Expanding the Cowherd: Economic Considerations

Kansas Livestock Association, Annual Convention
December 5, 2013

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www.agmanager.info

Quarterly Forecasts (LMIC: 11/26/13)

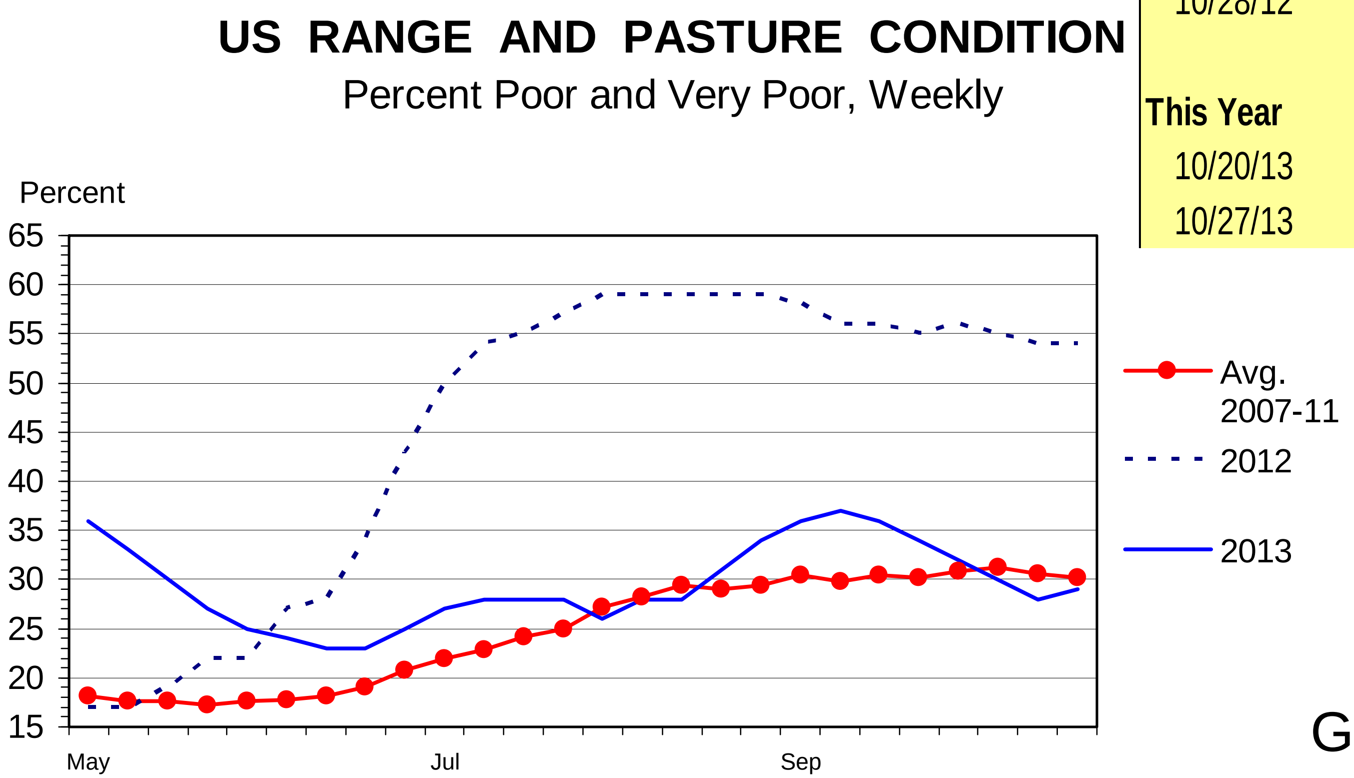
Year Quarter	Comm'l Slaughter	% Chg. from Year Ago	Average Dressed Weight	% Chg. from Year Ago	Comm'l Beef Production	% Chg. from Year Ago
2013						
I	7,779	-3.1	793.4	1.4	6,172	-1.7
II	8,325	0.2	782.8	0.5	6,517	0.7
III	8,322	-0.1	794.1	0.5	6,609	0.4
IV	7,939	-4.1	795.9	0.3	6,319	-3.9
Year	32,365	-1.8	791.5	0.6	25,617	-1.1
2014						
I	7,213	-7.3	797.3	0.5	5,751	-6.8
II	7,708	-7.4	786.6	0.5	6,063	-7.0
III	7,708	-7.4	798.5	0.6	6,155	-6.9
IV	7,395	-6.9	801.5	0.7	5,927	-6.2
Year	30,024	-7.2	795.9	0.6	23,896	-6.7
2015						
I	6,902	-4.3	801.9	0.6	5,535	-3.8
II	7,344	-4.7	793.4	0.9	5,827	-3.9
III	7,433	-3.6	805.9	0.9	5,990	-2.7
IV	7,221	-2.4	805.8	0.5	5,819	-1.8
Year	28,900	-3.7	801.8	0.7	23,171	-3.0

Quarterly Forecasts (LMIC: 11/26/13)

Year Quarter	Live Sltr. Steer Price 5-Mkt Avg	% Chg. from Year Ago	Feeder Steer Price Southern Plains 7-800#	Feeder Steer Price Southern Plains 5-600#
2013				
I	125.51	0.2	142.41	170.13
II	124.95	3.3	137.34	159.71
III	122.30	2.2	155.95	171.19
IV	131-132	4.7	167-168	186-187
Year	125-127	2.6	150-152	171-173
2014				
I	132-134	6.0	168-172	189-194
II	133-137	8.0	169-175	193-202
III	129-134	7.5	169-176	189-197
IV	132-138	2.7	166-174	184-193
Year	131-136	6.0	168-174	189-196
2015				
I	134-141	3.4	168-177	188-199
II	136-144	3.7	169-179	194-206
III	132-141	3.8	171-182	192-205
IV	135-145	3.7	168-180	186-200
Year	135-142	3.7	170-178	191-201

Improving Pastures…

Beef Cows in states with 40% Poor to Very Poor		
Last year	Cows	% of Total
10/21/12	21284	**70.77%**
10/28/12	21284	**70.77%**
This Year		
10/20/13	2603	**8.91%**
10/27/13	4408	**15.09%**



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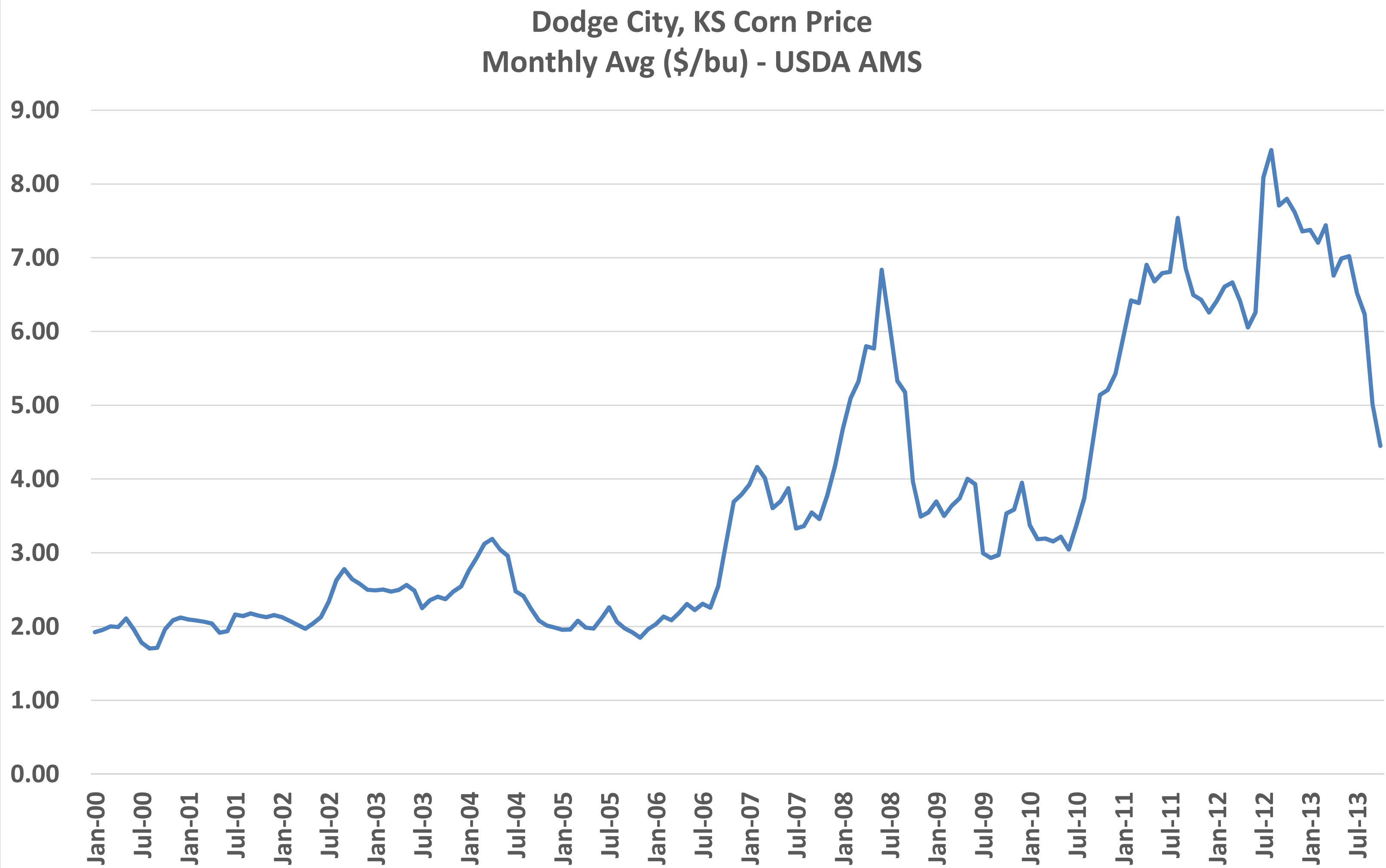
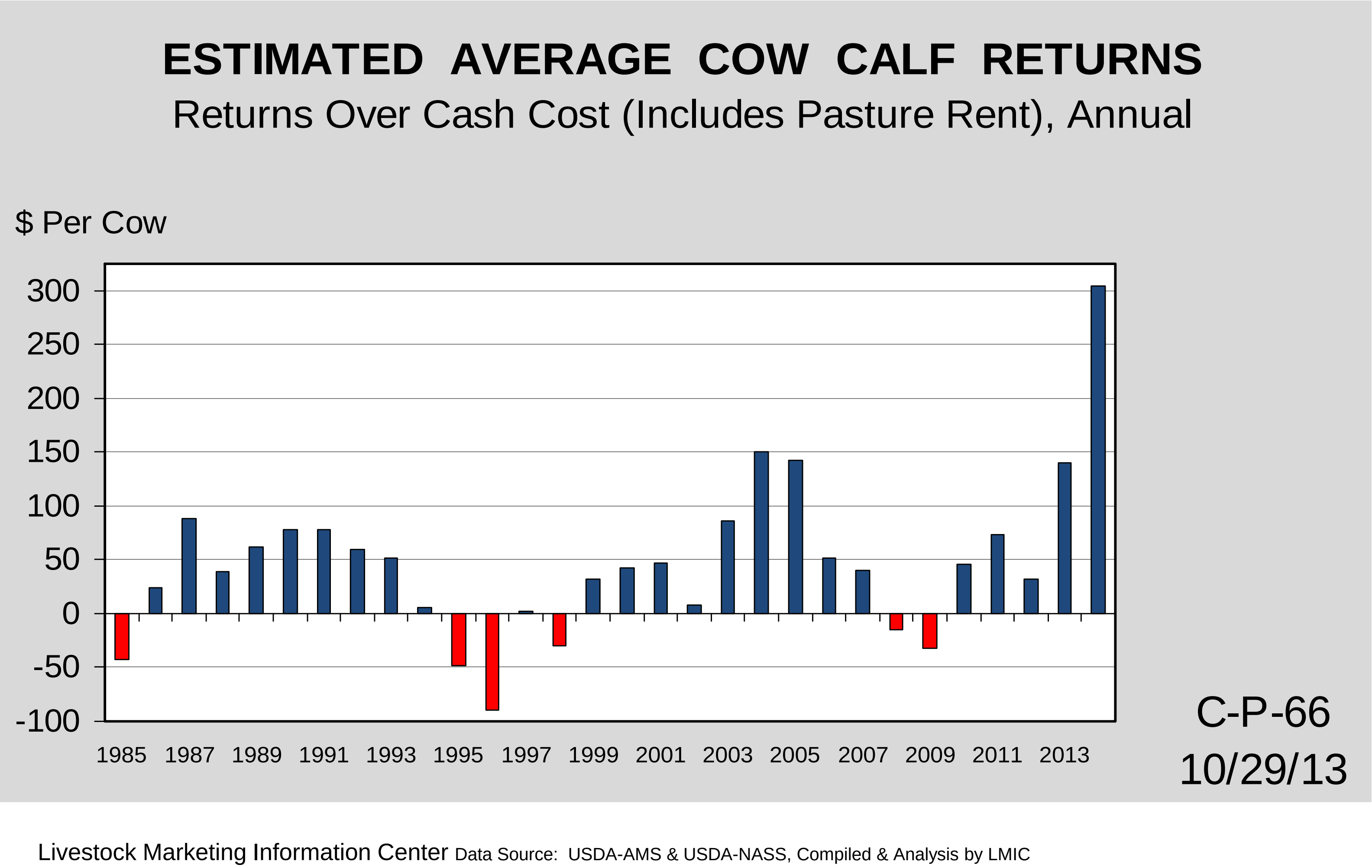
Livestock Marketing Information Center (LMIC)

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

Improving Grain Prices…



Improving Margins…



Cow-Calf – Expansion Discussion

- *Expected Profit*
  - *2014 LMIC Forecast 2X 04' & 13'*
    - *Note same $X/hd = lower ROI than in the past…*
      - *ERS Total Costs/cow: 2002 - $974; 2008 - $1,121; 2012 - $1,317*
- *Profit Risk*
  - *Context on environment of price variability…*
    - *Feedstuff price recovery persistence?*
    - *Concern over retail beef prices?*
    - *"Sky high" replacement prices in 2014?*
- *Uncertainty*
  - *Broader political uncertainty*
    - *Economic Policy Uncertainty Indices (http://www.policyuncertainty.com/index.html)*
    - *Farm Bill, Shutdown, MCOOL, Technology Acceptance…*

Cow-Calf – Expansion Discussion

- *Why Did Herd Shrink?*
  - *Beef Demand Declines (long-term)*
  - *Drought & Feed Costs (more recent)*

- *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

- *KSU-Beef Replacement* spreadsheet
  - http://www.agmanager.info/livestock/budgets/production/default.asp

Net Present Value of Beef Replacements

Year	Number of Calves	Base Case
2014	1	$1,107
2015	2	$1,234
2016	3	$1,324
2017	4	$1,359
2018	5	$1,381
2019	6	$1,410
2020	7	$1,428
2021	8	$1,445
2022	9	$1,461
2023	10	$1,469

Key Inputs Varied Across Scenarios:

Annual cow costs, $/year		$700
Discount rate, interest rate		7.50%
Calf Price, $/cwt	2014	$168
	2015	$171
	2016	$171
	2017	$164
	2018	$160
	2019	$161
	2020	$162
	2021	$165
	2022	$168
	2023	$169

* NPV is Net Present Value of a replacement expected to produce the number of saleable calves listed in the "Number of Calves" column before a cow is culled for age-related reasons.

Cow-Calf – Expansion Discussion

- *KSU-Beef Replacement* spreadsheet
  - http://www.agmanager.info/livestock/budgets/production/default.asp

Net Present Value of Beef Replacements

Year	Number of Calves	Base Case	10% Lower Cow Costs/yr
2014	1	$1,107	$1,177
2015	2	$1,234	$1,359
2016	3	$1,324	$1,494
2017	4	$1,359	$1,563
2018	5	$1,381	$1,614
2019	6	$1,410	$1,664
2020	7	$1,428	$1,700
2021	8	$1,445	$1,732
2022	9	$1,461	$1,758
2023	10	$1,469	$1,775

Yr 1: $70

Yr 10: $306

Economic Outlook Overview : Cow-Calf – Expansion Discussion

- *Variation across producers is substantial*
  - *$300 dif in costs of top & bottom 1/3 KFMA producers*
    - Producer w/ $850/cow costs: $813/heifer (10 yrs) NPV
    - Producer w/ $700/cow costs: $1,469/heifer (10 yrs) NPV
- *Regionally:*
  - Southern Plains will rebuild some
  - Great/N. Plains & West will resume relative growth
  - SE & Heartland will continue trend of relative decline
    - Unless opportunity costs of labor and/or land are ignored…
- *Nationally:*
  - more intense and/or alternative cow management likely necessary given land constraints…

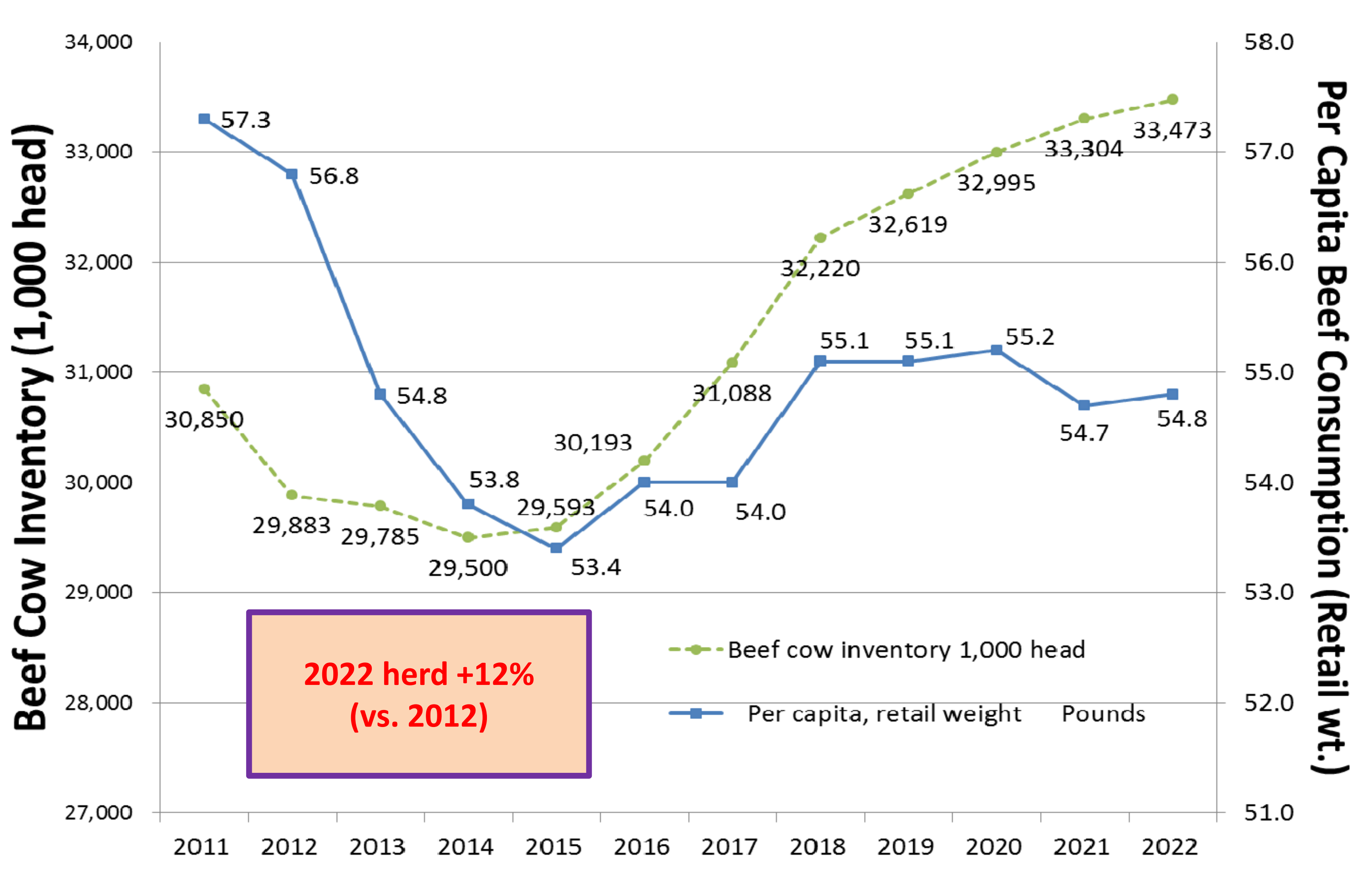
Economic Outlook Overview : Cow-Calf – Expansion Discussion

- *Role of Risk & Uncertainty*
  - Producer charging 7.5% discount rate:
    - $1,469/heifer (10 yrs) NPV
  - Producer charging 15% discount rate:
    - $1,225/heifer (10 yrs) NPV

Longer-term projections (*as of Feb. 2013*)

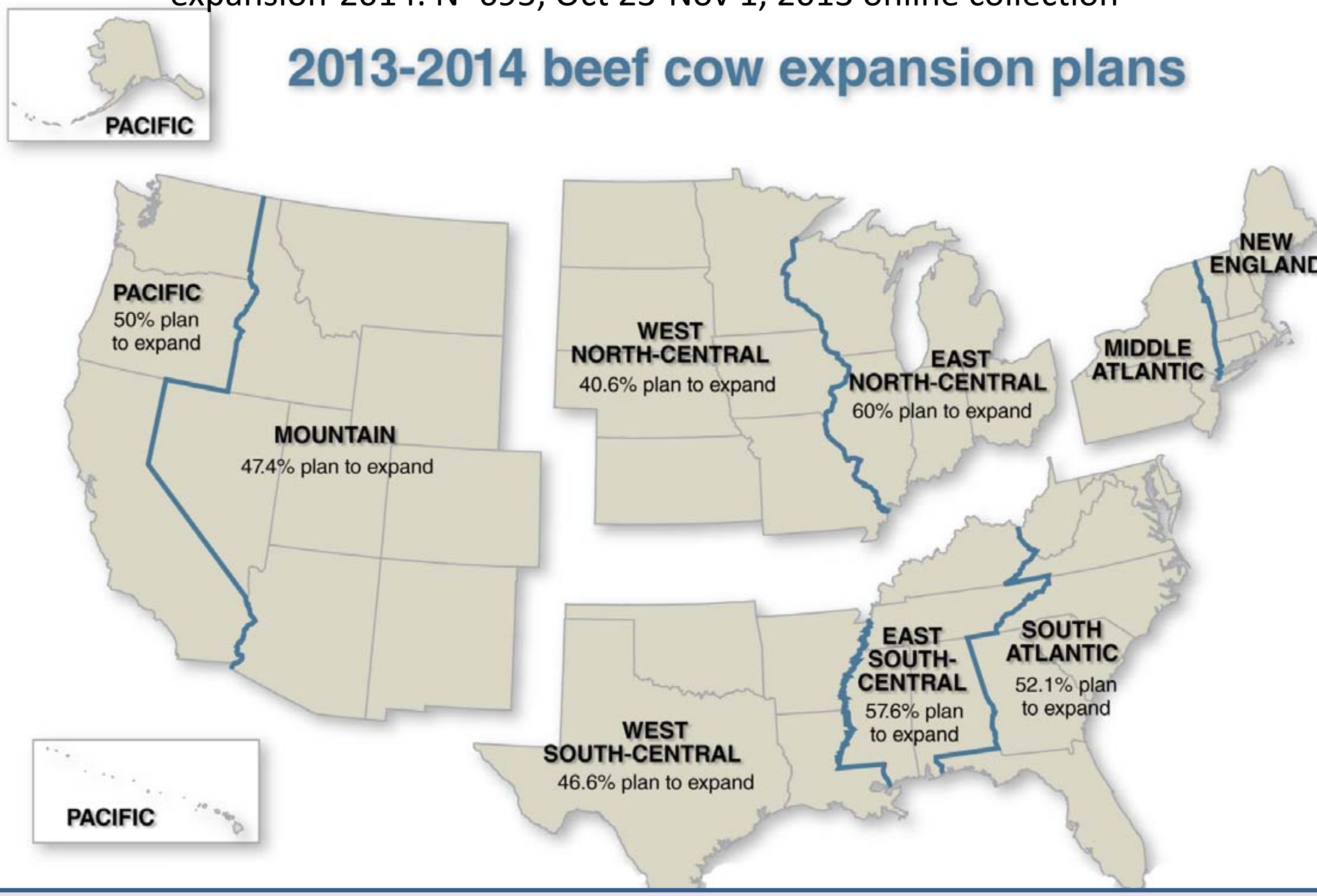
http://www.usda.gov/oce/commodity/projections/index.htm

2021 Projection 1.1 million less than Feb. 12'



BEEF 2014 Cow Herd Plans

http://beefmagazine.com/cattle-industry-structure/beef-readers-say-they-re-dedicated-herd-expansion-2014. N=695, Oct 23-Nov 1, 2013 online collection



Important to note this summary is not weighted by an operation's current herd size.

BEEF 2014 Cow Herd Plans

http://beefmagazine.com/cattle-industry-structure/beef-readers-say-they-re-dedicated-herd-expansion-2014. N=695, Oct 23-Nov 1, 2013 online collection

Planned Cowherd Size in:	**2013/2014**	**Next 3-5 years**
Expand by 11% or more	13.4%	24.2%
Expand by 1% to 10%	33.5%	31.5%
Remain the same	38.0%	29.0%
Remain the same but add/grow other enterprises	4.7%	6.2%
Contract by 1% to 10%	4.8%	3.0%
Contract by 11% or more	2.5%	1.9%
Get out of industry completely (Not retiring)	1.5%	1.6%
Retire	1.7%	2.7%
Respondent Count	*687*	*677*
Weighted Average	**-0.1%**	**0.5%**
Weighted Average (Omitting Exits)	**2.6%**	**3.9%**
Weighted Average of Only Those Expanding	**7.9%**	**9.3%**

Important to note this summary is not weighted by an operation's current herd size.

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Weighted Average	-0.1%	0.5%
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Weighted Average of Only Those Expanding	7.9%	9.3%

Similar to Dr. Peel's thoughts:

+2% in 2014; +2-3% in 2015

(http://sw4.unl.edu/c/document_library/get_file?uuid=3703303f-f41f-46c3-8b52-e369ce18a817&groupId=235791&.pdf)

Important to note this summary is not weighted by an operation's current herd size.

BEEF 2014 Cow Herd Plans

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On average, what do you expect to pay per bred heifer?	
$1,000-$1,500/head	40.00%
$1,501-$2,000/head	45.70%
$2,001 - $2,500/head	11.40%
More than $2,500/head	2.90%
Respondent Count	105
Weighted Average	**$1,636**

How old are you?	
Under 25	0.50%
25 to 34	5.80%
35 to 44	10.40%
45 to 54	18.60%
55 to 64	34.00%
65 and older	30.70%
Respondent Count	655
Weighted Average	**57**

How many beef cows do you have in inventory?	
Less than 50 head	12.90%
50 to 99 head	19.90%
100 to 199 head	27.70%
200 to 499 head	28.00%
500 to 999 head	8.30%
1,000 to 2,499 head	2.00%
2,500 to 4,999 head	0.20%
5,000 head or more	1.00%
Respondent Count	603
Weighted Average	**312**

Wrap-up Summary Thoughts

- Cow-Calf opportunity exists
  - Herd expansion pending – will not occur uniformly…
  - Profitable prospects for sound management
  - Ongoing demand enhancement critical for profitability…
- Current and Potential Threats also persist
  - Uncertainty on many fronts restricts investment
  - Several examples of “infighting” within the industry

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What To Do?

- Ask yourself key questions including:
  - Do you regularly utilize available resources?
    - herd expansion tools, these events, etc.
  - Do you know your comparative advantage?
    - Having a favorable cost structure is imperative
    - Be aware of "overpaying" for replacements
    - Recognize opportunity costs of retained heifers
  - How comfortable are you with "the new environment?"
    - Political & regulatory uncertainty
    - Customer/consumer distinction
    - Technology feasibility & acceptance distinction

What To Do?

I encourage you to:

- Recognize this “isn’t your father’s world” anymore and manage accordingly…
- “Think globally, manage locally, and stay informed”

More information available at:

www.agmanager.info

This presentation will be available in PDF format at:
http://www.agmanager.info/about/contributors/individual/tonsor.asp

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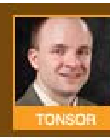
webinars



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Cow-Calf – Expansion Discussion

- *KSU-Beef Replacement* spreadsheet
  - http://www.agmanager.info/livestock/budgets/production/default.asp

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

Year	Number of Calves	Base Case	10% Lower Cow Costs/yr	10% Lower Discount Rate	10% Higher Calf Prices
2014	1	$1,107	$1,177	$1,107	$1,288
2015	2	$1,233	$1,359	$1,239	$1,484
2016	3	$1,323	$1,493	$1,335	$1,628
2017	4	$1,357	$1,562	$1,373	$1,701
2018	5	$1,379	$1,611	$1,399	$1,754
2019	6	$1,407	$1,662	$1,430	$1,808
2020	7	$1,425	$1,697	$1,451	$1,846
2021	8	$1,443	$1,729	$1,470	$1,879
2022	9	$1,458	$1,755	$1,487	$1,907
2023	10	$1,466	$1,772	$1,497	$1,925
Key Inputs Varied Across Scenarios**:					
Annual cow costs, $/year		$700	$630	$700	$700
Discount rate, interest rate		7.50%	7.50%	6.75%	7.50%
Calf Price, $/cwt	2014	$168	$168	$168	$185

KSU-Beef Replacement

Table 3. Net Present Value of Beef Replacements, Analysis Summary Using Operating and Labor Costs *

Year	Number of Calves	US	Great Plains	Southeast	Southern Plains	Cornbelt	West
2014	1	$821	$890	$786	$839	$597	$995
2015	2	$719	$844	$654	$751	$317	$1,030
2016	3	$627	$798	$540	$671	$85	$1,047
2017	4	$519	$723	$414	$572	($134)	$1,025
2018	5	$430	$660	$312	$489	($312)	$1,005
2019	6	$370	$620	$241	$435	($442)	$999
2020	7	$318	$584	$180	$387	($549)	$990
2021	8	$280	$558	$135	$352	($632)	$987
2022	9	$250	$539	$100	$325	($696)	$984
2023	10	$223	$520	$69	$301	($751)	$979
Key Inputs Varied Across Scenarios**:							
Annual operating and labor costs, $/cow/yr		$903	$923	$912	$898	$1,114	$725
Beef cows, head per farm/ranch		100	181	73	108	63	196
Avg Calf Weight, lbs		500	555	484	508	493	497
Avg Calf Price Slide, $/cwt		$8.42	$8.98	$8.23	$8.81	$7.11	$9.33

* NPV is Net Present Value of a replacement expected to produce the number of saleable calves listed in the "Number of Calves" column before a cow is culled for age-related reasons.

** Annual cost, calf weight, and calf price assumptions were varied with all other inputs set at their default settings as of 11-1-13.

KSU-Beef Replacement

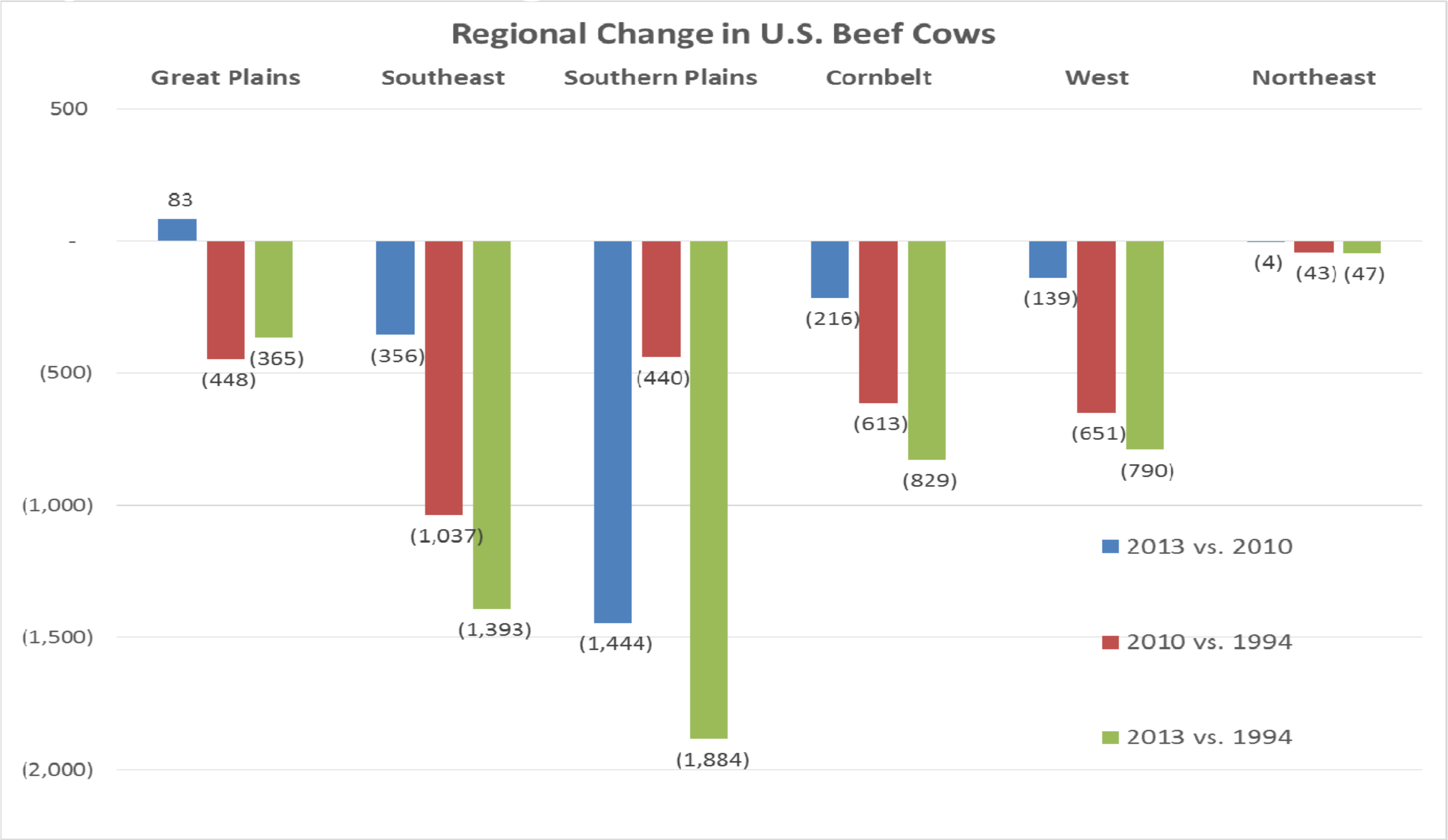
Table 4. Net Present Value of Beef Replacements, Analysis Summary Using Only Operating Costs *

Year	Number of Calves	US	Great Plains	Southeast	Southern Plains	Cornbelt	West
2014	1	$1,204	$1,174	$1,259	$1,210	$992	$1,302
2015	2	$1,406	$1,353	$1,504	$1,415	$1,025	$1,580
2016	3	$1,556	$1,485	$1,689	$1,569	$1,041	$1,792
2017	4	$1,639	$1,553	$1,800	$1,655	$1,019	$1,924
2018	5	$1,702	$1,602	$1,885	$1,720	$998	$2,025
2019	6	$1,763	$1,651	$1,964	$1,782	$993	$2,116
2020	7	$1,807	$1,686	$2,022	$1,827	$984	$2,184
2021	8	$1,845	$1,717	$2,071	$1,865	$980	$2,242
2022	9	$1,876	$1,743	$2,111	$1,897	$978	$2,288
2023	10	$1,897	$1,759	$2,139	$1,919	$972	$2,321
Key Inputs Varied Across Scenarios**:							
Annual operating costs, $/cow/yr		$520	$639	$438	$527	$720	$418
Beef cows, head per farm/ranch		100	181	73	108	63	196
Avg Calf Weight, lbs		500	555	484	508	493	497
Avg Calf Price Slide, $/cwt		$8.42	$8.98	$8.23	$8.81	$7.11	$9.33

* NPV is Net Present Value of a replacement expected to produce the number of saleable calves listed in the "Number of Calves" column before a cow is culled for age-related reasons.

** Annual cost, calf weight, and calf price assumptions were varied with all other inputs set at their default settings as of 11-1-13.

Data Source: USDA-NASS,
Compiled by LMIC and Tonsor



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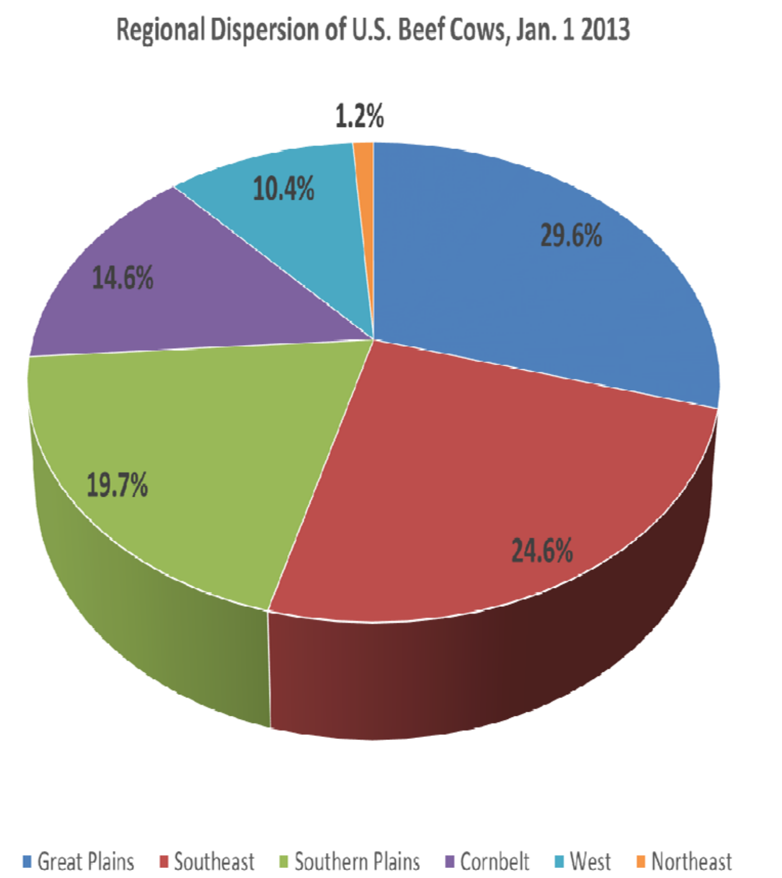

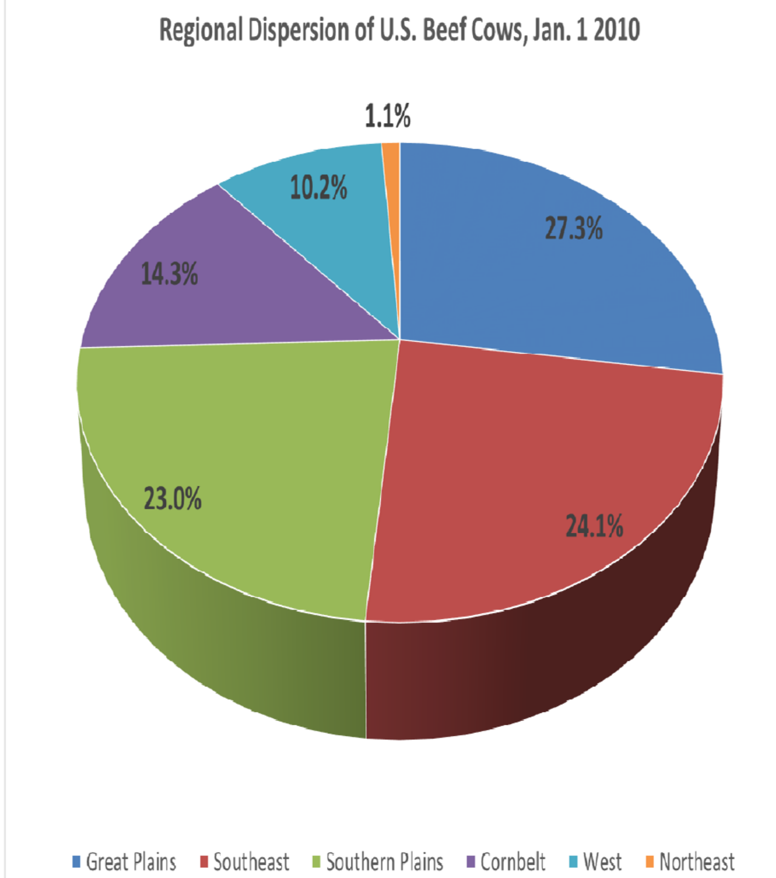

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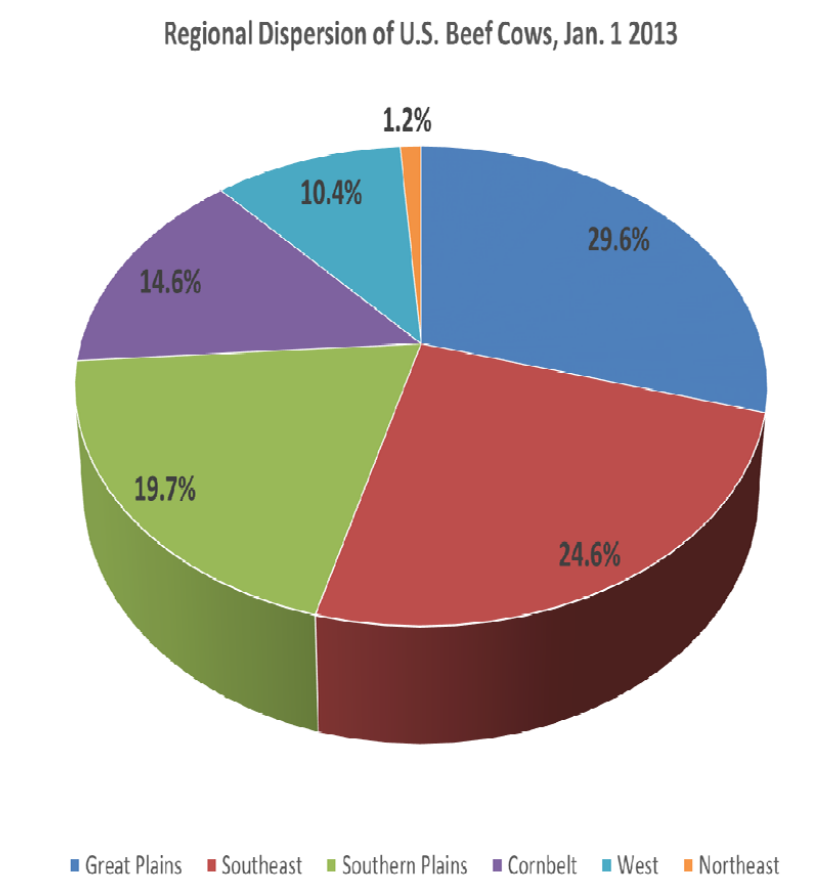

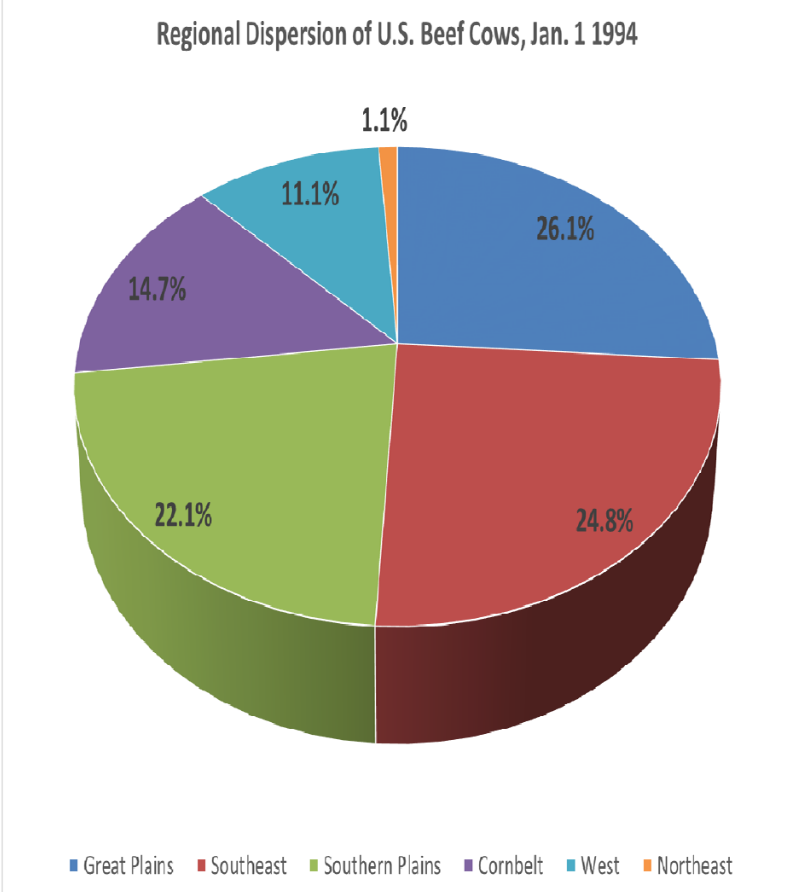

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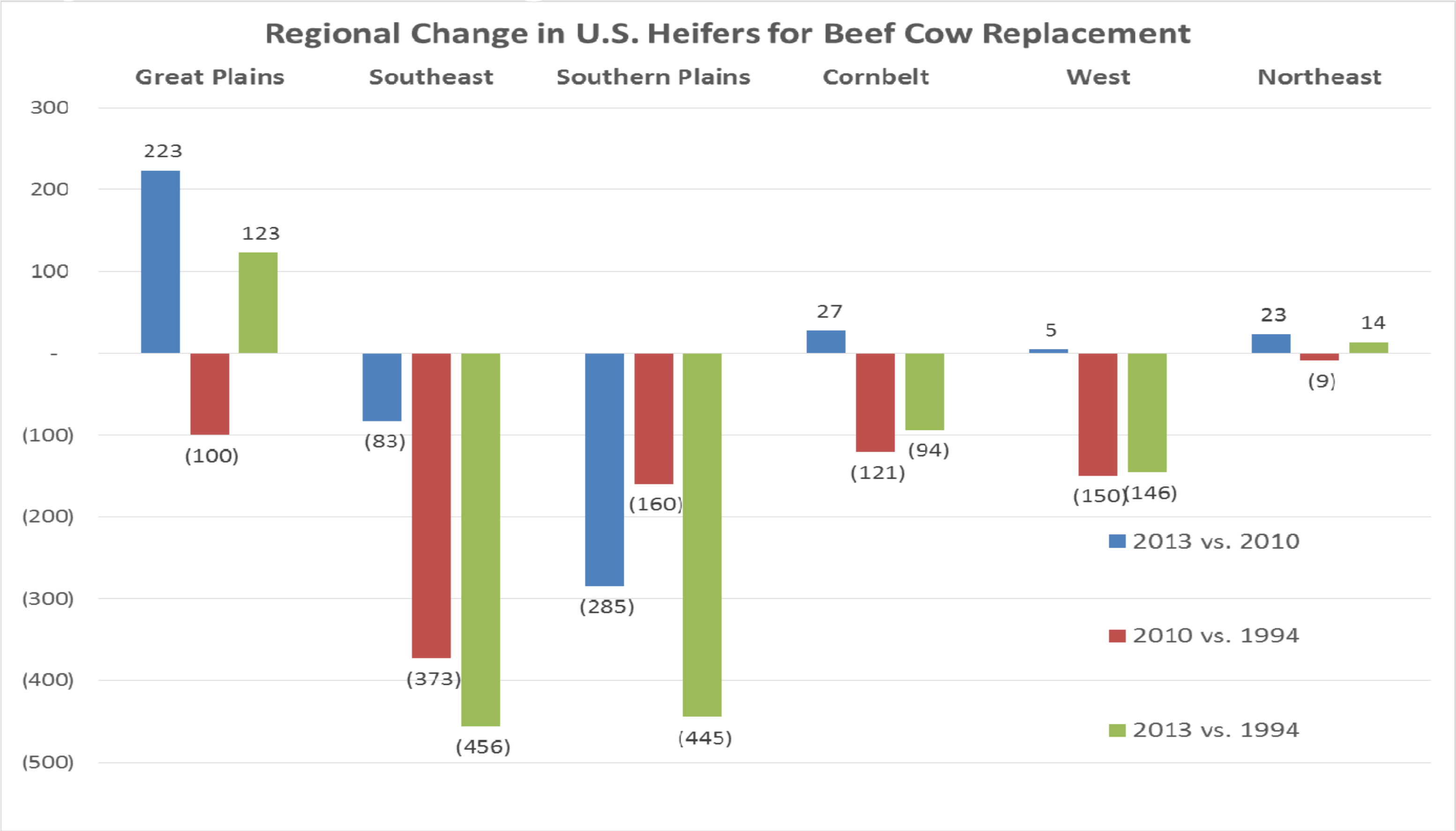

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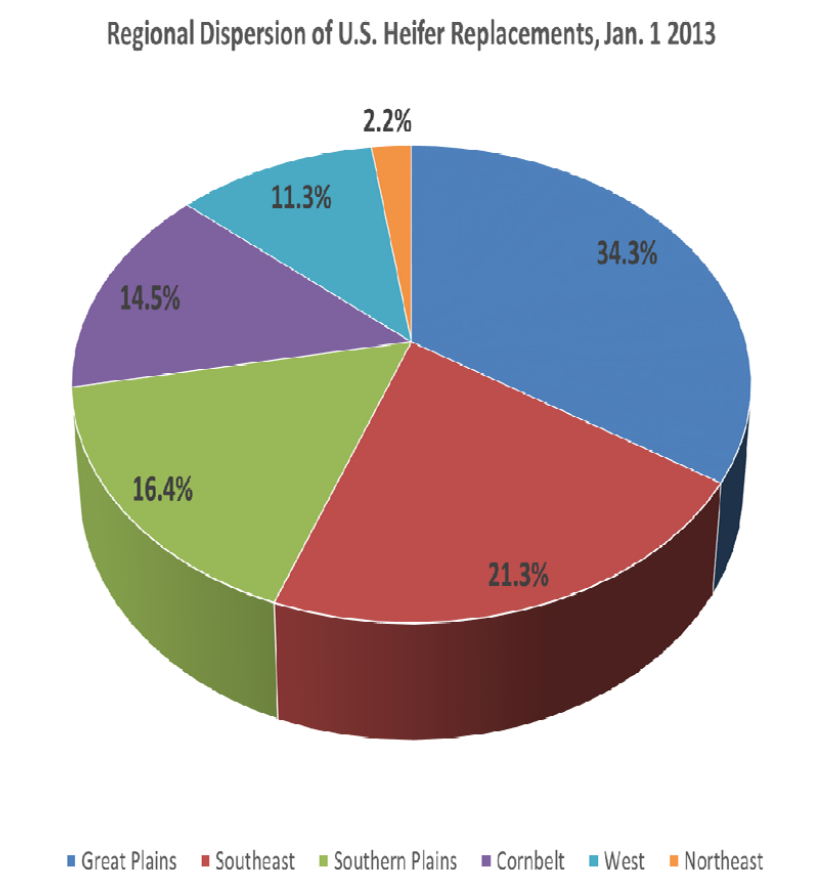

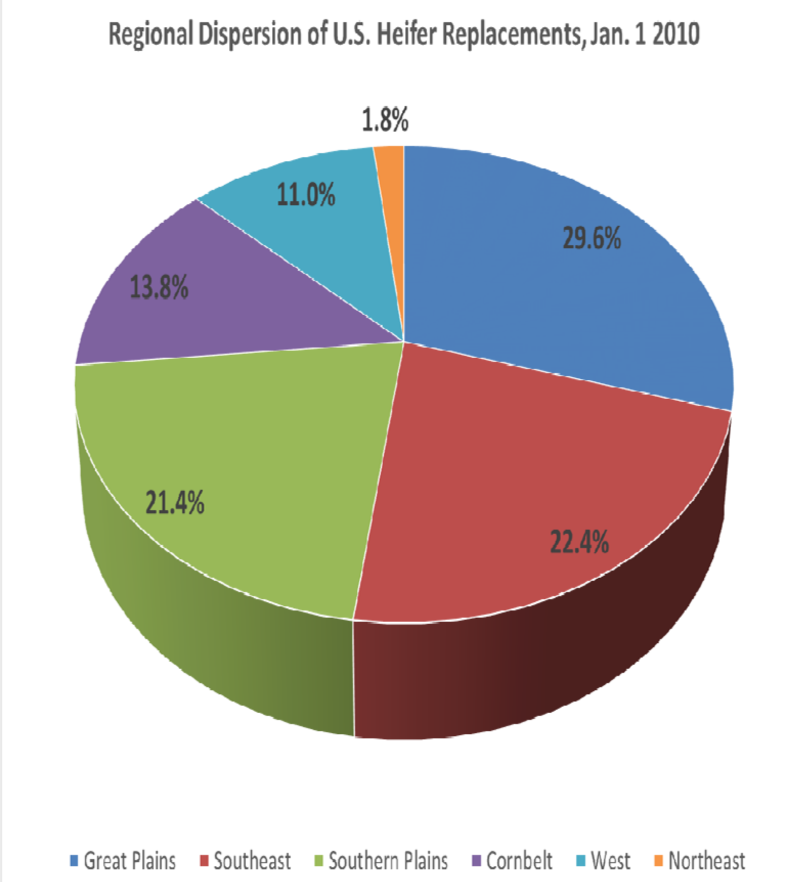

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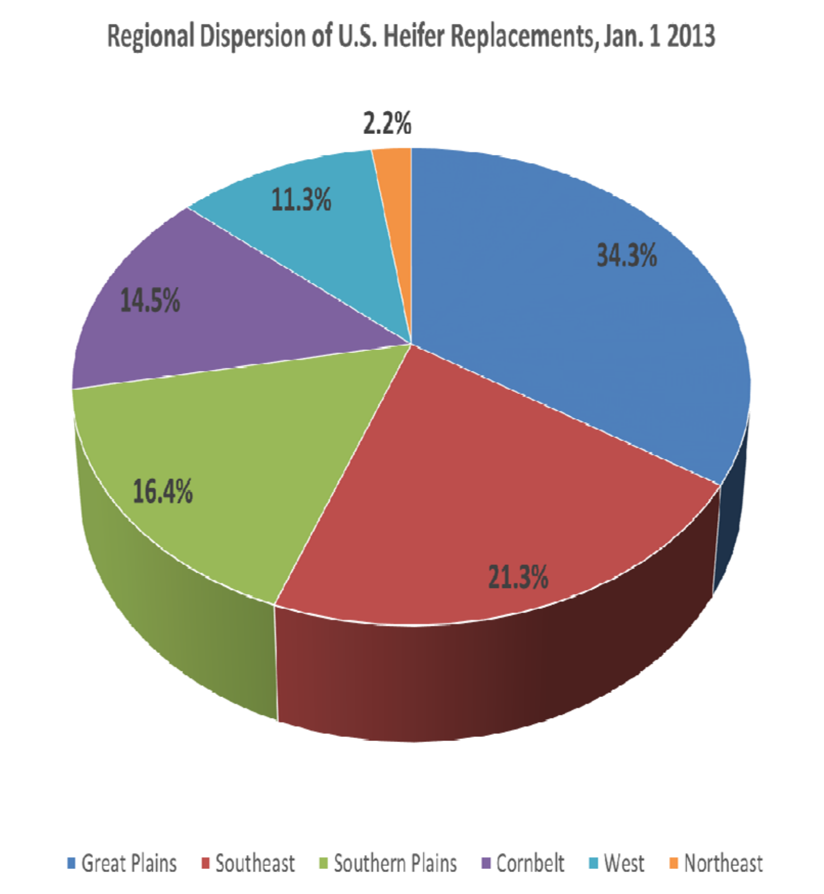

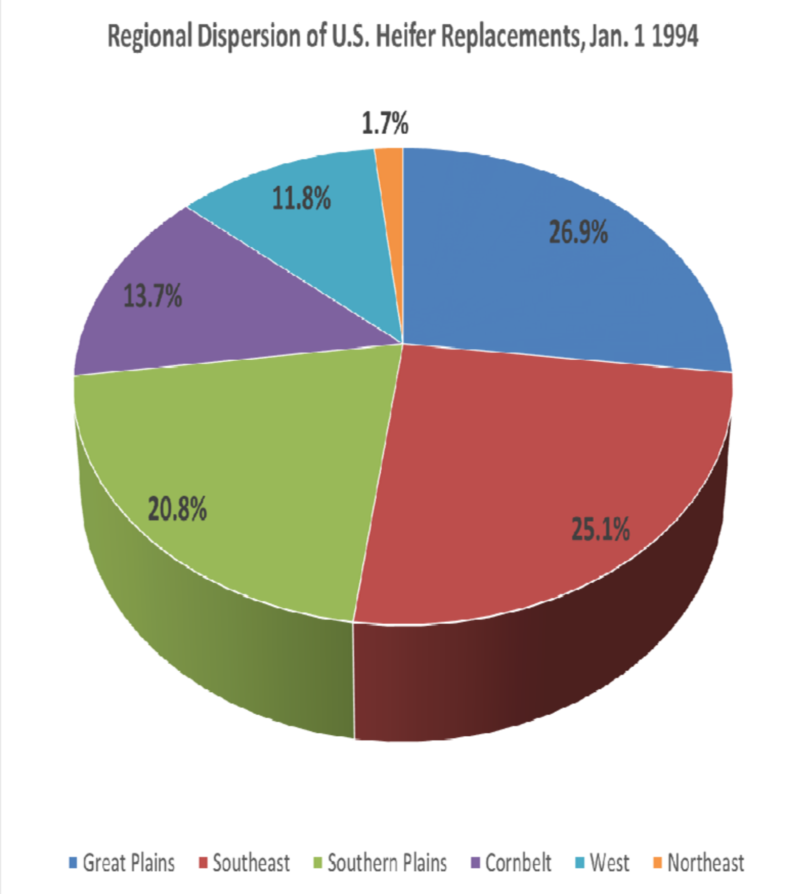

- Summary
  - Drought led to "Southern Plains heavy" culling
  - Crop-forage land allocation pressure varies
  - COP varies for several reasons
- Conclusion:
  - Southern Plains will rebuild some
  - SE & Heartland will continue trend of relative decline
  - Great/N. Plains & West will resume relative growth
    - Nationally more intense/alternative cow management likely necessary given land constraints…

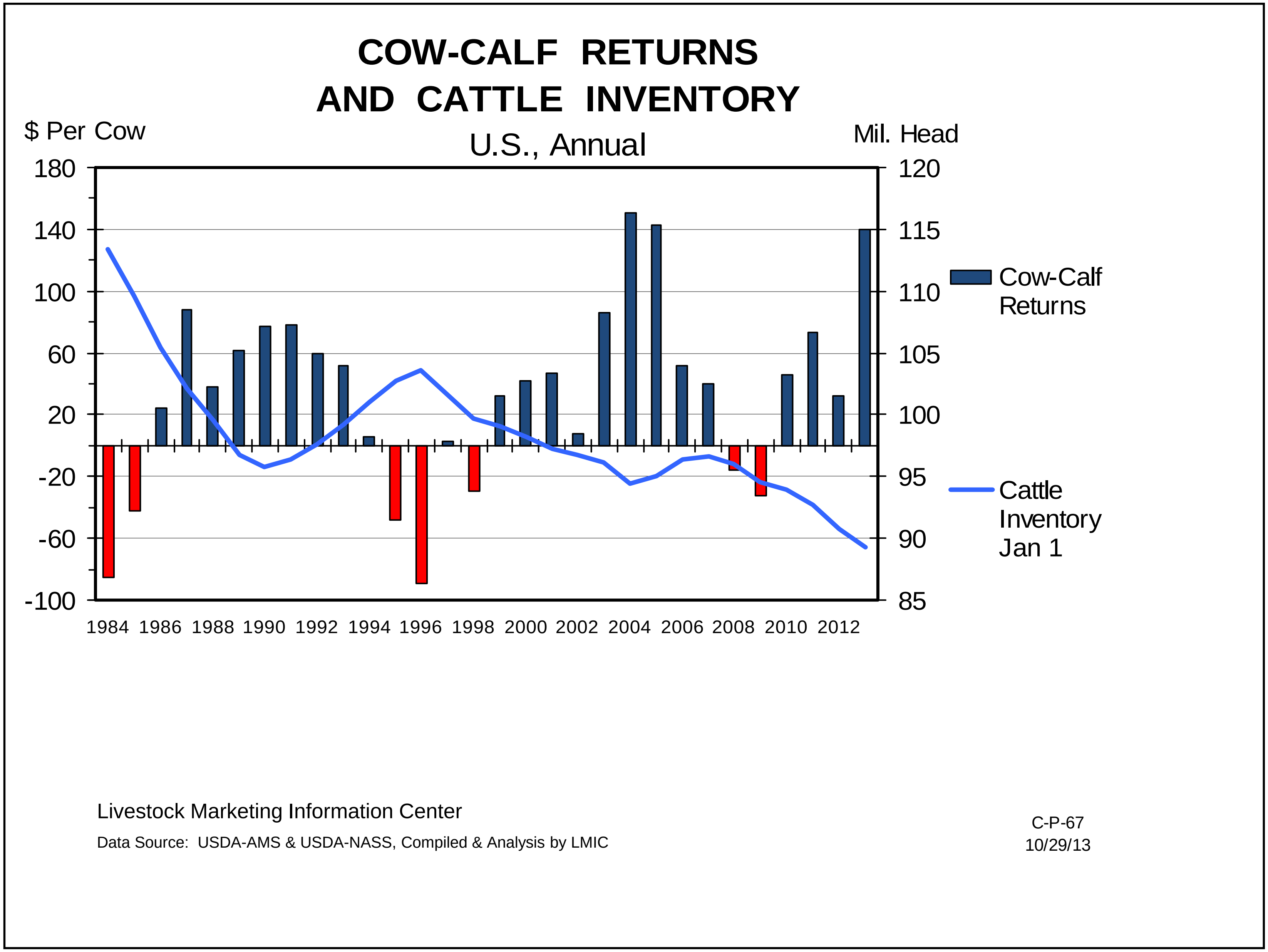
COW-CALF RETURNS
AND CATTLE INVENTORY
U.S., Annual
$ Per Cow
Mil. Head
180
140
100
60
20
-20
-60
-100
120
115
110
105
100
95
90
85
1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012
Cow-Calf Returns
Cattle Inventory Jan 1
Livestock Marketing Information Center
Data Source: USDA-AMS & USDA-NASS, Compiled & Analysis by LMIC
C-P-67
10/29/13

Table 1. Beef Cows that Calved (1,000 hd)								
State / Region	*1994*	*2004*	*2010*	*2013*	*1994 (% of US)*	*2004 (% of US)*	*2010 (% of US)*	*2013 (% of US)*
TX	5,800	5,383	5,140	4,015	16.8%	16.5%	16.4%	13.7%
NE	1,920	1,848	1,781	1,805	5.5%	5.7%	5.7%	6.2%
MO	2,200	2,085	1,968	1,757	6.4%	6.4%	6.3%	6.0%
OK	1,853	1,920	2,073	1,754	5.4%	5.9%	6.6%	6.0%
SD	1,598	1,711	1,618	1,688	4.6%	5.3%	5.2%	5.8%
MT	1,478	1,432	1,465	1,506	4.3%	4.4%	4.7%	5.1%
KS	1,473	1,550	1,434	1,328	4.3%	4.8%	4.6%	4.5%
KY	1,155	1,128	1,070	1,028	3.3%	3.5%	3.4%	3.5%
IA	1,075	974	885	925	3.1%	3.0%	2.8%	3.2%
ND	941	937	869	922	2.7%	2.9%	2.8%	3.1%
US	34,603	32,531	31,371	29,295				
Great Plains	9,023	8,766	8,575	8,658	26.1%	26.9%	27.3%	29.6%
Southeast	8,597	8,022	7,560	7,204	24.8%	24.7%	24.1%	24.6%
Southern Plains	7,653	7,303	7,213	5,769	22.1%	22.4%	23.0%	19.7%
Cornbelt	5,100	4,705	4,487	4,271	14.7%	14.5%	14.3%	14.6%
West	3,844	3,404	3,193	3,054	11.1%	10.5%	10.2%	10.4%
Northeast	386	331	343	340	1.1%	1.0%	1.1%	1.2%

Source: USDA data, compiled by LMIC, modified for presentation by Glynn Tonsor. Regions defined as: *Great Plains* (CO, KS, MT, NE, ND, SD, WY), *Southeast* (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV), *Southern Plains* (OK, TX), *Cornbelt* (IL, IN, IA, MI, MN, MO, OH, WI), and *West* (AK, AZ, CA, HI, ID, NV, NM, OR, UT, WA).

Originally posted in February 4, 2013 *In The Cattle Markets* article.

Table 2. Heifers for Beef Cow Replacement (1,000 hd)								
State / Region	*1994*	*2004*	*2010*	*2013*	*1994 (% of US)*	*2004 (% of US)*	*2010 (% of US)*	*2013 (% of US)*
TX	980	740	760	600	15.4%	13.4%	13.9%	11.2%
NE	260	280	320	350	4.1%	5.1%	5.9%	6.5%
MO	370	280	280	270	5.8%	5.1%	5.1%	5.0%
OK	345	370	405	280	5.4%	6.7%	7.4%	5.2%
SD	280	290	285	315	4.4%	5.3%	5.2%	5.9%
MT	355	420	340	435	5.6%	7.6%	6.2%	8.1%
KS	280	230	240	230	4.4%	4.2%	4.4%	4.3%
KY	205	160	150	150	3.2%	2.9%	2.8%	2.8%
IA	160	125	130	150	2.5%	2.3%	2.4%	2.8%
ND	190	156	165	207	3.0%	2.8%	3.0%	3.9%
US	6,364	5,508	5,451	5,361				
Great Plains	1,715	1,631	1,615	1,838	26.9%	29.6%	29.6%	34.3%
Southeast	1,596	1,266	1,223	1,140	25.1%	23.0%	22.4%	21.3%
Southern Plains	1,325	1,110	1,165	880	20.8%	20.2%	21.4%	16.4%
Cornbelt	873	777	752	779	13.7%	14.1%	13.8%	14.5%
West	749	630	599	603	11.8%	11.4%	11.0%	11.3%
Northeast	107	94	97	120	1.7%	1.7%	1.8%	2.2%

Source: USDA data, compiled by LMIC, modified for presentation by Glynn Tonsor. Regions defined as: *Great Plains* (CO, KS, MT, NE, ND, SD, WY), *Southeast* (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV), *Southern Plains* (OK, TX), *Cornbelt* (IL, IN, IA, MI, MN, MO, OH, WI), and *West* (AK, AZ, CA, HI, ID, NV, NM, OR, UT, WA).

Originally posted in February 4, 2013 *In The Cattle Markets* article.

Broader Perspective

- The Center For Food Integrity (@foodintegrity) tweeted on Wed, Sep 04, 2013:

"Science tells us if we <u>can</u> do something.

Society tells us if we <u>should</u> do it."

-- See recent *In the Cattle Markets article:* http://www.lmic.info/memberspublic/InTheCattleMarket.html

Global Beef Production Trends

Top Global Beef Exporting Countries: Cattle Inventory Status Update, 000 Head

	2011	2012	2013F	% ch. vs. 2012	2014F	% ch. vs. 2013	% ch. vs. 2012	% ch. vs. 2011
Australia	27,550	28,506	29,879	4.8%	29,925	0.2%	5.0%	8.6%
Brazil	190,925	197,550	203,273	2.9%	208,638	2.6%	5.6%	9.3%
USA	92,682	90,769	89,300	-1.6%	87,960	-1.5%	-3.1%	-5.1%
New Zealand	9,864	10,021	10,199	1.8%	10,127	-0.7%	1.1%	2.7%
Uruguay	11,241	11,232	11,384	1.4%	11,604	1.9%	3.3%	3.2%
Canada	12,155	12,215	12,320	0.9%	12,380	0.5%	1.4%	1.9%
Mexico	21,456	20,090	18,521	-7.8%	17,337	-6.4%	-13.7%	-19.2%
Argentina	48,156	49,597	51,095	3.0%	52,195	2.2%	5.2%	8.4%

Source: Estimates for 2014 are from Unofficial USDA Post Estimates. US 2014 estimate is from Steiner

http://www.dailylivestockreport.com/documents/dlr%2010-11-13.pdf

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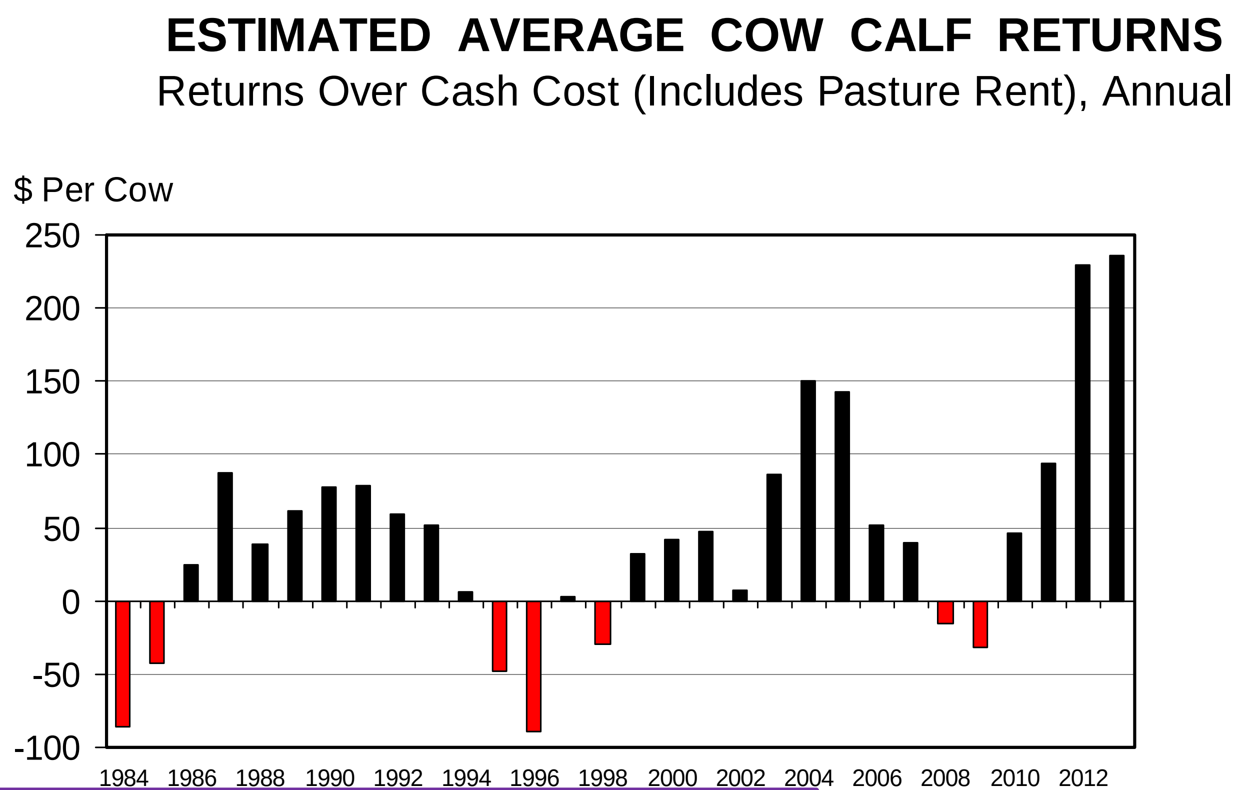

TREND: PROMISING YET UNFULLFILLED TO-DATE HERD EXPANSION

C-P-66
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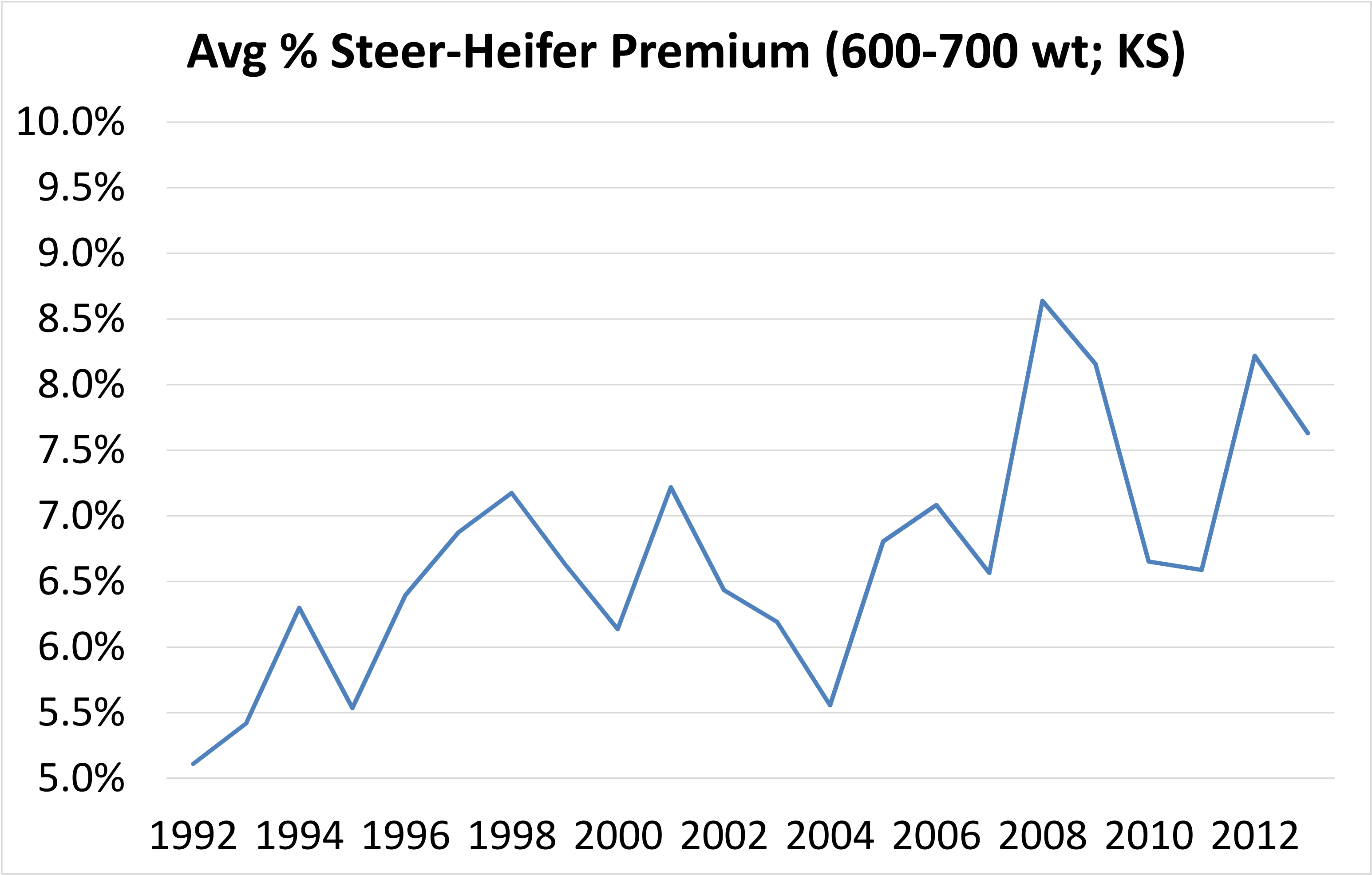
Avg % Steer-Heifer Premium (600-700 wt; KS)
10.0%
9.5%
9.0%
8.5%
8.0%
7.5%
7.0%
6.5%
6.0%
5.5%
5.0%
1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012