

Beef Cattle Market Outlook & Cow-Calf Decision-Making Overview



PUTTING THE PIECES TOGETHER
FOR HERD HEALTH



**Boehringer
Ingelheim**

**Arnold & Geneva, NE
January 19-20, 2016**

**Glynn Tonsor
Dept. of Ag. Economics
Kansas State University**



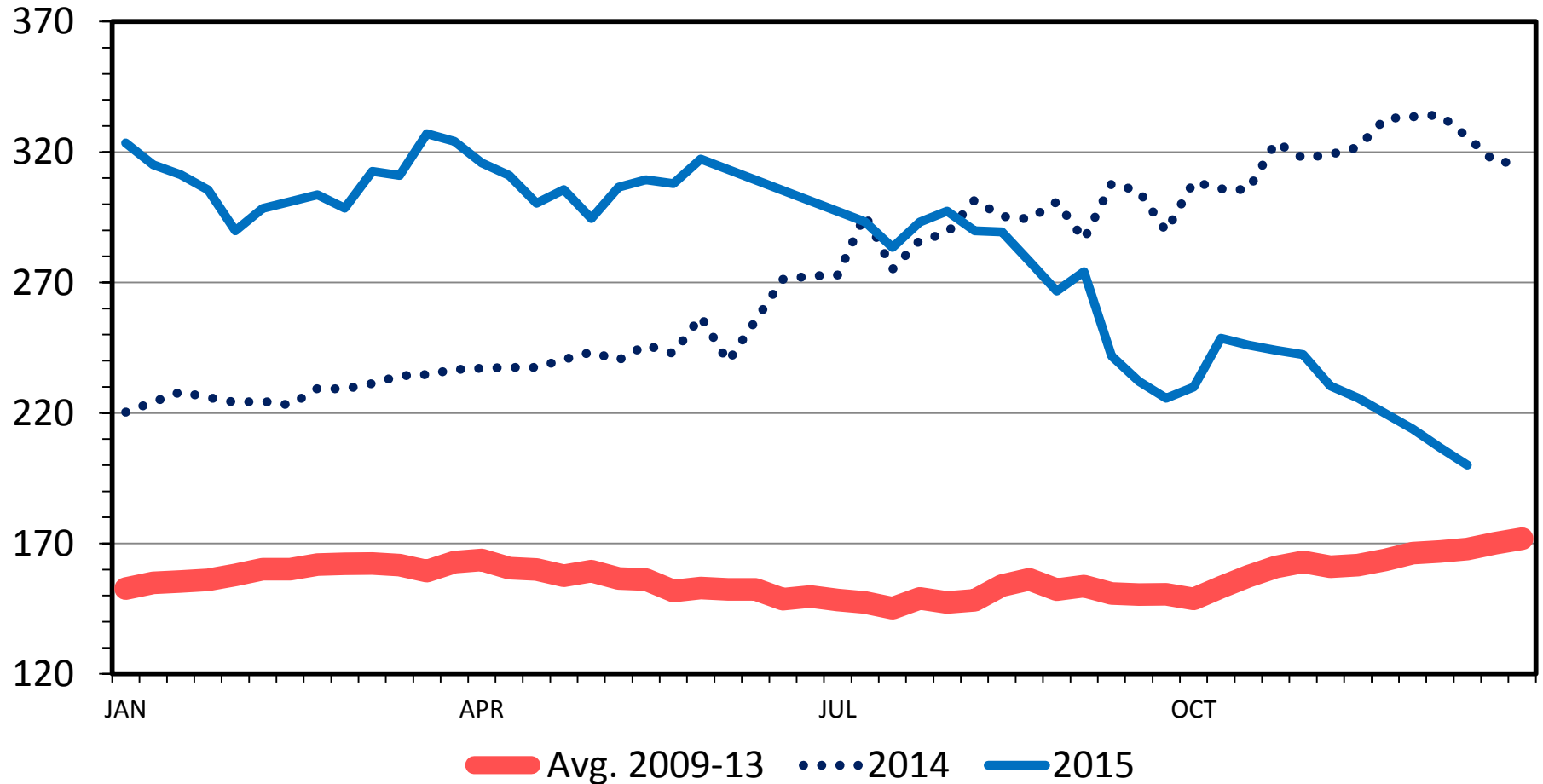
Overarching Beef Industry Economic Outlook

- Supplies
 - Historically tight
 - Herd expansion well underway
- Demand
 - Been positive 2010-2015
 - Concerns grown since ~September 2015

MED. & LRG. #1 STEER CALF PRICES

400-500 Pounds, Southern Plains, Weekly

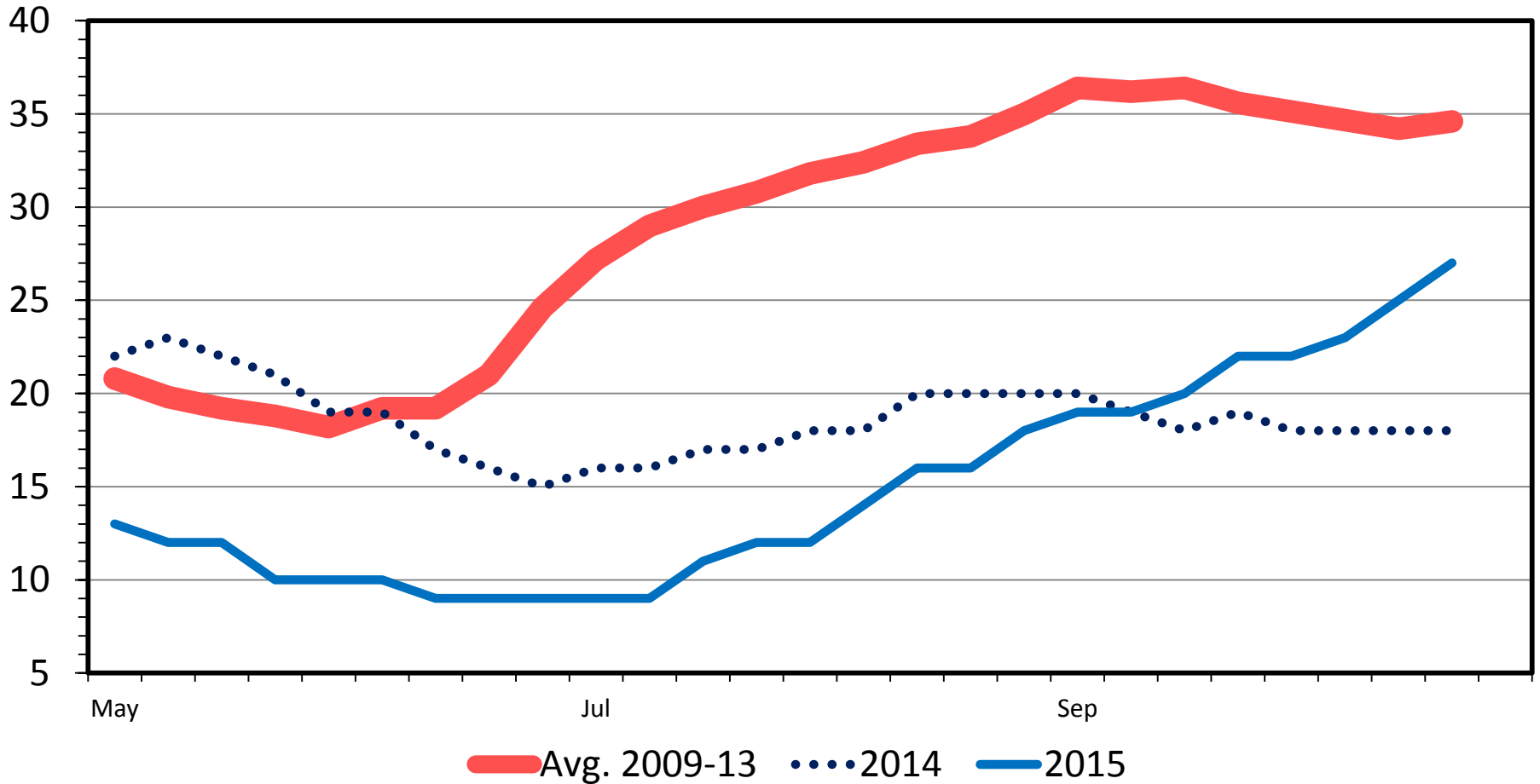
\$ Per Cwt.



US RANGE AND PASTURE CONDITION

Percent Poor and Very Poor, Weekly

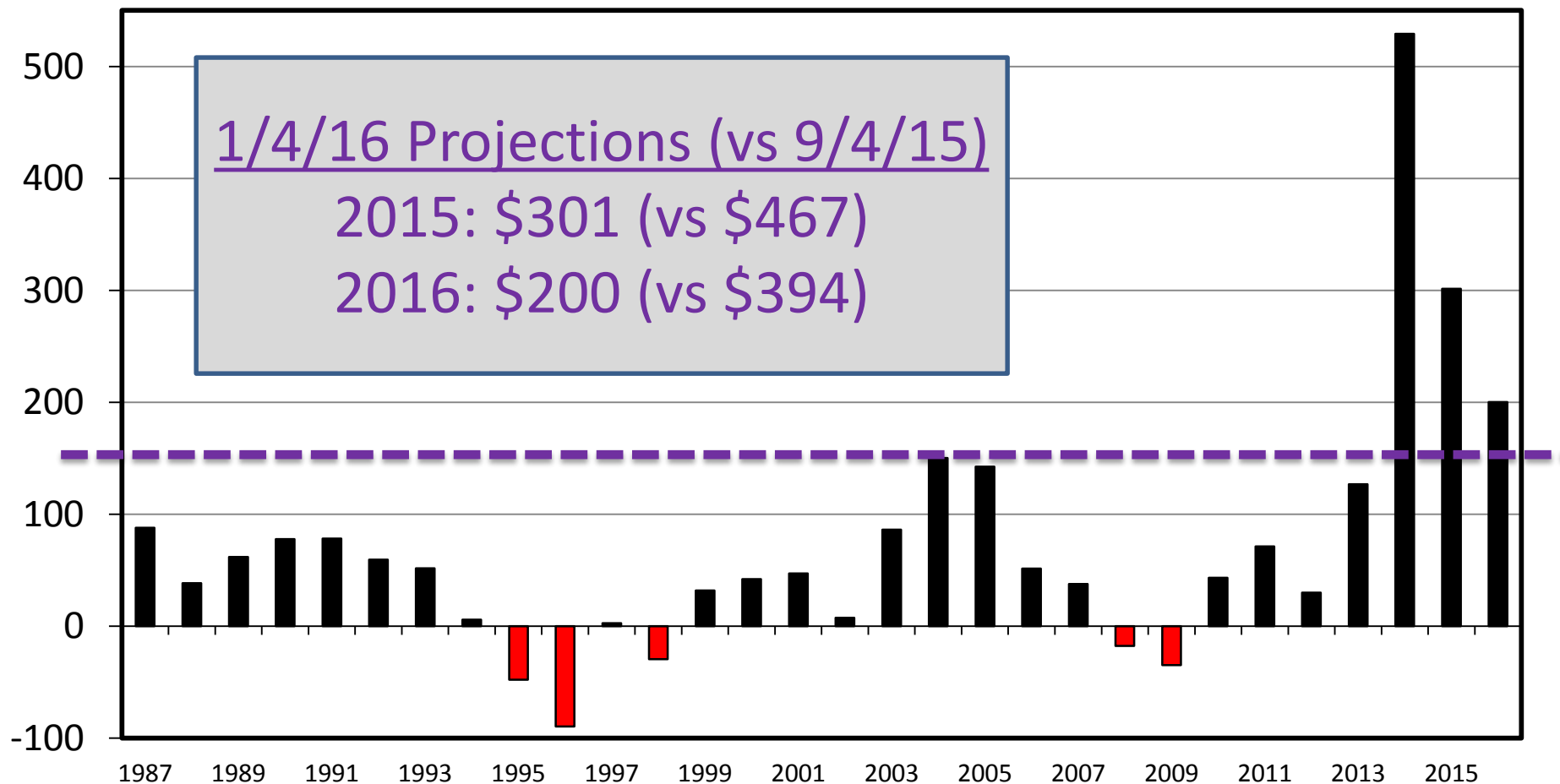
Percent



ESTIMATED AVERAGE COW CALF RETURNS

Returns Over Cash Cost (Includes Pasture Rent), Annual

\$ Per Cow



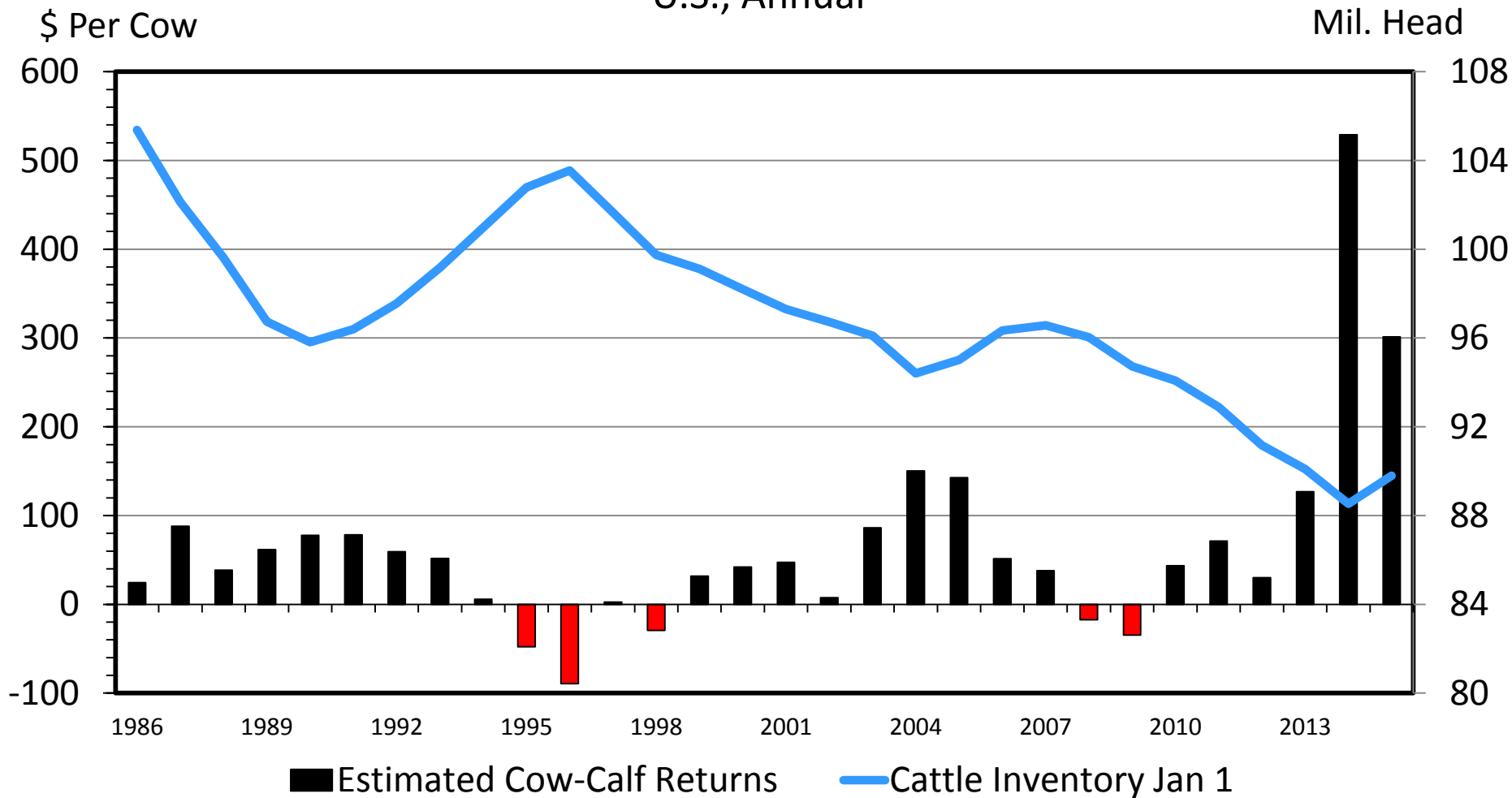
Data Source: USDA & LMIC, Compiled by LMIC

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COW-CALF RETURNS AND CATTLE INVENTORY

U.S., Annual



Data Source: USDA-AMS & USDA-NASS, Compiled and Analysis by LMIC

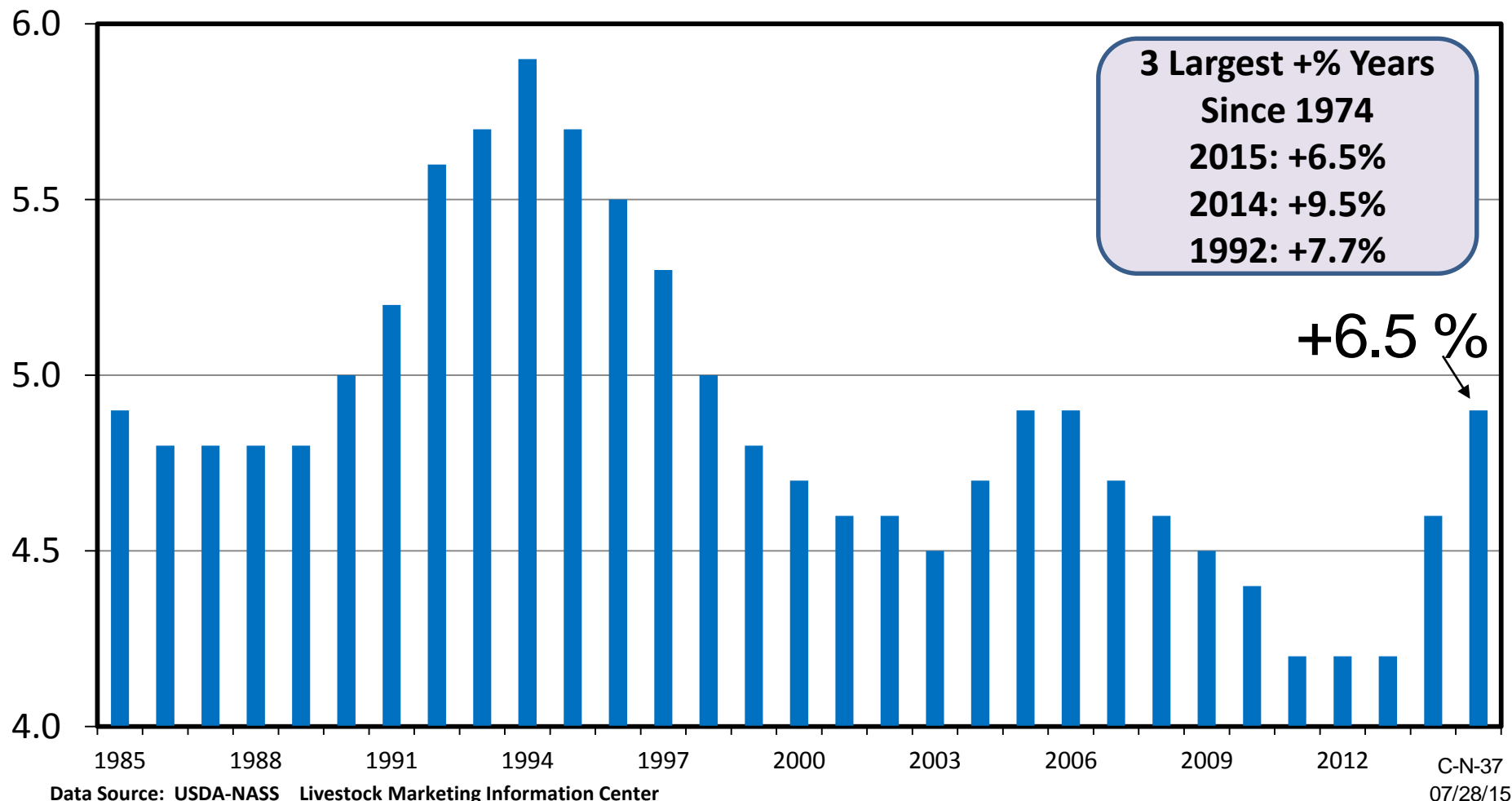
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HEIFERS HELD AS BEEF COW REPLACEMENTS

July 1, U.S.

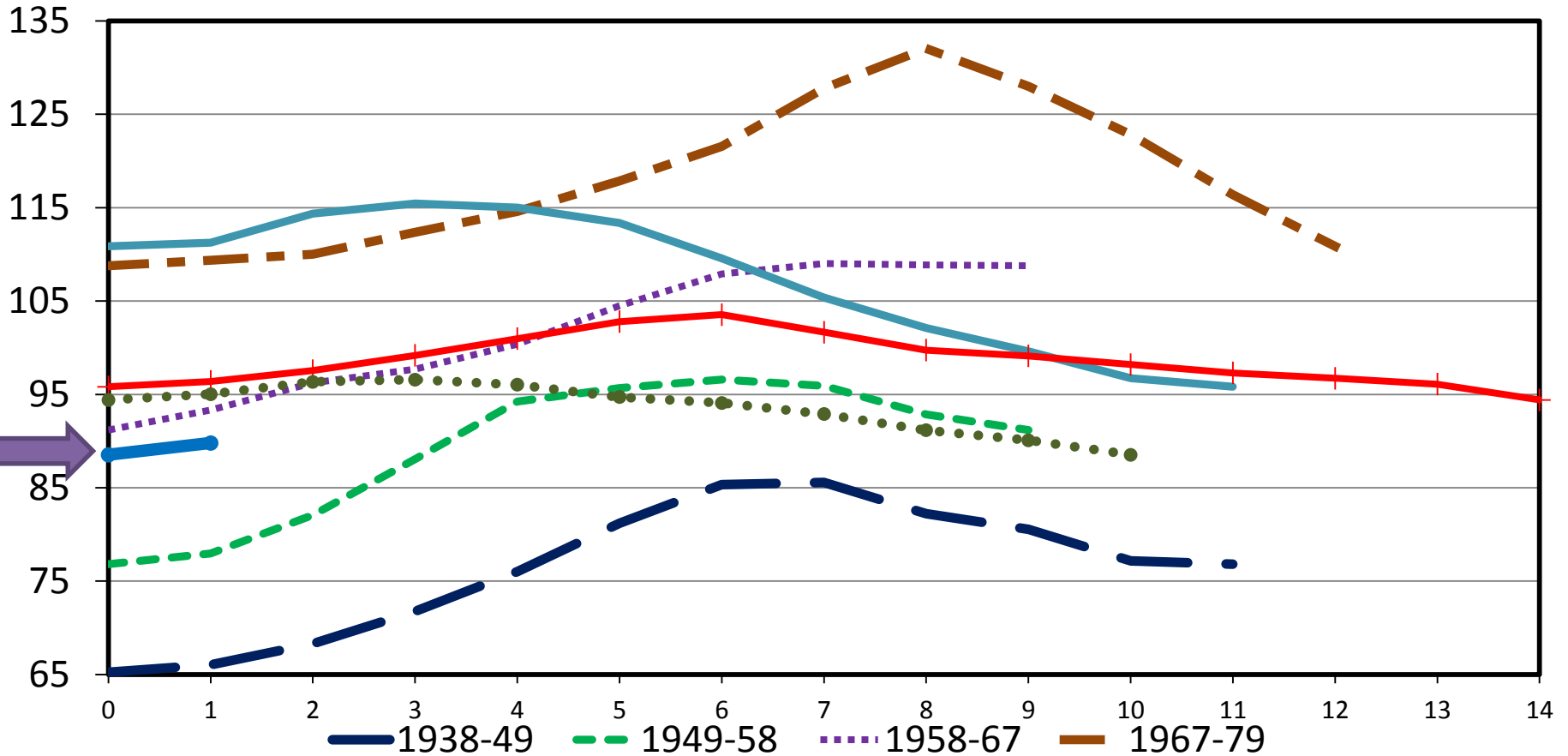
Mil. Head



TOTAL CATTLE INVENTORY BY CYCLE

U.S., January 1

Mil. Head



Data Source: USDA-NASS

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USDA Long-Term projections

Nov. 2015 pre-report release (<http://www.usda.gov/oce/commodity/projections/index.htm>)

Beef long-term projections		Recent	Next 5 Years						10 Years Out
Item	Units	2014	2015	2016	2017	2018	2019	2020	2025
Prices:									
Beef cattle, farm	\$/cwt	152.83	149.01	141.58	136.49	132.89	130.59	126.55	121.49
Calves, farm	\$/cwt	254.58	271.83	268.86	222.39	207.48	198.81	189.92	183.95
Steers, 5-area	\$/cwt	154.56	149.19	141.75	136.65	133.05	130.75	126.70	121.63
Feeder steers, Oklahoma City	\$/cwt	202.82	207.12	205.00	169.57	158.20	151.59	144.81	140.26
Feed price ratio:									
Beef cattle-corn	Ratio	34.3	40.3	38.8	37.9	36.4	35.3	34.2	32.4
Cattle inventory	1,000 head	88,526	89,800	92,900	95,200	95,700	96,200	96,600	97,400
Beef cow inventory	1,000 head	29,086	29,675	30,382	30,800	31,300	31,800	32,200	33,200
Total cow inventory	1,000 head	38,293	39,000	39,800	40,102	40,602	41,102	41,502	42,547

Note: Cwt = hundredweight.

2025 @ 33.2 million beef cows
 ➤ +14% from 2014
 ➤ Would be largest herd since 2001

Feeder Cattle Price Risk Considerations: Quantitative Examples & Decision Aide Overview

Cow-Calf Output Price Hedging Considerations (as of 1/12/16)

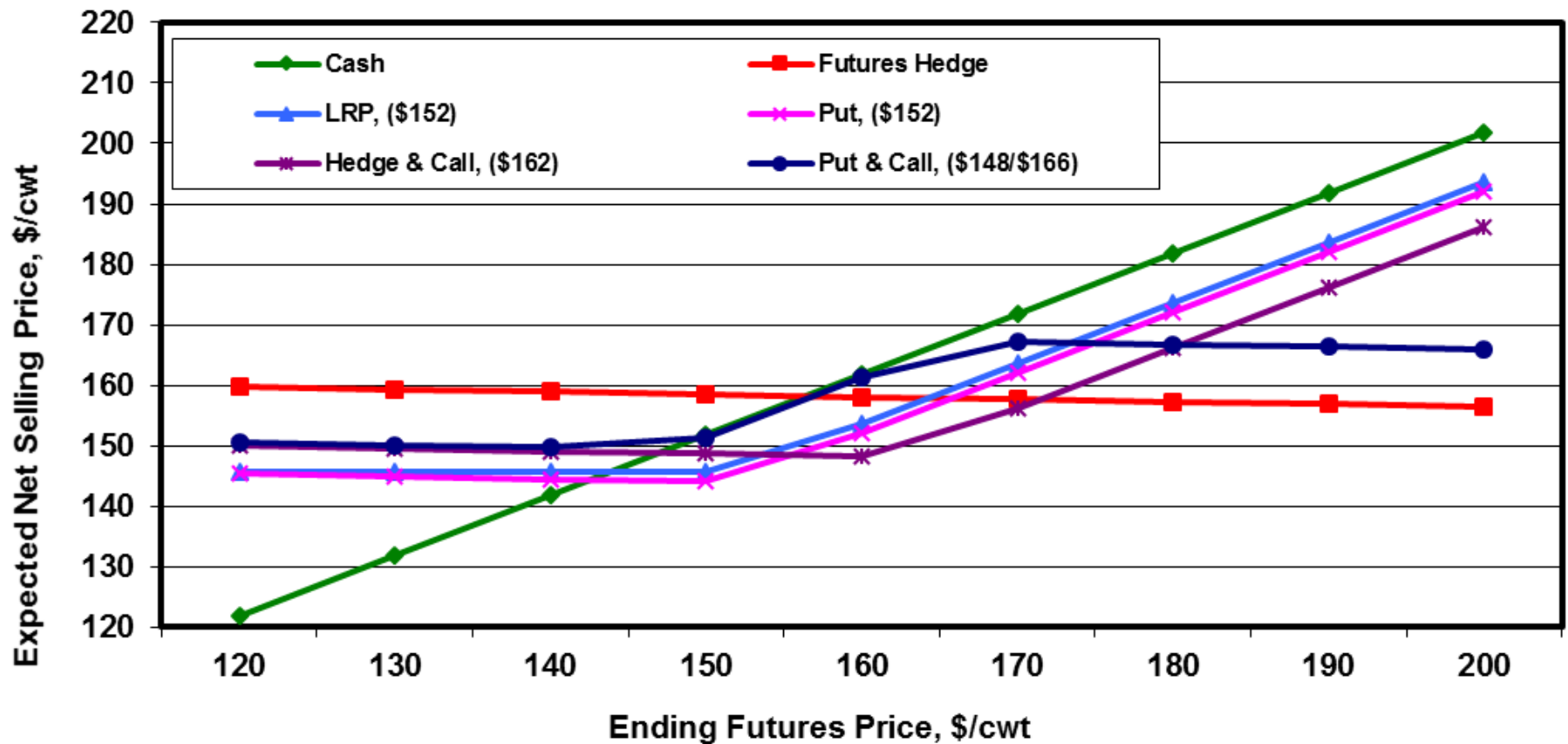
- Kearney, NE 1/12/16 situation:
 - Sell 800 lb yearlings on 5/9/16 (\$158.39)
- Considering price protection on May sale
 - Or for stocker/feedlots consider for buy in May
 - **USE: *FeederCattleRiskMgmtTool.xlsx***

Cow-Calf Output Price Hedging Considerations (as of 1/12/16)

- Case of 60 hd @ 800 lbs =
 - Compare alternatives:
 - a) 60 hd on LRP, b) 1 FC Futures Contract (+/- 63 hd per contract), c) 1 FC Options Contract or d) Cash
 - MAY FC: \$156.55 & Exp. Basis: \$1.84 (Exp. Cash = \$158.39)
 - LRP Coverage Price: \$152.09 & Premium: \$8.25
 - MAY Put Option @ \$152.00: \$9.30 premium

Cow-Calf Output Price Hedging Considerations (as of 1/12/16)

Comparison of Alternative Expected Net Selling Prices



Key Expansion Questions of Ind. Ranches

- *Should I Expand My Herd?*
- IF YES
 - What Can/Should I Pay?*
 - Should I Raise or Buy Heifers?*
 - Should I Consider Buying Cows Instead?*

Should I Expand My Herd?

- Note long-term nature of decision
- Do you agree or disagree with the concept: “a bird in hand is worth two in the bush?”
- Are you comfortable with the ever-changing industry environment?
- Do you have a comparative advantage?

Cow-Calf – Expansion Discussion

- *What Can I pay for a Replacement?*
 - *KSU-Beef Replacement* spreadsheet
 - Two fact sheets and video tutorial also available online:
 - <http://www.agmanager.info/livestock/budgets/production/default.asp>

Cow-Calf – Expansion Discussion

- What Can I pay for a Replacement?*

KSU-Beef Replacement spreadsheet_<http://www.agmanager.info/livestock/budgets/production/default.asp>)

Input Assumptions

Print Information

Number of replacements purchased	100	Percent marketable calves (1 - death loss)	97.0%
Year of purchase	2016	Annual cow death loss	0.5%
First year for calf sales	2016	Annual cull rate	15.0%
Cull cow weight, lbs/hd	1,250		
Annual cow costs, \$/year	\$700	Annual inflation rate on costs	1.0%
Price scenario to use (1-3) (USDA (As of Nov. '15))	1	Annual increase in average weaning weight	0.0%
Weaning weight scenario to use (1-3)	1	Discount rate (interest rate)	7.5%

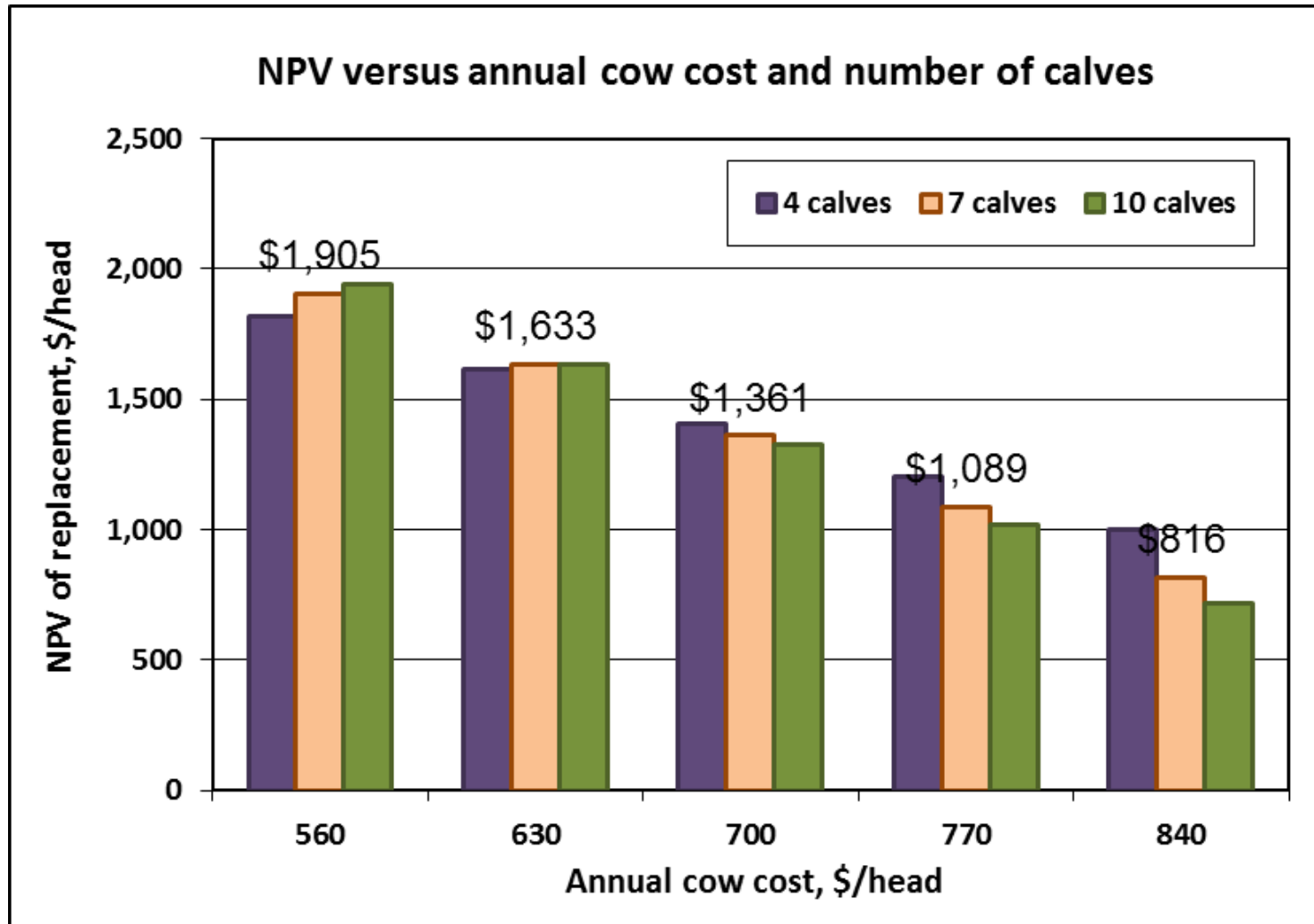
Net Present Value Analysis

Year	Cows at		Prices, \$/cwt		Calf		Cull Income		Cost	Cost	Net	Discount	NPV**
	BOY*	Calf	Calf wt	Calf	Cull	Income	Annual	Age		Adj.	Income	factor	
2016	100.0	1	542	\$203.57	\$90.20	\$1,070	\$169.13	\$953	\$700	\$0	\$539	1.0000	\$1,492
2017	84.5	2	552	\$167.30	\$74.61	\$757	\$118.21	\$666	\$597	\$0	\$278	0.9302	\$1,417
2018	71.4	3	562	\$155.09	\$69.61	\$604	\$93.19	\$525	\$510	\$0	\$187	0.8653	\$1,414
2019	60.3	4	567	\$148.05	\$66.70	\$491	\$75.45	\$425	\$435	\$0	\$132	0.8050	\$1,408
2020	51.0	5	572	\$140.86	\$63.72	\$398	\$60.91	\$343	\$371	\$0	\$88	0.7488	\$1,388
2021	43.1	6	572	\$139.10	\$62.94	\$332	\$50.84	\$286	\$317	\$0	\$66	0.6966	\$1,377
2022	36.4	7	567	\$136.71	\$61.71	\$274	\$42.12	\$237	\$270	\$0	\$45	0.6480	\$1,361
2023	30.8	8	565	\$135.30	\$61.01	\$228	\$35.19	\$198	\$231	\$0	\$32	0.6028	\$1,346
2024	26.0	9	562	\$136.33	\$61.36	\$193	\$29.90	\$168	\$197	\$0	\$26	0.5607	\$1,336
2025	22.0	10	559	\$137.40	\$61.71	\$164	\$25.42	\$143	\$168	\$0	\$21	0.5216	\$1,327

Cow-Calf – Expansion Discussion

- What Can I pay for a Replacement?*

KSU-Beef Replacement spreadsheet_(<http://www.agmanager.info/livestock/budgets/production/default.asp>)



Cow-Calf – Expansion Discussion

- What Can I pay for a Replacement?*

KSU-Beef Replacement spreadsheet_<http://www.agmanager.info/livestock/budgets/production/default.asp>)

Table 1. Net Present Value of Beef Replacements, Sensitivity Analysis Summary*

	Number		10% Lower	10% Lower	10% Higher
Year	of Calves	Base Case	Cow Costs/yr	Discount Rate	Calf Prices
2016	1	\$1,492	\$1,562	\$1,492	\$1,712
2017	2	\$1,417	\$1,543	\$1,423	\$1,686
2018	3	\$1,414	\$1,584	\$1,424	\$1,728
2019	4	\$1,408	\$1,612	\$1,421	\$1,757
2020	5	\$1,388	\$1,621	\$1,404	\$1,764
2021	6	\$1,377	\$1,632	\$1,394	\$1,775
2022	7	\$1,361	\$1,633	\$1,378	\$1,775
2023	8	\$1,346	\$1,632	\$1,364	\$1,773
2024	9	\$1,336	\$1,633	\$1,354	\$1,772
2025	10	\$1,327	\$1,633	\$1,345	\$1,772

*Should I **Raise** Replacement Heifers?*

- Most common approach to herd growth
 - 83% per 2007-08 USDA APHIS
(http://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef0708/Beef0708_dr_PartI_rev.pdf)
- Yes if:
 - It truly cost you less to raise than buy
 - Genetic base is acceptable already
 - Calving ease, milk prod, etc. /// also consider meat impact
 - Your environment is stressful for “imported” heifers
 - Climate, feed resources, parasites, etc. vary
 - You are concerned about open-market availability

*Should I **Buy** Replacement Heifers?*

- Yes if:
 - It truly cost you less to buy than raise
 - You value alternative uses of \$ &/or time
 - You value the reduced bull needs
 - Genetic control is valued & worse than desired
 - You want to grow herd faster

Hands-On Examination: Buy instead of Raise

- Likely most common situation:
 - Producer typically raises their own heifers and wants (or should) compare to buying instead.
 - Use Iowa State University resource (B1-73 “*Buying Heifers for Beef Cow Replacement*”) to identify changes in returns and costs that follow from buying rather than raising.

(<http://www.extension.iastate.edu/agdm/livestock/html/b1-73.html>)

Should I Buy Cows Instead of Heifers?

- Yes if:
 - Market encourages that
 - Compare NPV of Replacements Available to Buy
 - If NPV of 4-year old cow (4 more calves?) > NPV of heifer then buy 4-year old cow

Economic Outlook Overview: Stockers

<http://www.beefbasis.com/ForecastingTools/ValueofGain/tabid/1132/Default.aspx>

- Lexington, NE 1/19/16 situation (SPRING 2016):
 - Buy 600 lb steer on 1/22/16 (\$184)
 - Sell 725 lb steer on 04/22/16 (\$167) {1.36 ADG}
 - VOG: \$82/cwt
- IF COG \$80/cwt THEN Exp. Profit = +/- **-\$3/hd**

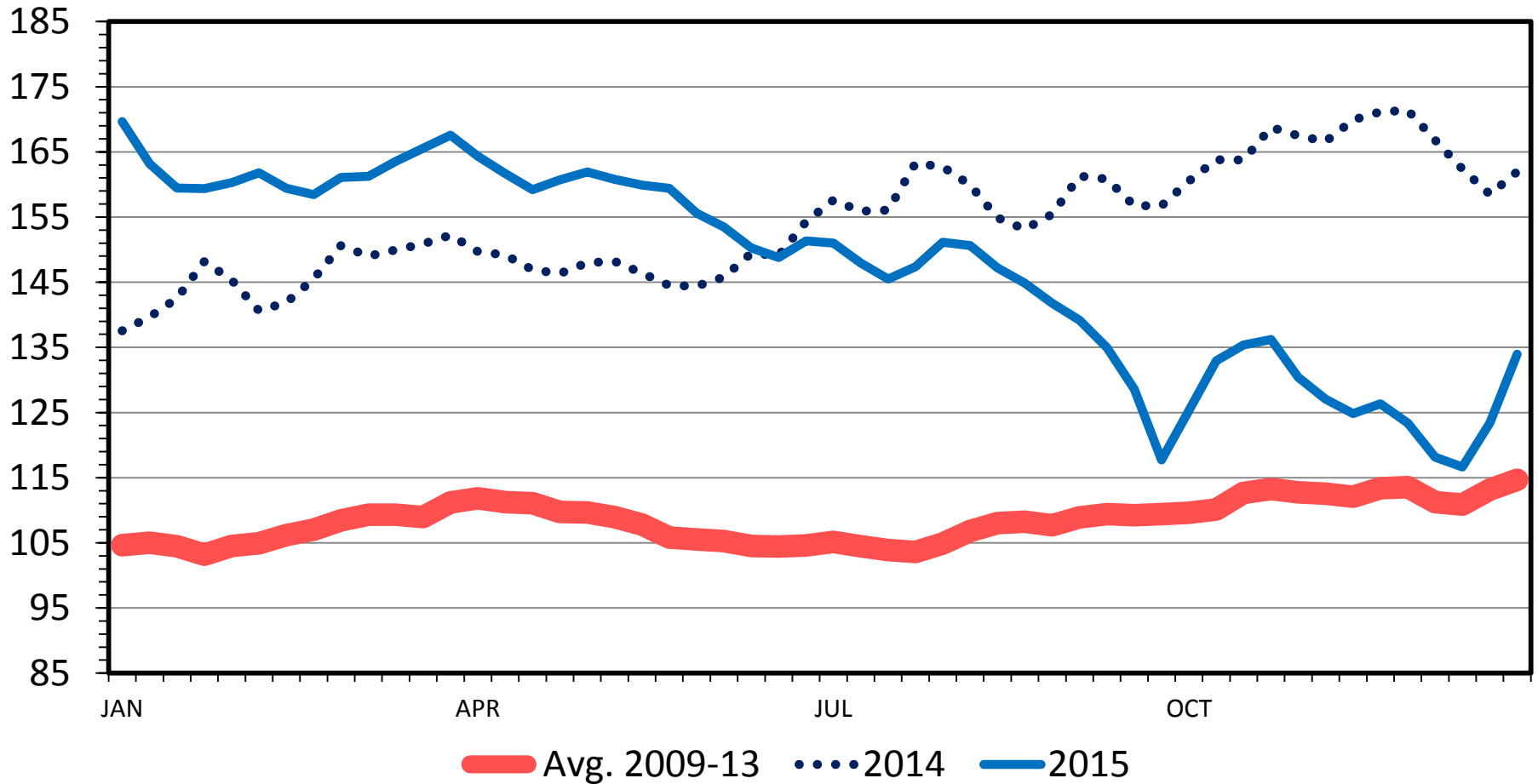
Economic Outlook Overview: Feedlots

- Poor 2015 cash returns
 - “Extra heavy” situation + demand concerns
- Structural concerns & uncertainty persist:
 - Excess capacity, Heifer Retention, Plant Closures, MCOOL, Cash Trade & Price Discovery...

SLAUGHTER STEER PRICES

5 Market Weighted Average, Weekly

\$ Per Cwt.



Data Source: USDA-AMS

Livestock Marketing Information Center

01/04/16

Historical and Projected Kansas Feedlot Net Returns (as of 1/8/16')

(<http://www.agmanager.info/livestock/marketing/outlook/newsletters/FinishingReturns/default.asp>)

Representative Barometer for Trends in Profitability

Historical and Projected Kansas Feedlot Net Returns (as of 1/8/16')

(<http://www.agmanager.info/livestock/marketing/outlook/newsletters/FinishingReturns/default.asp>)

November 2015 Summary

Revenue: \$1,881/steer (1,467 lbs @ \$128.22/cwt)

Feeder Cattle Purchase: \$1,836 / steer (842 lbs @ \$218.16/cwt)

Gross Margin (Fat-Feeder): \$45/steer

Break-Even COG (625 lbs added w/ interest costs): \$0.01/lb

VS

Estimated COG: \$0.81/lb

= *-\$500/steer margins*

Representative Barometer for Trends in Profitability

Historical and Projected Kansas Feedlot Net Returns (as of 1/8/16')

(<http://www.agmanager.info/livestock/marketing/outlook/newsletters/FinishingReturns/default.asp>)

Table 1. Projected Values for Finishing Steers in Kansas Feedyards*

Closeout Mo-Yr	Net Return	FCOG**	Fed Price	Feeder Price	Breakeven FCOG**	Breakeven Fed Price	Breakeven Feeder Price
Dec-15	-571.07	84.85	125.95	213.61	-13.71	165.08	148.72
Jan-16	-289.72	85.31	144.16	209.03	32.88	164.25	176.47
Feb-16	-143.28	85.17	148.85	205.91	60.94	158.84	188.90
Mar-16	-118.29	84.26	142.70	190.91	63.20	151.06	177.04
Apr-16	-192.45	82.62	132.50	188.68	50.82	146.02	165.16
May-16	-179.78	82.72	130.48	181.00	52.04	143.09	159.58
Jun-16	-102.35	82.94	122.26	158.04	65.57	129.39	145.96
Jul-16	-41.01	83.47	124.92	152.66	76.35	127.72	148.06
Aug-16	33.40	82.36	127.06	150.18	87.98	124.80	153.97
Sep-16	44.95	82.92	128.01	149.40	90.49	125.01	154.37

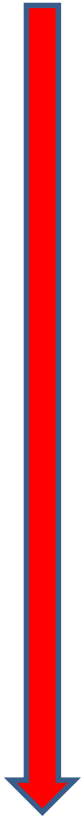
Representative Barometer for Trends in Profitability

Quarterly Forecasts (LMIC: 1/8/16)

		% Chg.	Average	% Chg.	Comm'I	% Chg.
Year	Comm'I	from	Dressed	from	Beef	from
Quarter	Slaughter	Year Ago	Weight	Year Ago	Production	Year Ago
2015						
I	6,967	-5.5	813.0	2.2	5,664	-3.5
II	7,227	-7.8	810.1	2.7	5,855	-5.3
III	7,288	-4.5	832.4	2.8	6,066	-1.8
IV	7,261	-0.9	841.3	2.4	6,109	1.5
Year	28,743	-4.7	824.3	2.5	23,694	-2.3
2016						
I	7,113	2.1	821.2	1.0	5,841	3.1
II	7,332	1.5	813.4	0.4	5,964	1.9
III	7,624	4.6	835.5	0.4	6,370	5.0
IV	7,530	3.7	840.0	-0.2	6,325	3.5
Year	29,599	3.0	827.7	0.4	24,500	3.4
2017						
I	7,430	4.5	827.5	0.8	6,148	5.3
II	7,638	4.2	818.1	0.6	6,249	4.8
III	7,823	2.6	838.9	0.4	6,563	3.0
IV	7,856	4.3	842.4	0.3	6,618	4.6
Year	30,747	3.9	831.9	0.5	25,578	4.4

Quarterly Forecasts (LMIC: 1/8/16)

	Live Sltr.	% Chg.	Feeder Steer Price	
Year	Steer Price	from	Southern Plains	
Quarter	5-Mkt Avg	Year Ago	7-800#	5-600#
2015				
I	162.43	11.0	215.87	276.14
II	158.11	7.0	225.29	279.32
III	144.22	-9.0	214.38	246.04
IV	127.72	-22.9	177.29	203.51
Year	148.12	-4.2	208.21	251.25
2016				
I	136-139	-15.3	165-169	195-200
II	139-143	-10.8	167-172	198-205
III	133-138	-6.0	162-168	200-208
IV	131-137	4.9	159-166	191-200
Year	135-139	-7.5	163-169	196-203
2017				
I	132-139	-1.5	159-167	194-204
II	133-141	-2.8	160-169	196-208
III	127-136	-3.0	156-166	189-202
IV	127-137	-1.5	153-165	183-197
Year	131-137	-2.2	159-165	193-200

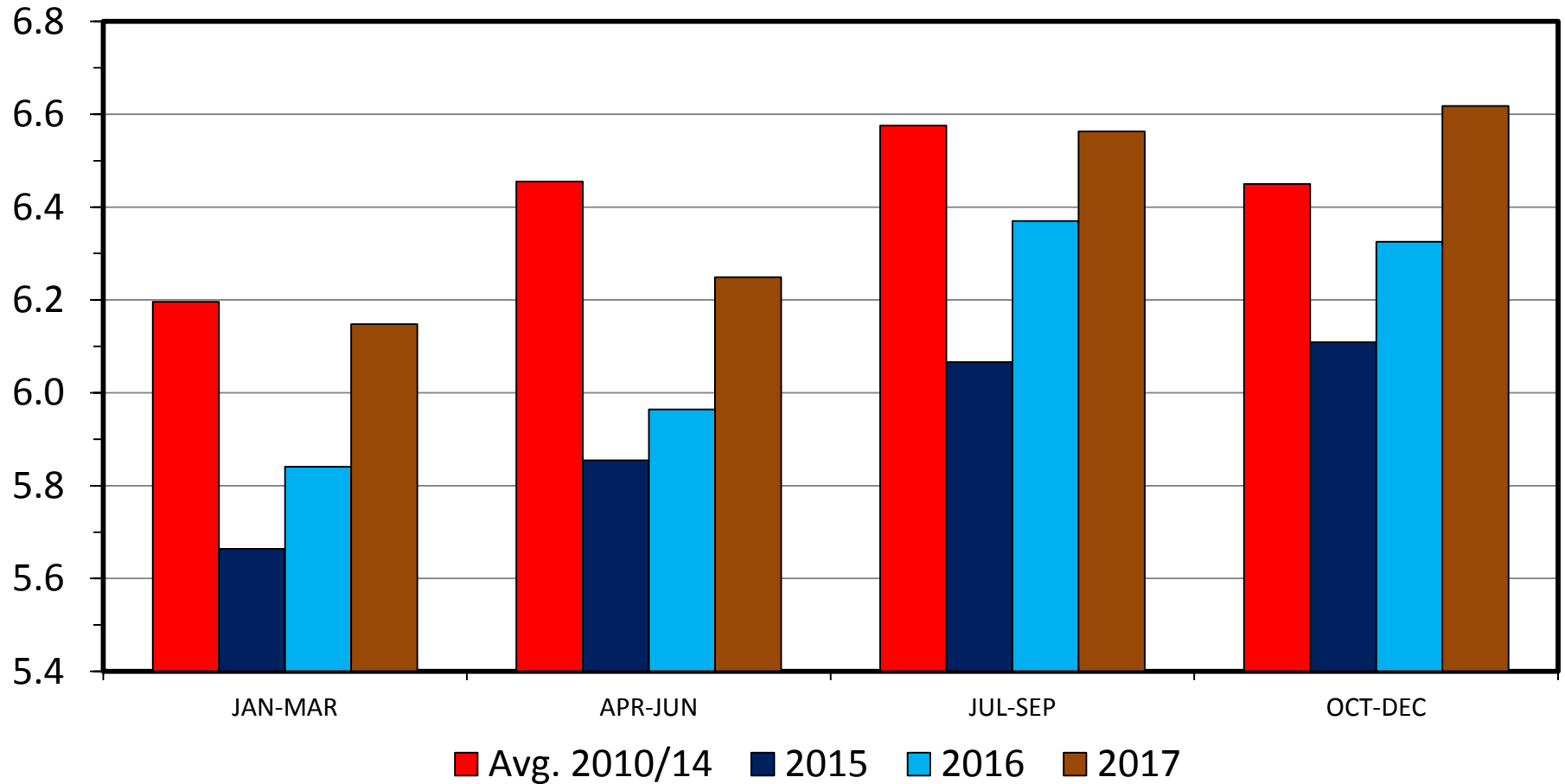


Beef, Pork, & Broiler Meat Production & Trade Overview

COMMERCIAL BEEF PRODUCTION

US, Quarterly

Bil. Pounds



Data Source: USDA-NASS, Forecasts by LMIC

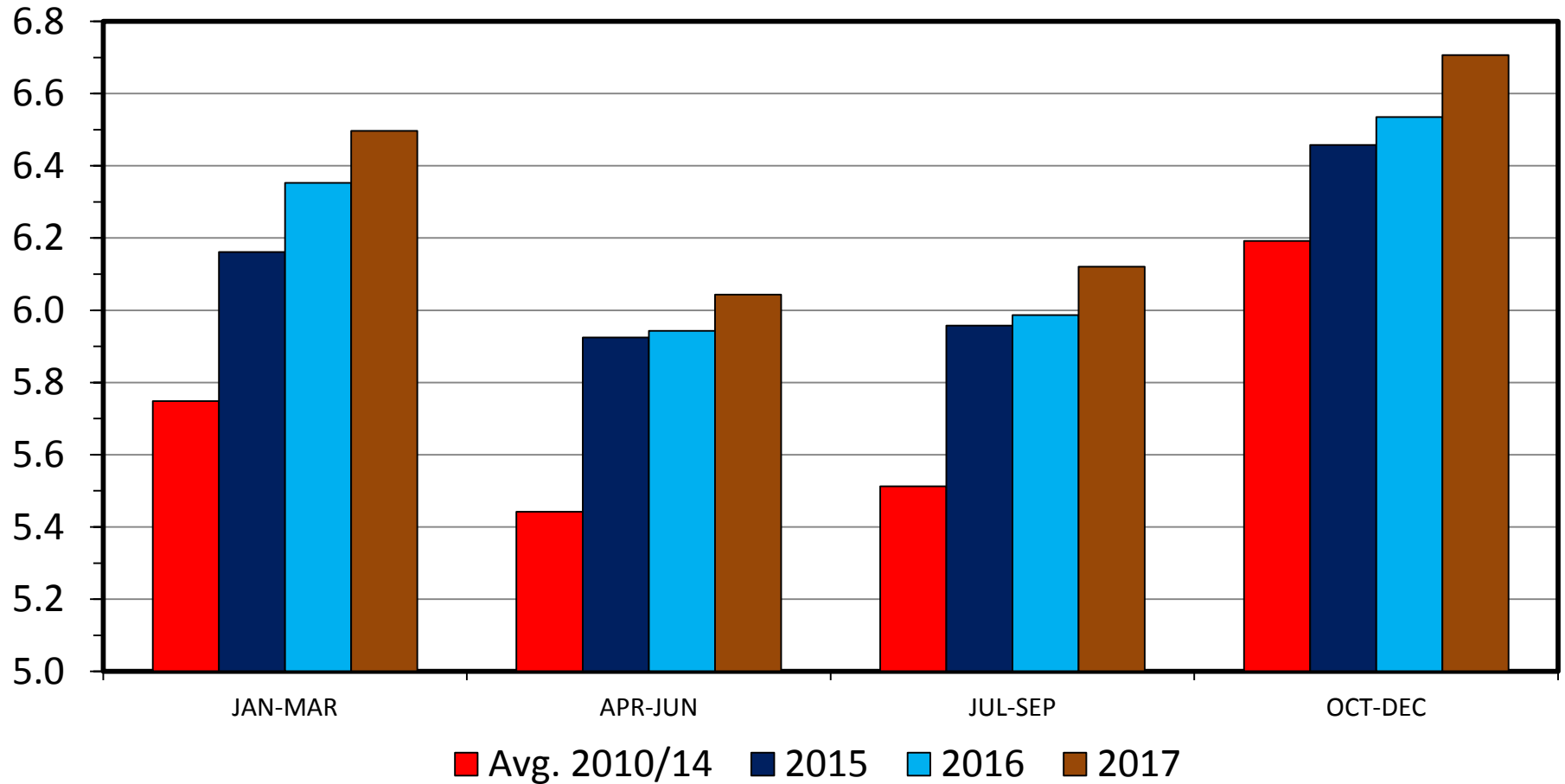
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COMMERCIAL PORK PRODUCTION

US, Quarterly

Bil. Pounds



Data Source: USDA-NASS, Forecasts by LMIC

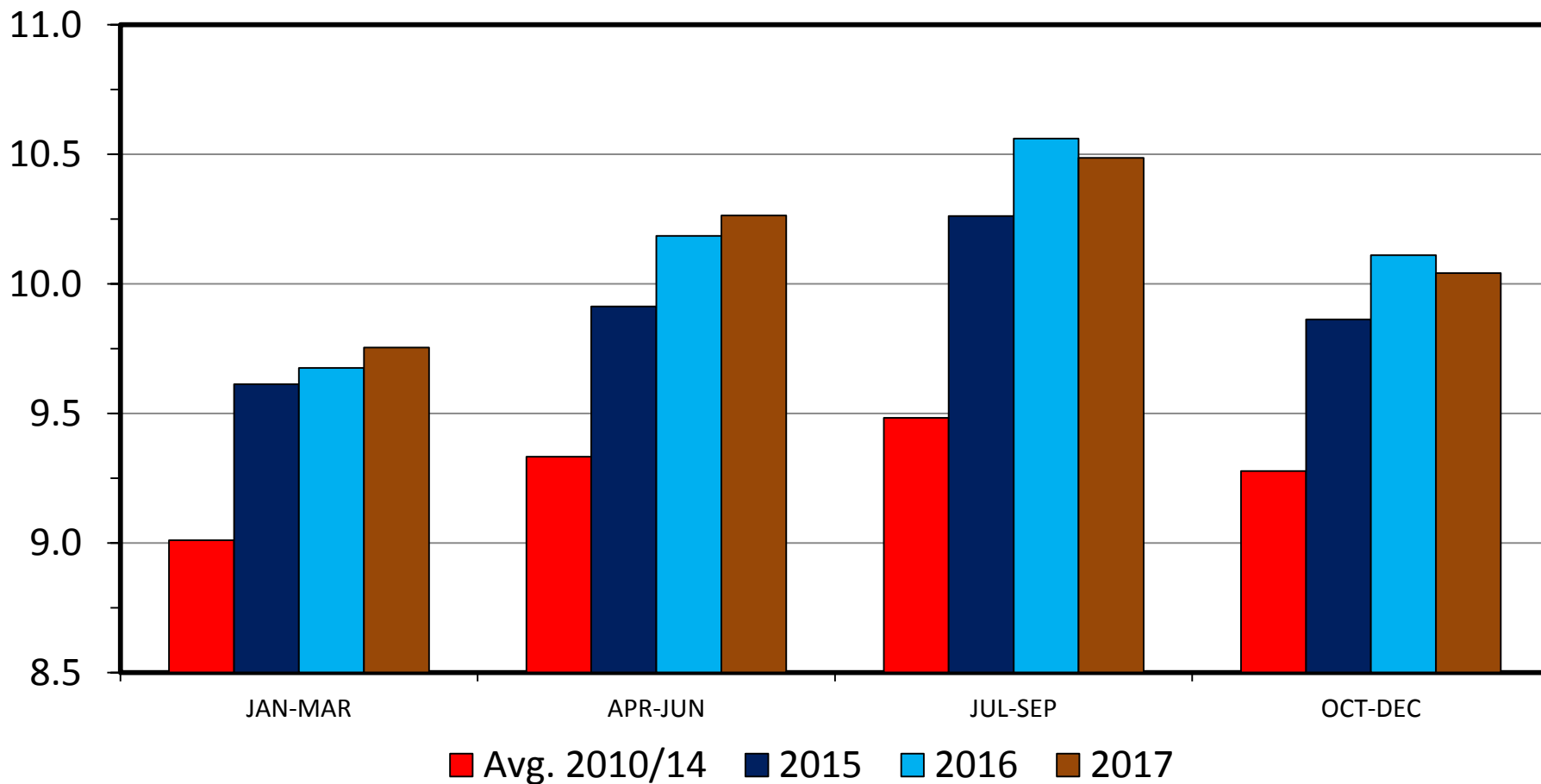
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RTC BROILER PRODUCTION

US, Quarterly

Bil. Pounds



Data Source: USDA-NASS, Forecasts by LMIC

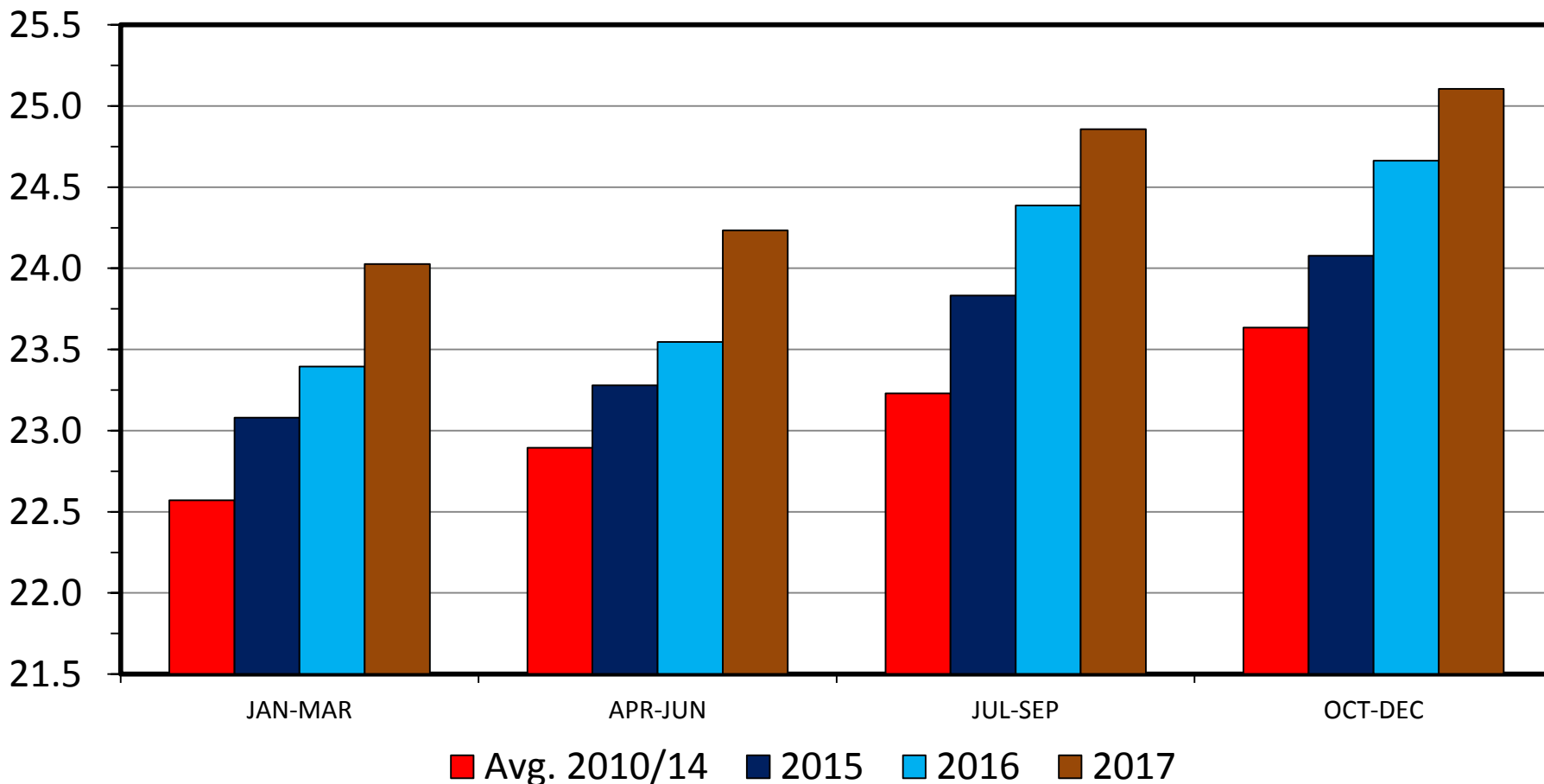
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TOTAL RED MEAT & POULTRY PRODUCTION

US, Quarterly

Bil. Pounds



Data Source: USDA-NASS, Forecasts by LMIC

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01/04/16

USDA Long-Term projections

Nov. 2015 pre-report release (<http://www.usda.gov/oce/commodity/projections/index.htm>)

Per capita meat cons., retail wt	Recent		Next 5 Years					10 Years Out
Item	2014	2015	2016	2017	2018	2019	2020	2025
	<i>Pounds</i>							
Beef	54.1	54.4	55.3	55.2	55.6	56.1	56.3	56.8
Pork	46.4	49.5	49.7	50.1	50.5	50.8	50.9	51.1
Total red meat	101.7	105.2	106.1	106.5	107.2	108.0	108.3	108.9
Broilers	83.3	89.1	89.6	89.5	89.8	90.2	90.7	91.5
Turkeys	15.7	15.8	16.2	16.7	17.0	17.1	17.2	17.3
Total poultry	100.3	106.1	107.1	107.5	108.1	108.7	109.3	110.3
Red meat & poultry	202.1	211.2	213.2	214.0	215.3	216.7	217.6	219.2

Projections INCLUDE growing export forecasts...

USDA Long-Term projections

Nov. 2015 pre-report release (<http://www.usda.gov/oce/commodity/projections/index.htm>)

Beef long-term projections		Recent	Next 5 Years						10 Years Out
Item	Units	2014	2015	2016	2017	2018	2019	2020	2025
Total production	Mil. lbs.	24,320	23,780	24,914	25,295	25,761	26,296	26,684	28,057
Imports	Mil. lbs.	2,947	3,432	3,045	2,950	2,975	3,000	3,050	3,300
Total supply	Mil. lbs.	27,851	27,803	28,559	28,805	29,296	29,856	30,294	31,917
Exports	Mil. lbs.	2,573	2,223	2,425	2,500	2,650	2,800	2,925	3,400
Total consumption	Mil. lbs.	24,687	24,980	25,574	25,745	26,086	26,496	26,809	27,957
Per capita, retail weight	Pounds	54.1	54.4	55.3	55.2	55.6	56.1	56.3	56.8
Change from previous year	Percent	-3.8	0.5	1.6	-0.1	0.6	0.9	0.5	0.0

2025 vs 2015 Exports

➤ +53% in Volume

➤ 12.1% (2025) vs. 9.3% (2015) of Production

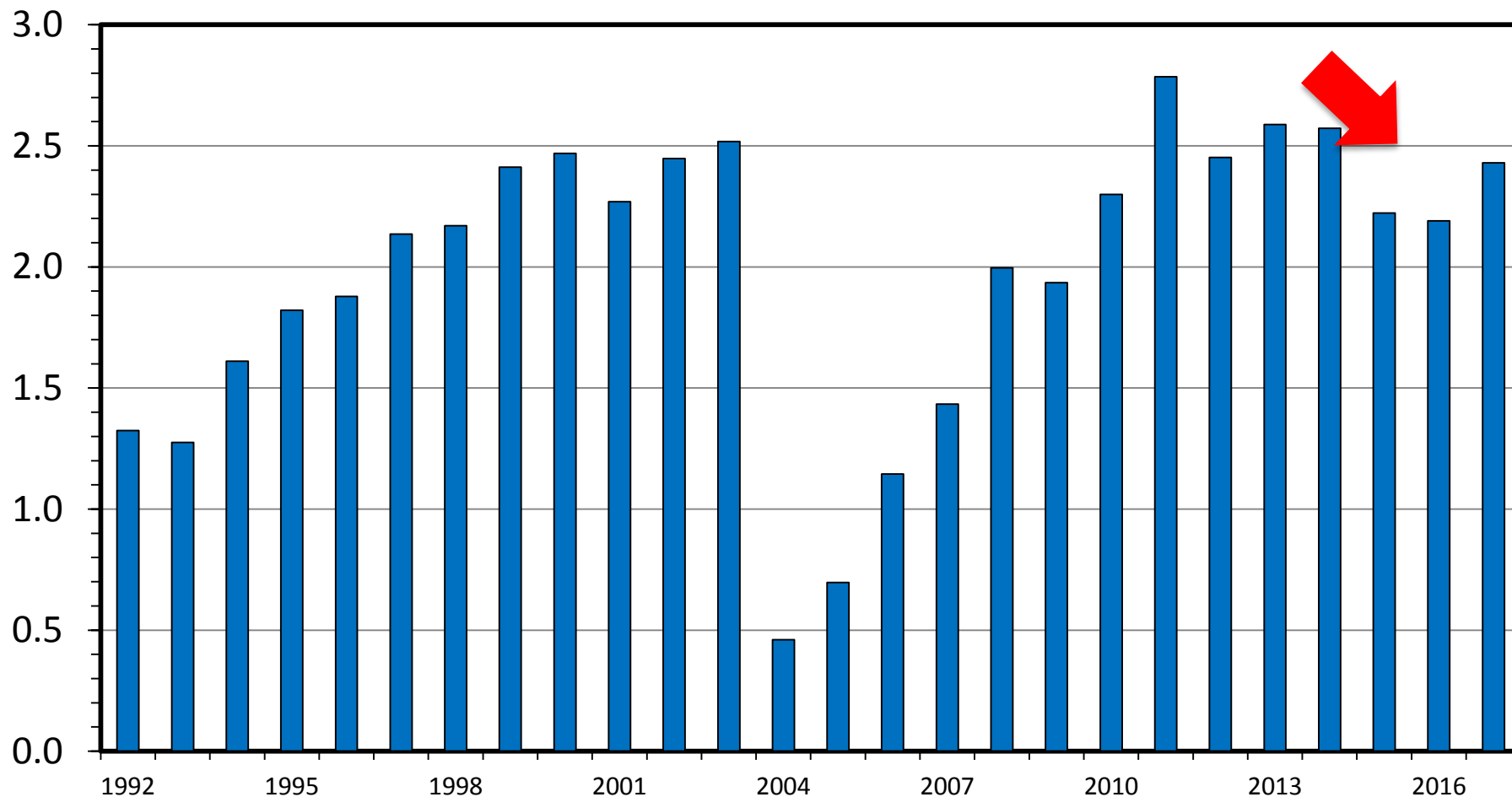
Broad “Global Factors”

- Recent adverse developments:
 - Geo-political risks
 - Global GDP forecast reductions
 - U.S. Dollar strength = pressure on U.S. exports
- Longer-term positive aspects:
 - Global population & income growth
 - U.S. maintains multiple comparative advantages

US BEEF AND VEAL EXPORTS

Carcass Weight, Annual

Bil. Pounds



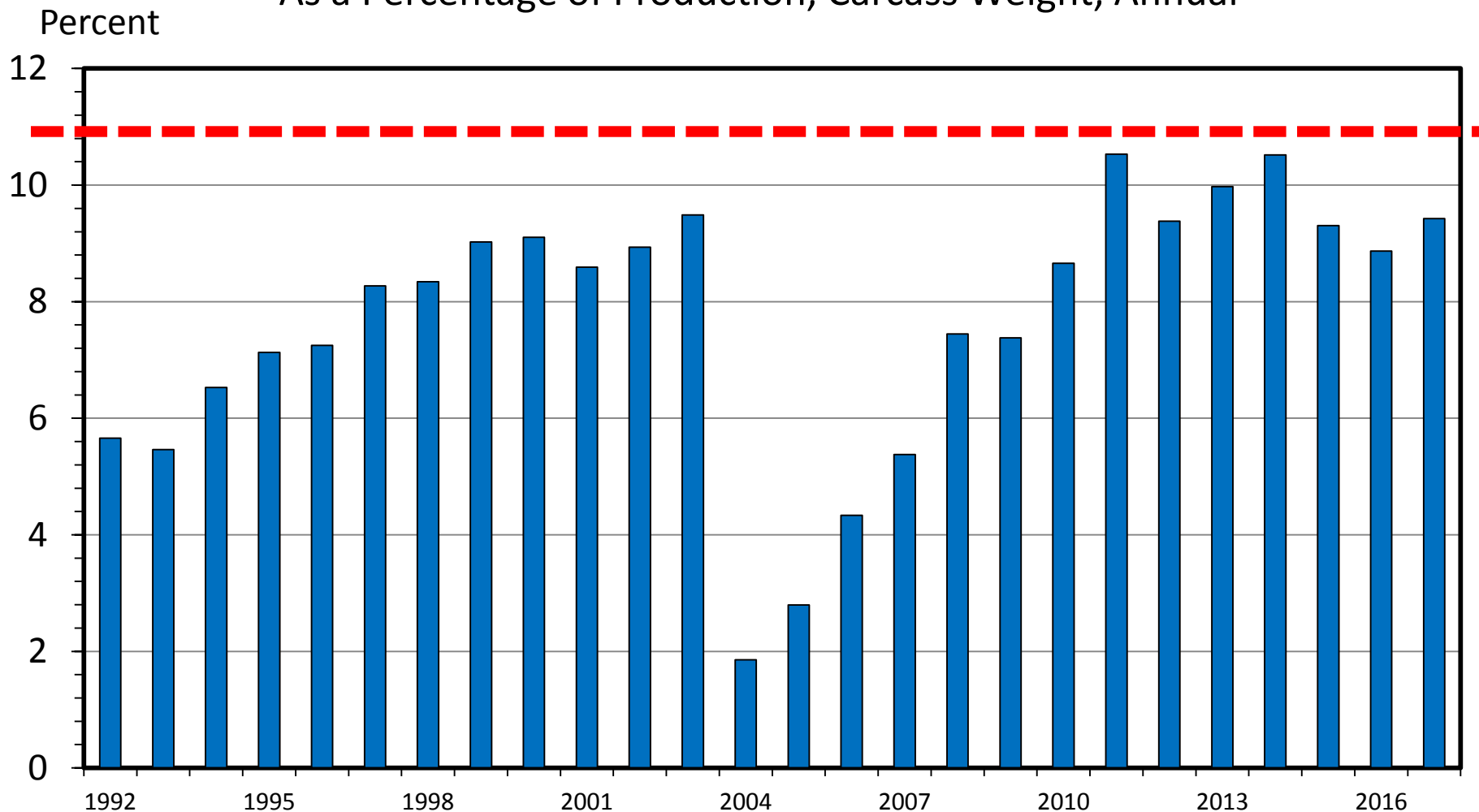
Data Source: USDA-ERS & USDA-FAS, Compiled & Analysis by LMIC

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US BEEF AND VEAL EXPORTS

As a Percentage of Production, Carcass Weight, Annual



Data Source: USDA-ERS & USDA-FAS, Compiled & Analysis by LMIC

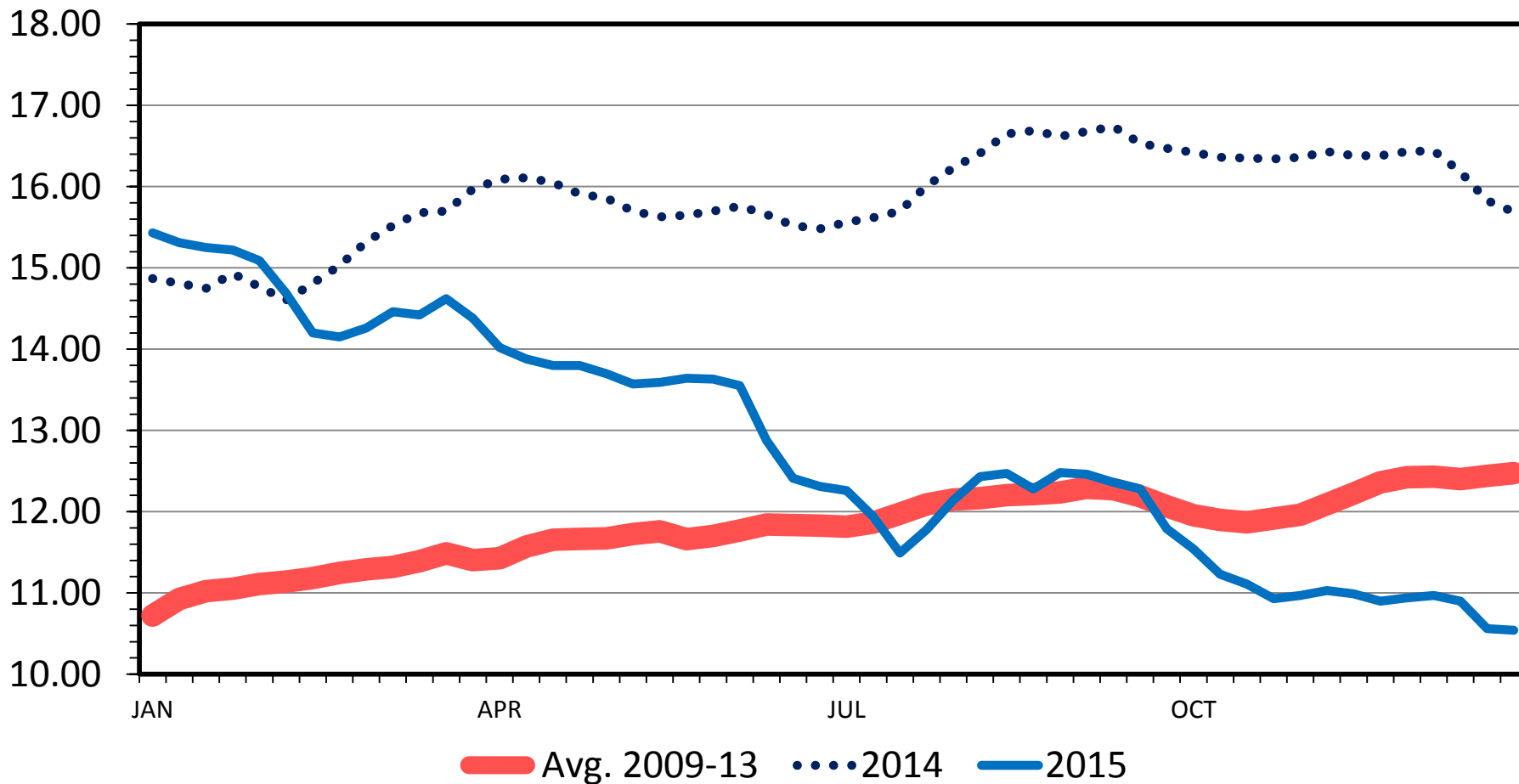
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STEER HIDE AND OFFAL VALUE

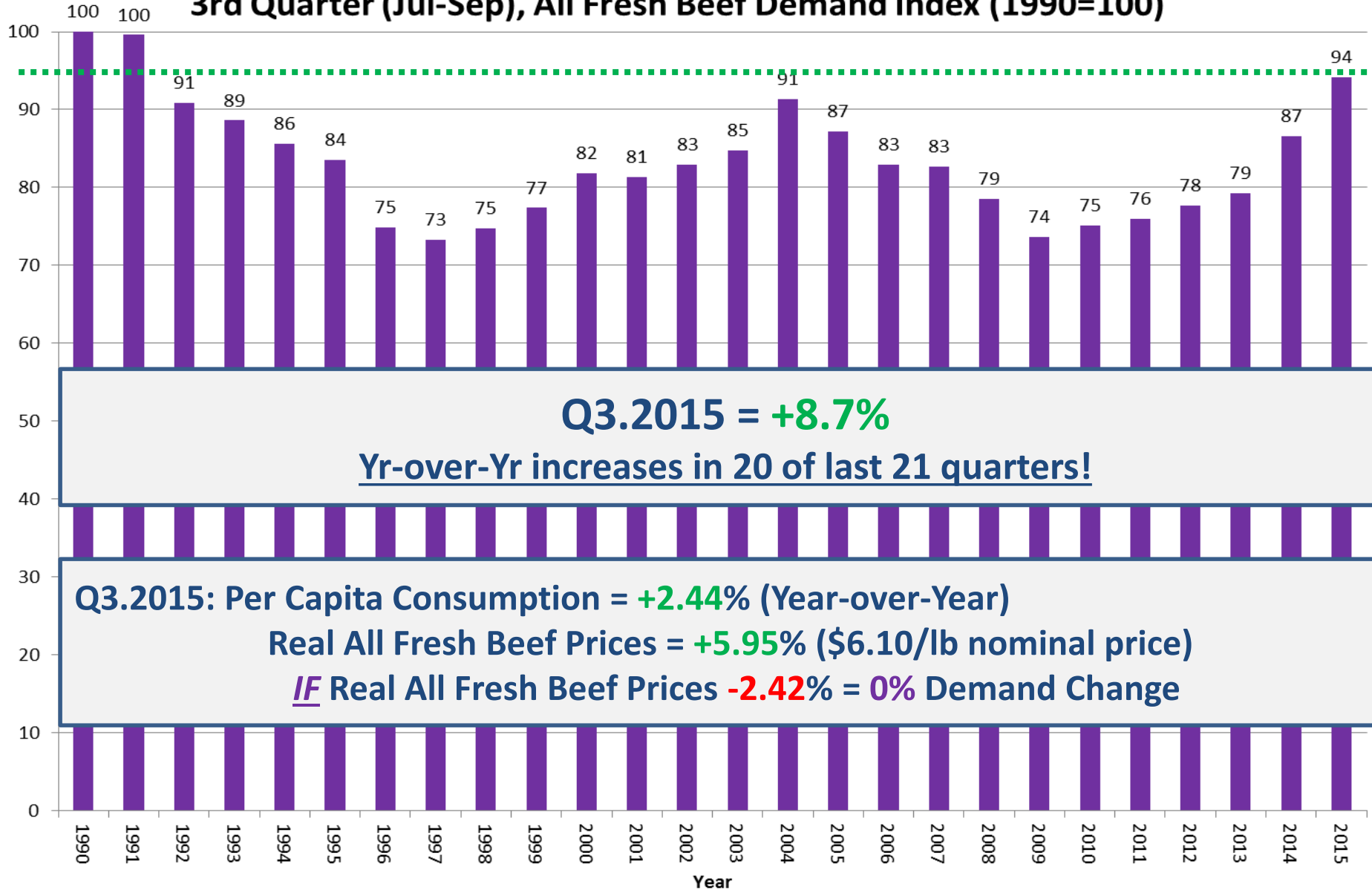
Live Animal Basis, Weekly

\$ Per Cwt.



3rd Quarter (Jul-Sep), All Fresh Beef Demand Index (1990=100)

Demand Index (1990=100)



Source: Glynn T. Tonsor, Kansas State University, Oct. 2015

Wrap-up Summary Thoughts

- Opportunity exists
 - Herd expansion ongoing; not uniformly...
 - Profitable prospects for sound management
 - Ongoing demand enhancement critical for profitability...

Take-Home Summary Points

- Industry at tipping point on role of tight supplies
- **Demand's role will become clearer going forward**
 - http://www.agmanager.info/livestock/marketing/Beef%20Demand/BeefDemand_08-28-15.pdf
- Identifying & acting upon comparative advantage will increasingly be key!

More information available at:



This presentation will be available in PDF format at:

<http://www.agmanager.info/about/contributors/individual/tonsor.asp>

Glynn T. Tonsor
Associate Professor
Dept. of Agricultural Economics
Kansas State University
Email: gtonsor@ksu.edu
Twitter: @TonsorGlynn

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<http://www.AgManager.info/Evaluation/Email.htm>



Decision Aides & Resources to Note

- K-State
 - KSU-Beef Replacements (Excel tool & Video tutorial)
<http://www.agmanager.info/Tools/default.asp#LIVESTOCK>
 - Factsheets: Replacement NPV Regional Analysis & Sensitivity
<http://www.agmanager.info/livestock/budgets/production/default.asp>
 - MF2566 Raising Beef Replacement Heifers
<http://www.ksre.ksu.edu/bookstore/pubs/mf2566.pdf>
 - Updated projections, charts, etc.:
<http://www.agmanager.info/about/contributors/Presentations/Tonsor/presentations.asp>
- Iowa State (Schulz and Gunn, Jan. 2014)
 - B1-73: Buying Heifers & Raising Heifers for Replacements
<http://www.extension.iastate.edu/agdm/livestock/html/b1-73.html>
- Univ. of Nebraska-Lincoln
 - <http://www.extension.unl.edu/agriculture/beef/components/homestudy/replesson6.pdf>