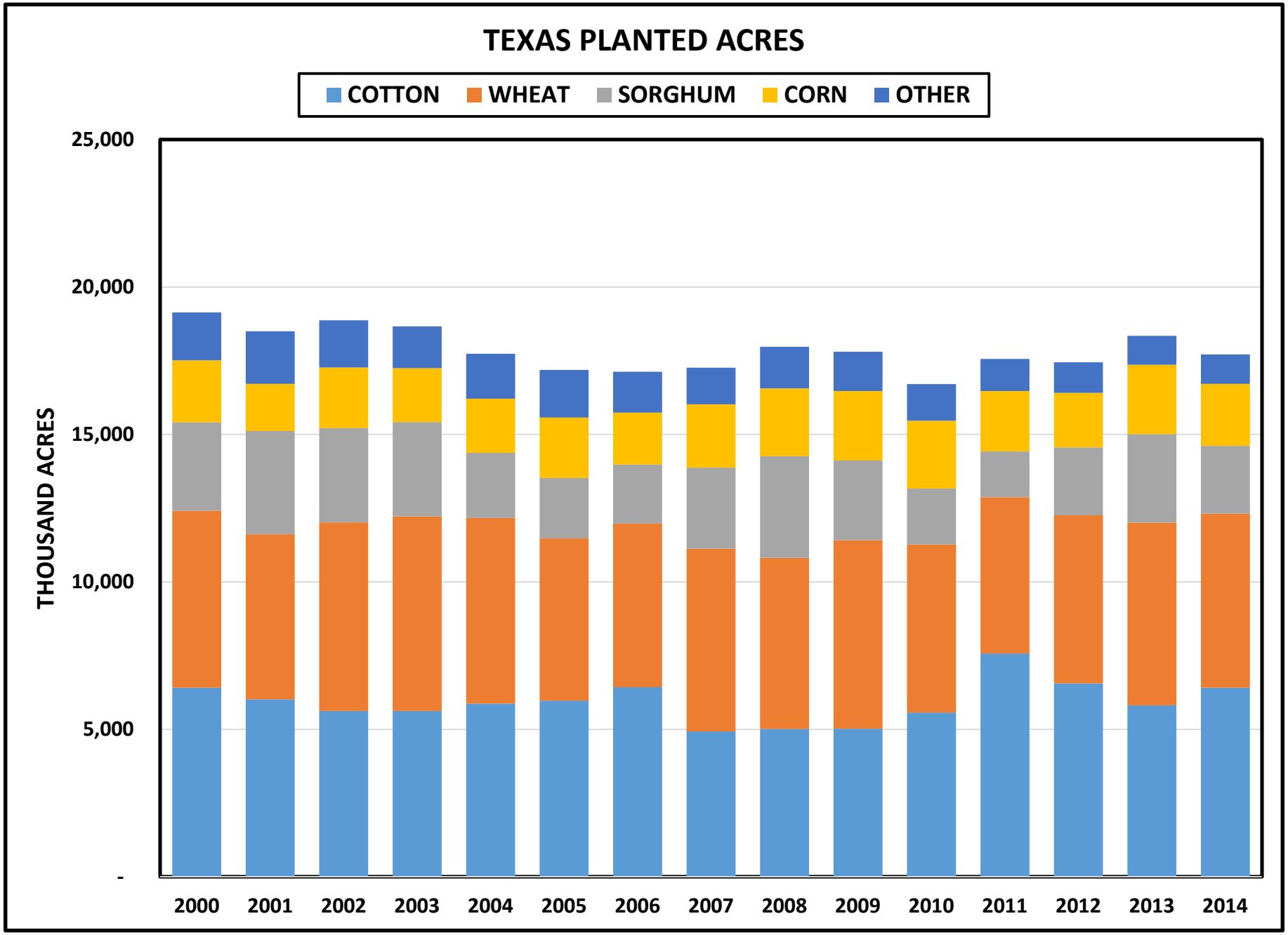
UNITED STATES SORGHUM SUPPLY-DEMAND, 04-05 to 14-15

Item	Unit	Crop year (Sep-Aug)									
		05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15
Carry-in	*mil bu*	57	66	32	53	55	41	27	23	15	54
Area planted	*thou ac*	6,454	6,509	7,697	8,273	6,633	5,404	5,481	6,244	8,061	6,681
Area harvested	*thou ac*	5,736	4,932	6,789	7,268	5,520	4,813	3,929	4,955	6,530	5,248
Yield	*bu/ac*	68.5	56.0	73.2	64.9	69.4	71.8	54.0	49.8	59.0	64.5
Production	*mil bu*	393	276	496	472	383	346	214	247	389	339
Supply	*mil bu*	450	343	529	525	438	387	241	270	404	393
Carry-out	*mil bu*	66	32	53	55	41	27	23	15	54	68
Disappearance (Use)	*mil bu*	384	311	476	470	397	360	218	255	350	325
Feed/Residual Use	*mil bu*	138	113	165	232	127	125	78	82	68	50
Processing in state	*mil bu*	51	45	34	95	105	83	85	113	131	124
Domestic Use	*mil bu*	189	158	199	327	232	208	163	195	199	174
Foreign Exports *(Minus indicates exports from US)*	*mil bu*	(195)	(153)	(277)	(143)	(165)	(152)	(55)	(60)	(151)	(151)
Farm Price, Sales weighted annual average											
US Farm Price	*cts/bu*	186	329	408	320	322	502	599	633	435	430
As share of corn	*pct*	*93%*	*108%*	*97%*	*79%*	*91%*	*97%*	*96%*	*92%*	*97%*	*98%*



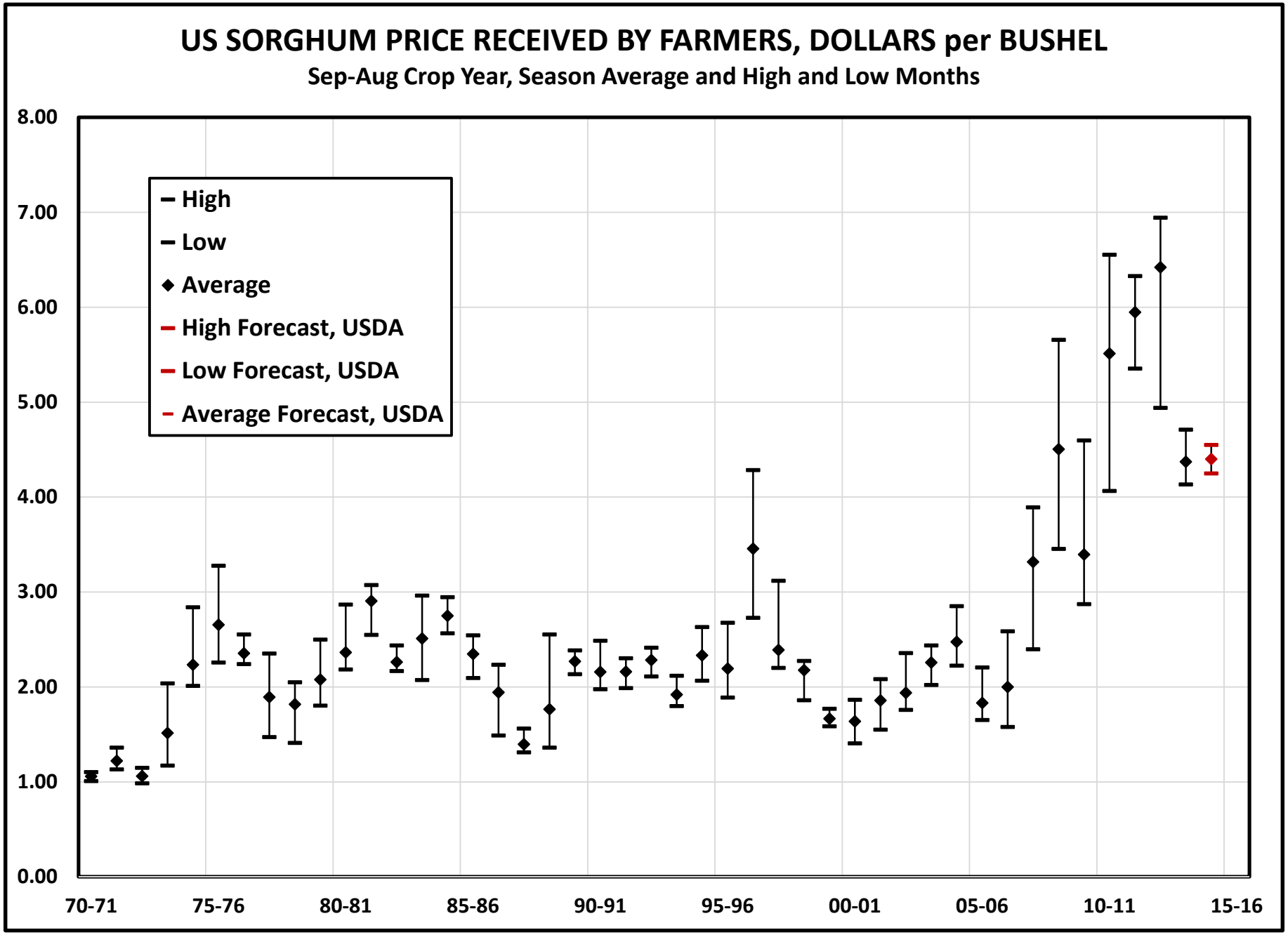
KANSAS SORGHUM SUPPLY-DEMAND, 05-06 to 14-15

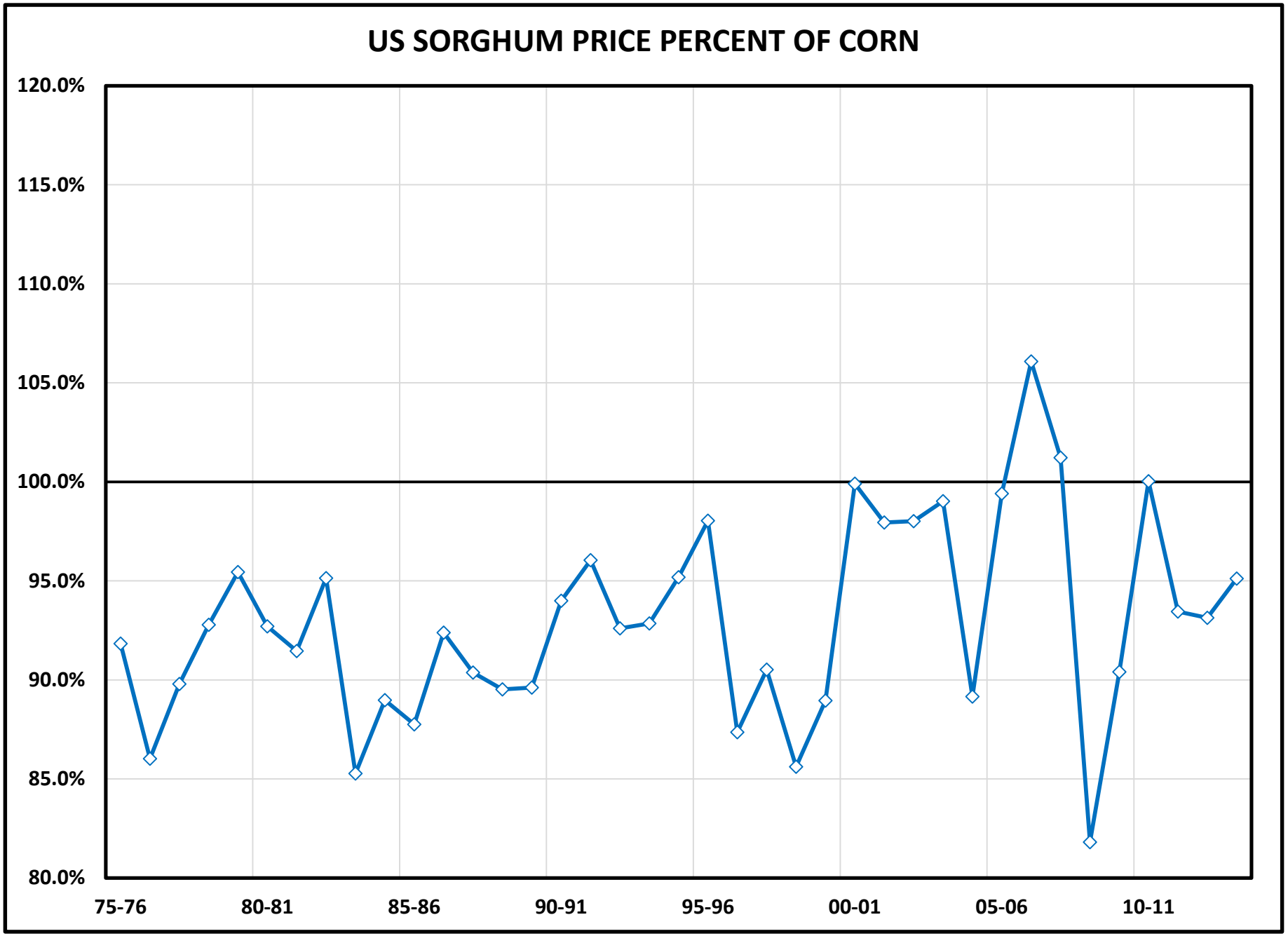
Item	Unit	Crop year (Sep-Aug)									
		05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15
Carry-in	*mil bu*	29	26	16	30	28	22	15	16	11	30
Area planted	*thou ac*	2,750	2,750	2,800	2,900	2,700	2,350	2,600	2,500	3,100	2,700
Area harvested	*thou ac*	2,600	2,500	2,650	2,750	2,550	2,250	2,000	2,100	2,800	2,376
Yield	*bu/ac*	75.0	58.0	79.0	78.0	88.0	76.0	55.0	39.0	59.0	70.0
Production	*mil bu*	195	145	209	215	224	171	110	82	165	166.32
Supply	*mil bu*	224	171	225	244	253	193	125	98	176	196
Carry-out	*mil bu*	26	16	30	28	22	15	16	11	30	37
Disappearance (Use)	*mil bu*	198	155	196	216	231	178	109	87	146	159
Feed/Residual Use	*mil bu*	69	59	69	105	74	62	40	27	30	25
Processing in state	*mil bu*	17	17	16	66	80	75	69	71	70	73
Domestic Use	*mil bu*	85	76	85	171	154	137	109	98	100	98
Foreign Exports *(Minus indicates exports from US)*	*mil bu*	(113)	(79)	(110)	(45)	(76)	(41)	(0)	11	(46)	(62)
Farm Price, Sales weighted annual average											
US Farm Price	*cts/bu*	170	337	405	314	306	504	599	672	412	409
As share of corn	*pct*	*82%*	*109%*	*98%*	*76%*	*88%*	*102%*	*95%*	*95%*	*90%*	*93%*

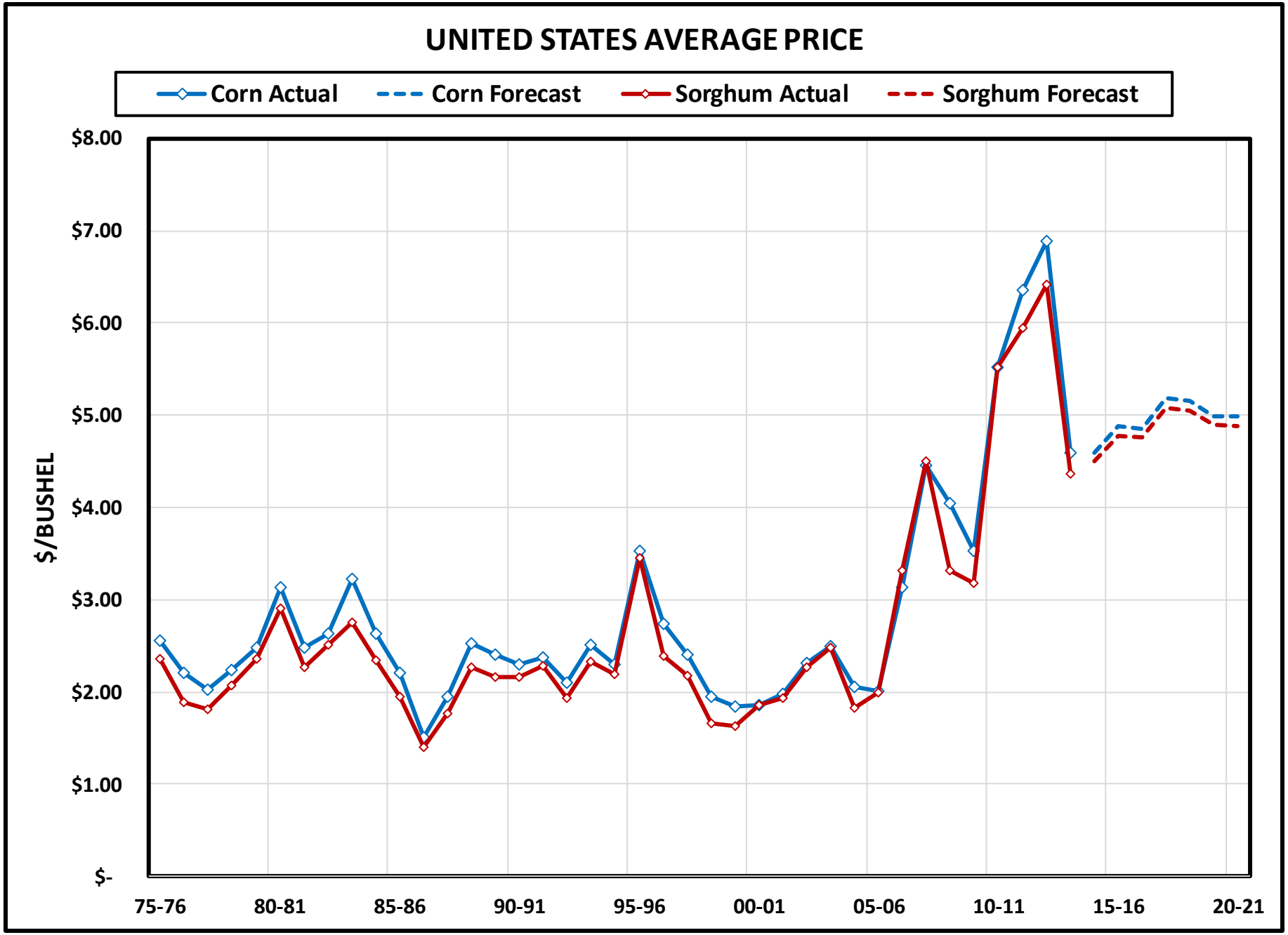


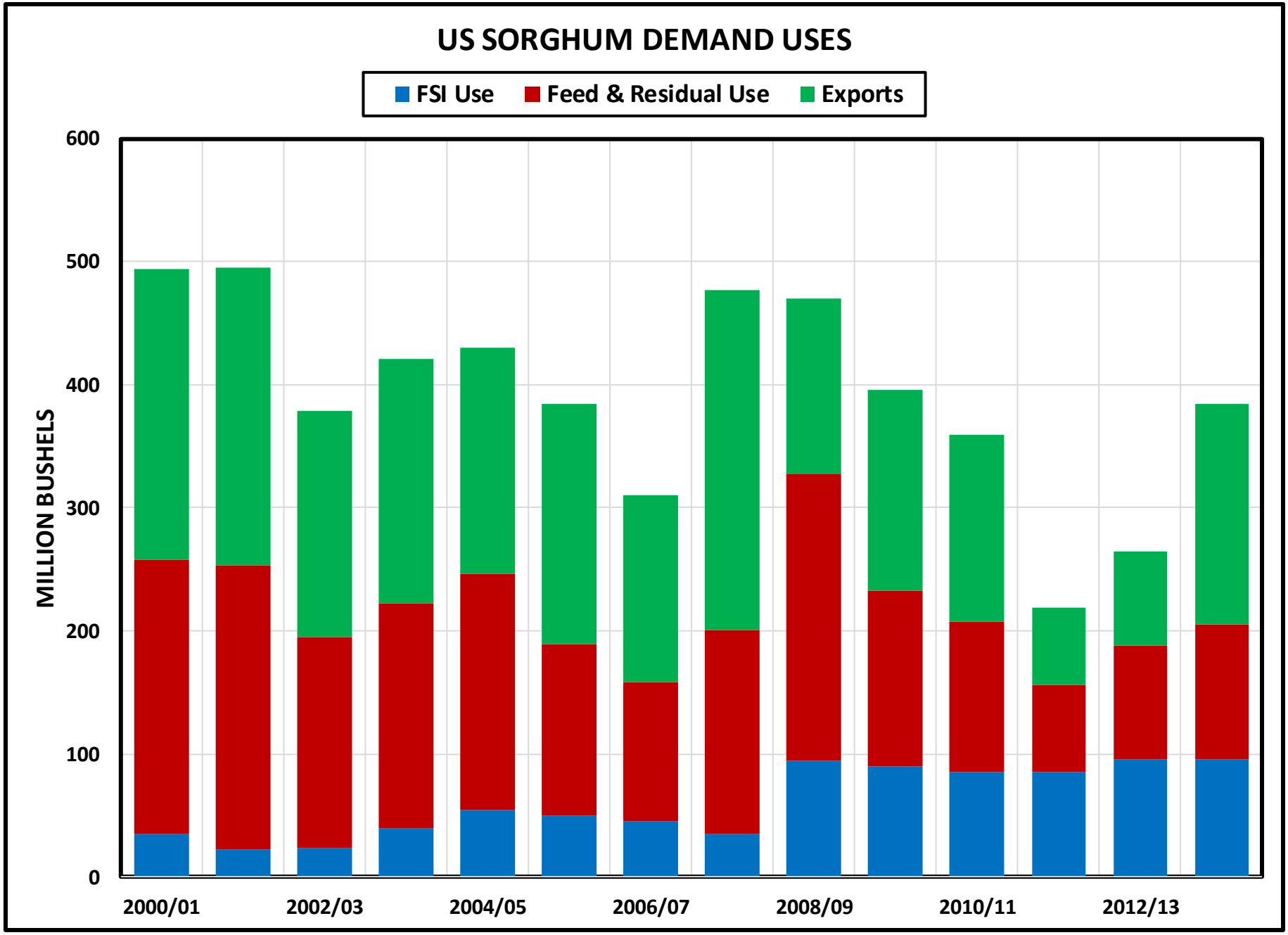
TEXAS SORGHUM SUPPLY-DEMAND, 05-06 to 14-15

Item	Unit	Crop year (Sep-Aug)									
		05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15
Carry-in	*mil bu*	13	16	7	6	14	11	6	1	1	13
Area planted	*thou ac*	2,050	2,000	2,750	3,450	2,700	1,900	1,550	2,300	3,000	2,300
Area harvested	*thou ac*	1,850	1,300	2,450	3,050	2,050	1,700	1,150	1,900	2,300	1,817
Yield	*bu/ac*	60.0	48.0	65.0	52.0	48.0	70.0	49.0	59.0	56.0	58.0
Production	*mil bu*	111	62	159	159	98	119	56	112	129	105
Supply	*mil bu*	124	78	167	165	112	130	63	113	129	118
Carry-out	*mil bu*	16	7	6	14	11	6	1	1	13	17
Disappearance (Use)	*mil bu*	108	71	160	151	101	124	61	113	116	101
Feed/Residual Use	*mil bu*	39	25	53	78	33	43	20	37	23	18
Processing in state	*mil bu*	5	5	5	14	29	27	27	20	18	16
Domestic Use	*mil bu*	44	30	57	92	61	70	47	57	41	34
Foreign Exports *(Minus indicates exports from US)*	*mil bu*	(65)	(41)	(103)	(59)	(40)	(54)	(14)	(56)	(76)	(68)
Farm Price, Sales weighted annual average											
US Farm Price	*cts/bu*	218	293	370	387	336	407	582	627	470	416
As share of corn	*pct*	*88%*	*92%*	*85%*	*80%*	*84%*	*87%*	*88%*	*88%*	*91%*	*90%*









SHIFT IN COMMERCIAL INVESTMENT CONFIDENCE IN CORN ETHANOL?

- Advanced biofuel competition greatly diminished — perhaps nil
- Conventional domestic consumption "mandate"
  - Forever limited to E10
  - EPA rules are complex, non-forecastable, and late
  - Probable legal challenge to "inadequate domestic supply" could last years, adding uncertainty
- But with strong world crude oil price and low corn price
  - Ethanol exports look encouraging
  - Corn ethanol = cheapest and safest octane agent for 200+ billion gallon foreign gasoline pool
  - Brazil sugarcane competition looks less daunting
  - Rail freight problems are temporary

With Passage of EISA 2007, investors treated the RFS as a 15-year MANDATE

ANNUAL APPLICABLE VOLUMES OF THE RFS2

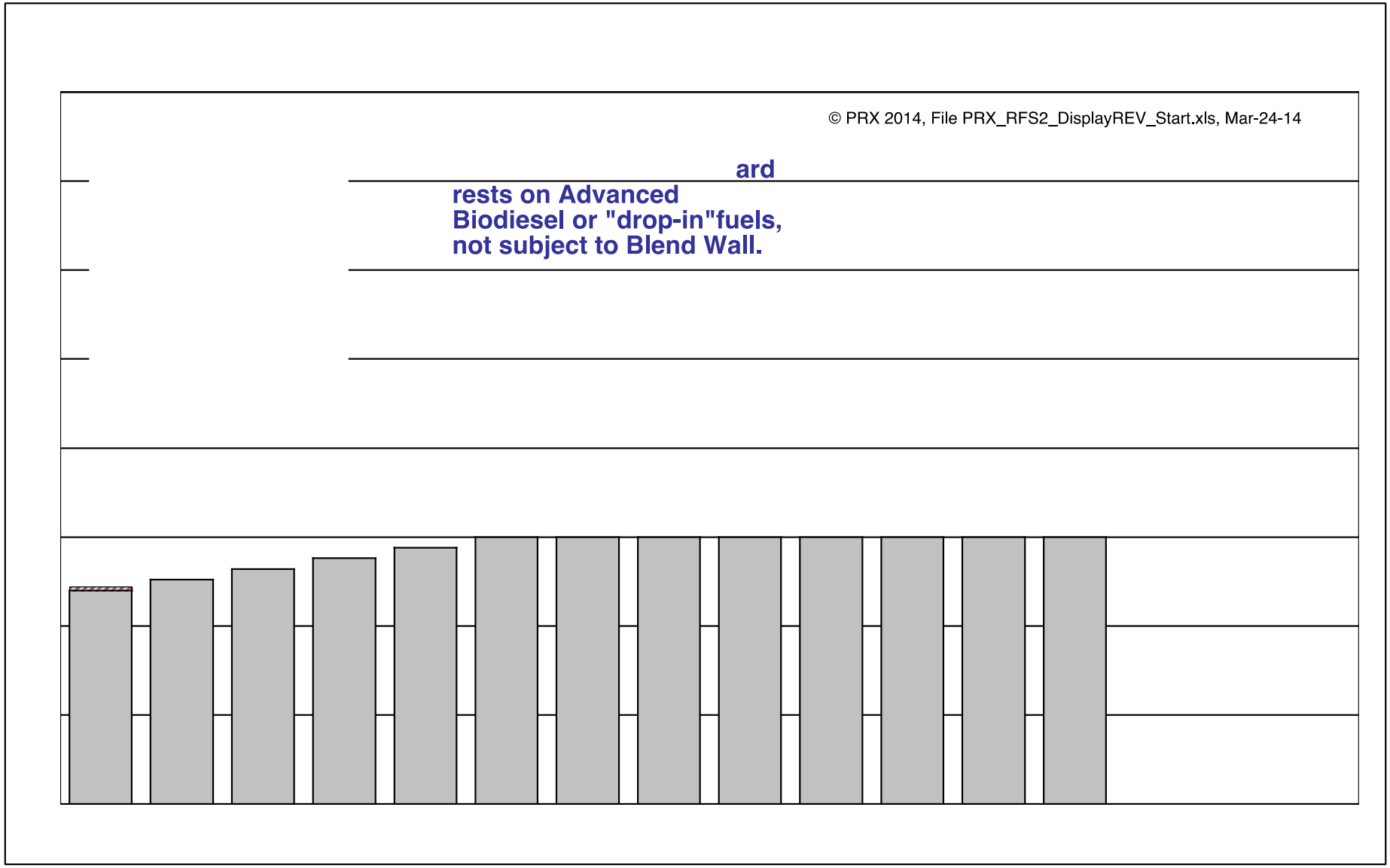
	1	2	3	4	5	6
Cal Year	Total Renewable Fuel	of which Advanced Biofuel				
		Total	of which			
			Cellulosic Biofuel*	Biomass-Based Diesel	(leaving) Other Advanced Biofuel	(leaving) Conven-tional Biofuel
	at least	at least	at least	at least	at least	at most
	-20% GHG	-50% GHG	-60% GHG	-50% GHG	-50% GHG	-20% GHG
	at least bil gals	at least bil gals	at least bil gals	at least bil gals	bil gals	bil gals
2009	11.100	0.600	n/a	0.500	n/a	10.500
2010	12.950	0.950	0.100	0.650	0.200	12.000
2011	13.950	1.350	0.250	0.800	0.300	12.600
2012	15.200	2.000	0.500	1.000	0.500	13.200
2013	16.550	2.750	1.000	1.000**	0.750	13.800
2014	18.150	3.750	1.750	1.000	1.000	14.400
2015	20.500	5.500	3.000	1.000	1.500	15.000
2016	22.250	7.250	4.250	1.000	2.000	15.000
2017	24.000	9.000	5.500	1.000	2.500	15.000
2018	26.000	11.000	7.000	1.000	3.000	15.000
2019	28.000	13.000	8.500	1.000	3.500	15.000
2020	30.000	15.000	10.500	1.000	3.500	15.000
2021	33.000	18.000	13.500	1.000	3.500	15.000
2022	36.000	21.000	16.000	1.000	4.000	15.000

**Biodiesel to be minimum of 1 bil gals after 2012.

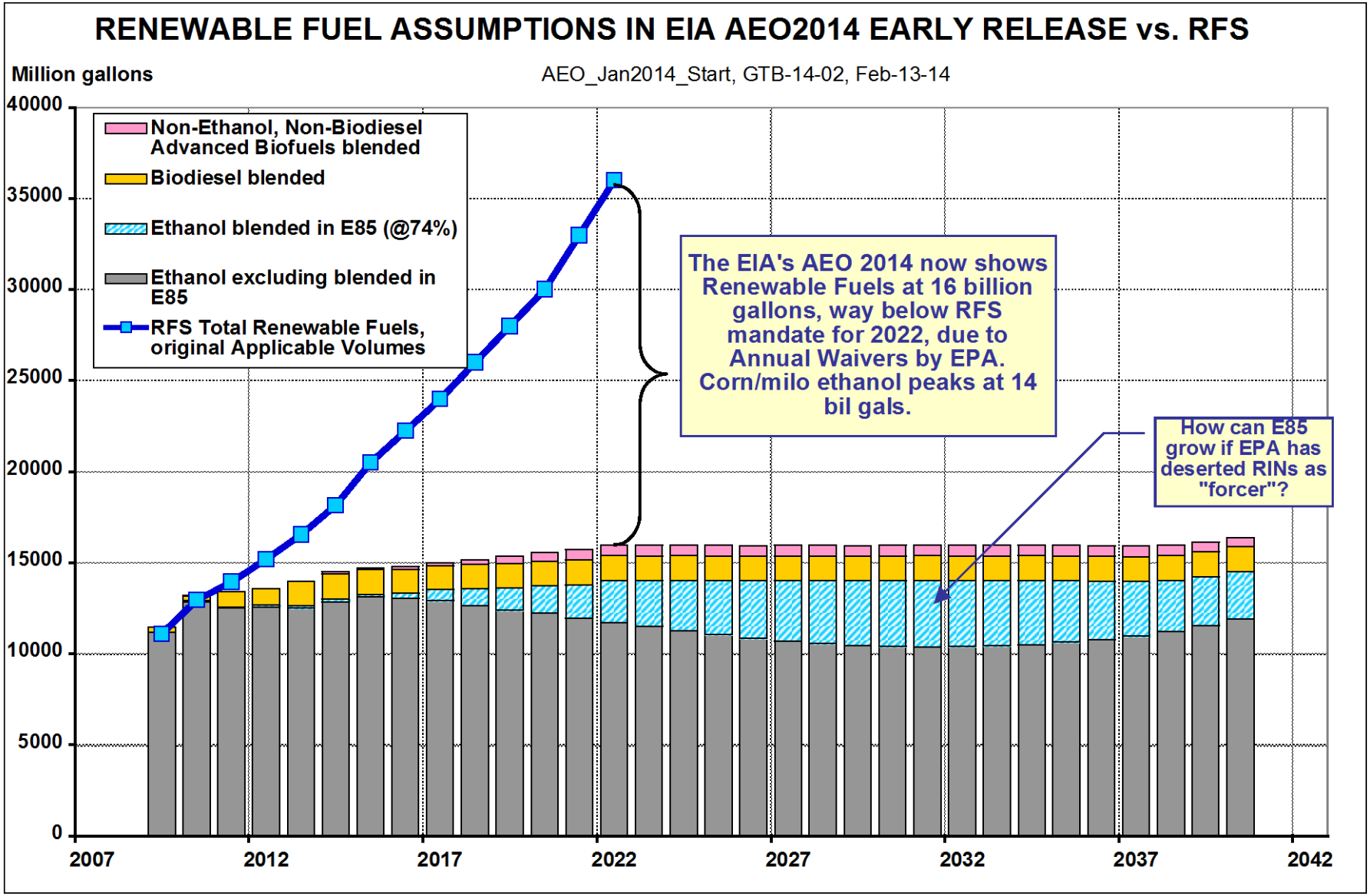
*Cellulosic Biodiesel subject to annual waiver.

A viable 15 billion gallon corn ethanol industry is now in place

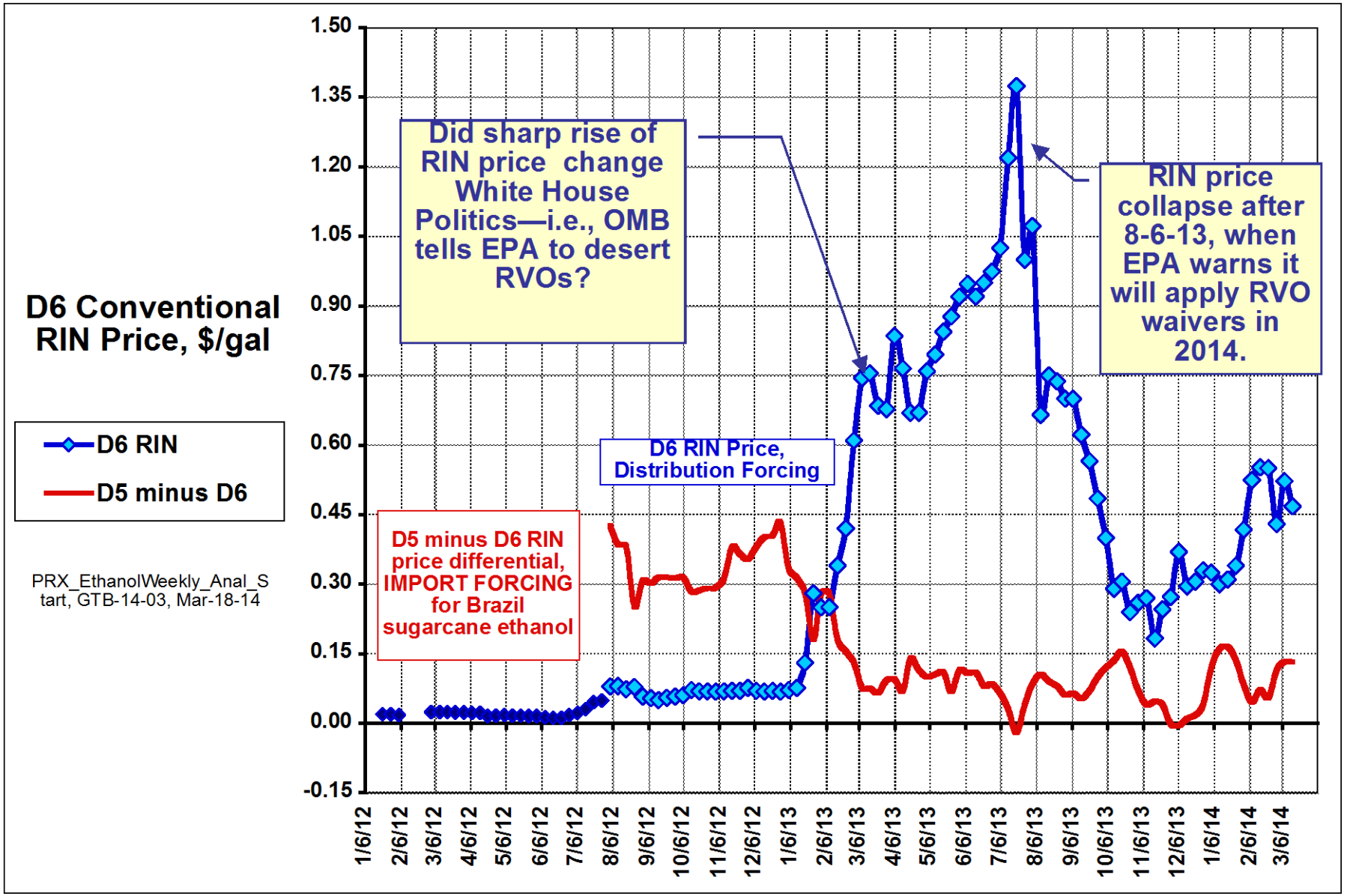
As recently as 2010, EPA's "Control Case" was Optimistic for 36 bil gals!



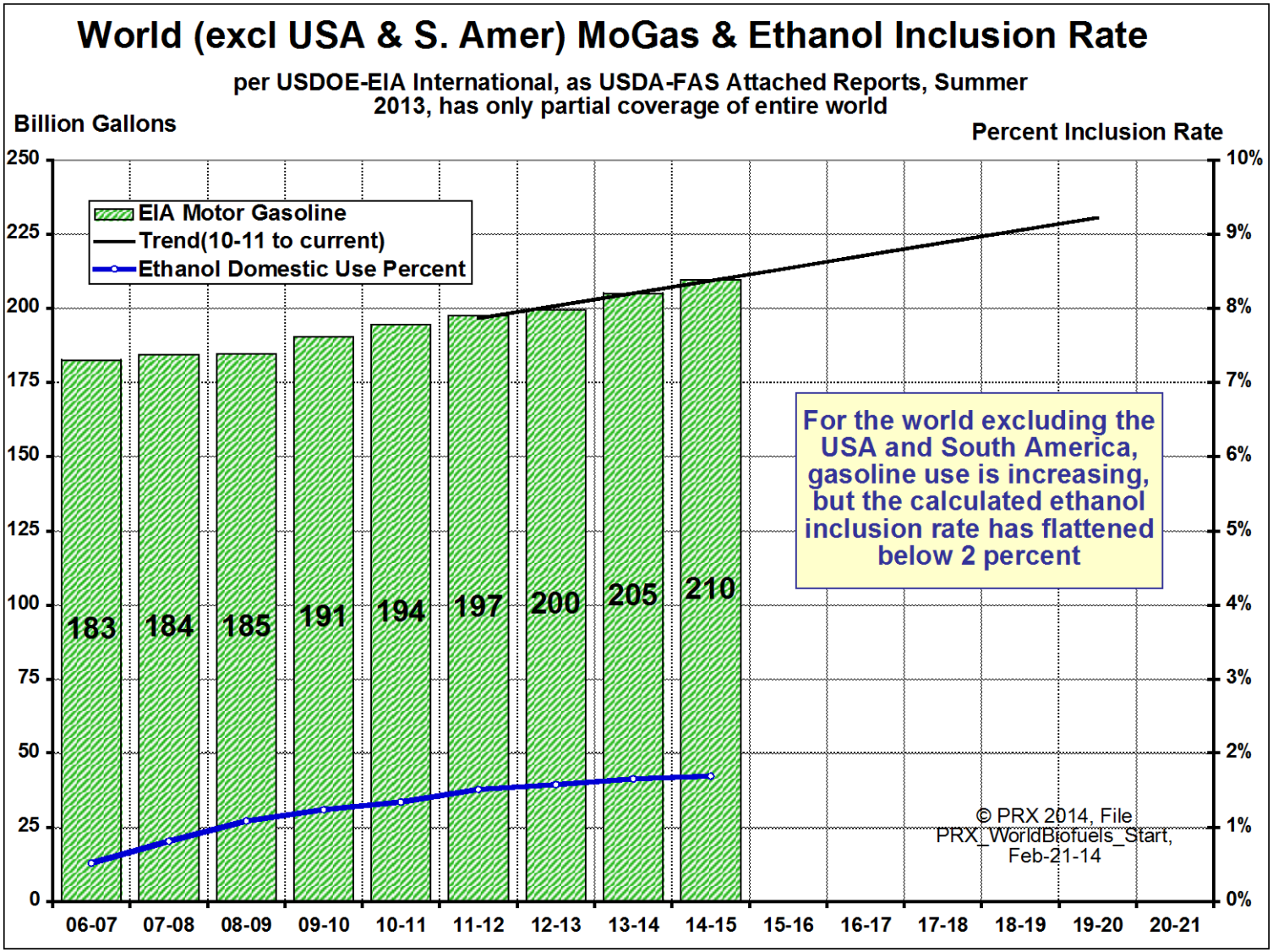
But in 2013 & 2014, US-DOE began to say, "No Way!"

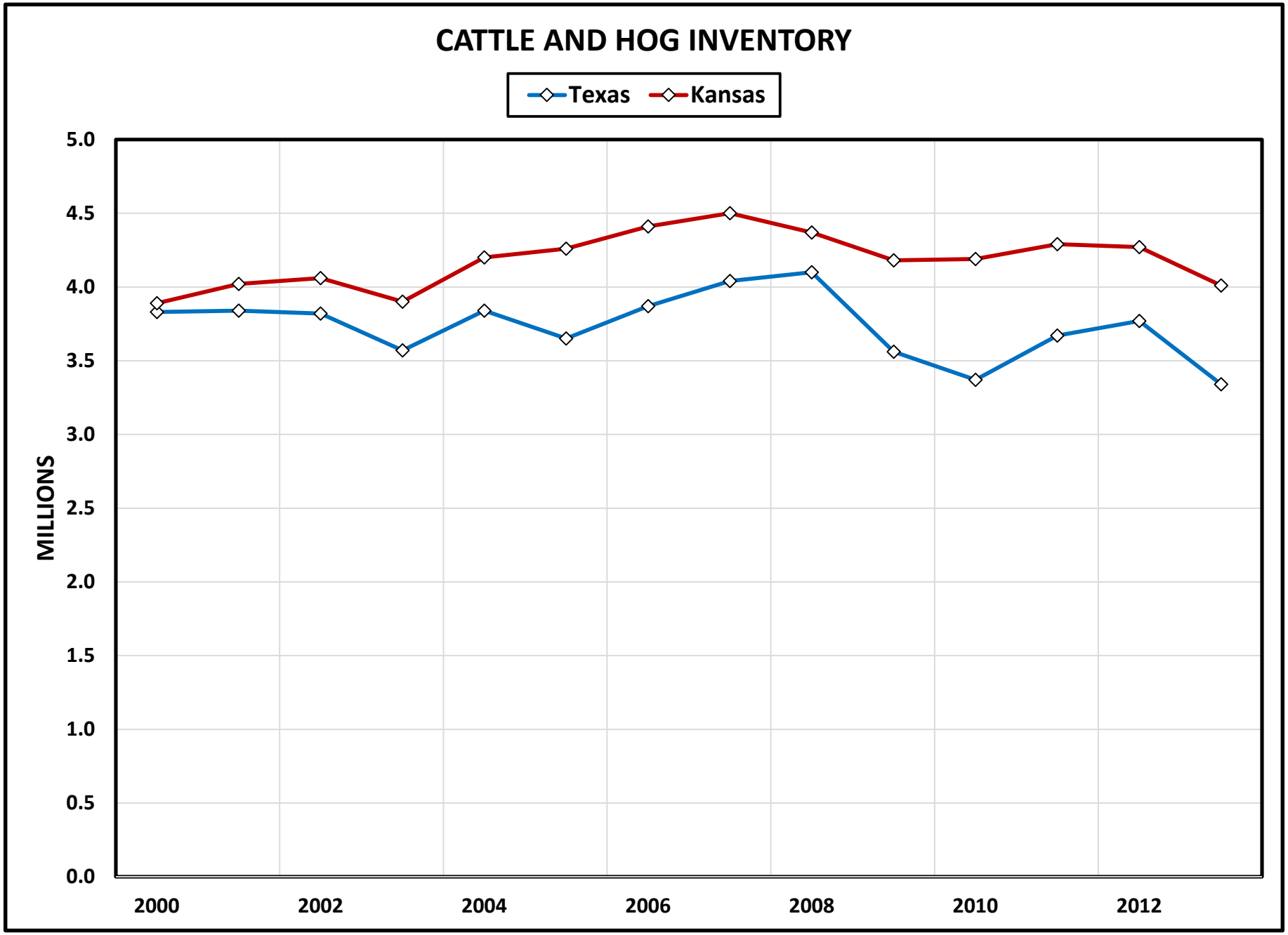


Guesswork on what triggered 2014 General Waiver by EPA



With waivered RFS, growth of US Corn Ethanol depends on exports





UNITED STATES SORGHUM SUPPLY-DEMAND, 13-14 to 22-23

Item	Unit	Crop year (Sep-Aug)									
		13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
Carry-in	*mil bu*	15	54	68	67	72	41	29	58	58	58
Area planted	*thou ac*	8,061	6,681	6,300	6,400	6,500	6,600	6,700	6,800	6,800	6,800
Area harvested	*thou ac*	6,530	5,248	4,949	5,027	5,106	5,184	5,263	5,342	5,342	5,342
Yield	*bu/ac*	59.0	64.5	63.0	61.8	51.8	53.5	72.6	71.0	71.0	71.0
Production	*mil bu*	389	339	312	311	265	277	382	379	379	379
Supply	*mil bu*	404	393	380	378	336	318	411	437	437	437
Carry-out	*mil bu*	54	68	67	72	41	29	58	39	39	39
Disappearance (Use)	*mil bu*	350	325	313	306	295	290	354	398	398	398
Feed/Residual Use	*mil bu*	68	50	85	75	60	50	110	125	125	125
Processing in state	*mil bu*	131	124	128	132	136	140	144	148	148	148
Domestic Use	*mil bu*	350	325	313	306	295	290	354	398	398	398
Foreign Exports	*mil bu*	(151)	(151)	(100)	(100)	(100)	(100)	(100)	(125)	(125)	(125)
PRX Blue Sky Model, PRELIMINARY & PARTIAL RESULTS											
Farm Price, Sales weighted annual average											
US Farm Price, model	*cts/bu*	407	411	406	413	419	415	400	379	379	379
As share of corn	*pct*	*98%*	*98%*	*98%*	*98%*	*98%*	*98%*	*98%*	*98%*	*98%*	*98%*

With sorghum acres and processing use increasing, exports to foreign decline—carryouts tighter, price up with corn.

SUMMARY

- World sorghum stocks at historical low levels
- World sorghum exports trending up slightly
  - US sorghum exports rebound after 2012/13 low
- World yield growing slowly
  - US yield growing faster than world
  - Argentina yield long term trend growing, however short term trend declining
- World imports historically by Mexico and Japan
  - Mexico imports falling, but replaced in 2012/13 by major imports by China
- US sorghum planted acres expected down from last year
  - Sorghum planted acres have leveled out in key states of Kansas and Texas
- US sorghum production down based on trend yield
  - 2014-15 Kansas and Texas sorghum estimated supply-demand similar to 2013-14
- Future sorghum prices, based on corn value, at $4.50 to $5.25/bushel
- Domestic sorghum use flat
  - Industrial use dependent on outcome of EPA rules on Advanced Biofuels
  - Feed use has declined due to ethanol production, especially in the southern plains
- Exports fluctuate with production