KSU BEEF STOCKER FIELD DAY

September 21, 2017
KSU Beef Stocker Unit

PROCEEDINGS

Beef Stocker Field Day 2017
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Welcome to the 18th annual KSU Beef Stocker Field Day. We appreciate your attendance and support of this educational event. We are fortunate to have assembled an outstanding list of presenters and topics that we believe are relevant to your bottom line.

As always, if you have any questions on the program or suggestions for future topics, please let us know. Our strength in delivering relevant information lies in working closely with you, our stakeholder.

Sincerely,

Dale A. Blasi, PhD
Extension Beef Specialist
Department of Animal Sciences and Industry
College of Agriculture

THANK YOU

We would like to express a special "THANK YOU" to Boehringer Ingelheim for their support of today's educational program and activities for the beef stocker segment. With their financial assistance, we are able to deliver the caliber of programming that today's events have in store for you. Please take a moment to stop by their display to see the line of products that they have to offer.

Boehringer Ingelheim

Beef Stocker Field Day 2017
September 21, 2017
KSU Beef Stocker Unit

9:30 a.m.	Registration/Coffee
10:15 a.m.	Introductions
10:30 a.m.	**Beef Cattle Outlook** *Dr. Derrell Peel, Oklahoma State University*
11:15 a.m.	**Producer Panel: Implementing Cover Crops: How They Have Helped My Operation** *Dr. Jaymelynn Farney, Kansas State University* *Dr. Doug Shoup, Kansas State University* *Shawn Tiffany, Herington, KS* *Kelly Novak, Tampa,KS* *Kevin Wellnitz, Neosho Rapids, KS* *Harold Engle, Madison, KS* *Moderator: Wes Ishmael, Contributing Editor, BEEF Magazine*
12:15 p.m.	Barbecue Brisket Lunch- View Posters
1:15 p.m.	**Setting Calves up for Success this Fall** *Dr. Peggy Thompson, Boehringer Ingelheim Professional Services*
2:15 p.m.	**A Different Intensive Early Stocking Strategy for Optimized Marketing Opportunities** *Dr. Keith Harmoney, K-State Agricultural Research Center, Hays, KS*
3:00 p.m.	**Break**
3:30 p.m.	**Break Out Sessions (30 minutes/breakout)** Proper Dosing at the Chute *Dr. A.J. Tarpoff, Kansas State University* Why Vaccines Sometimes “Seem” to Fail *Dr. Gregg Hanzlicek, Kansas State University* Stocker and Backgrounding Budgets *Robin Reid, Kansas State University* Cover Crop Decision Tool *Dr. Jaymelynn Farney and Dr. Doug Shoup, Kansas State University*
5:30 p.m.	Cutting Bull’s Lament 2017

Notes – Notes -- Notes

Beef Cattle Outlook

Dr. Derrell Peel
Oklahoma State University

2017 Market Setting

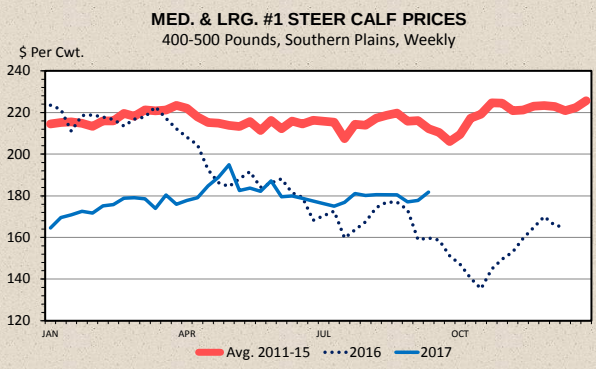
- Global
- U.S. Economy
- Agriculture
- Cattle Industry

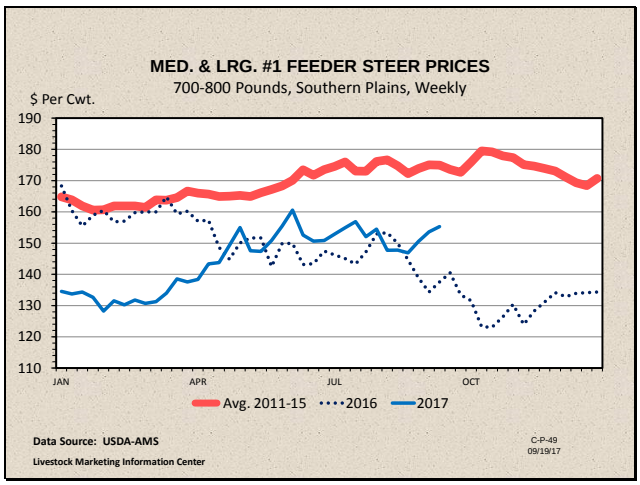
Global and Macroeconomic Environment

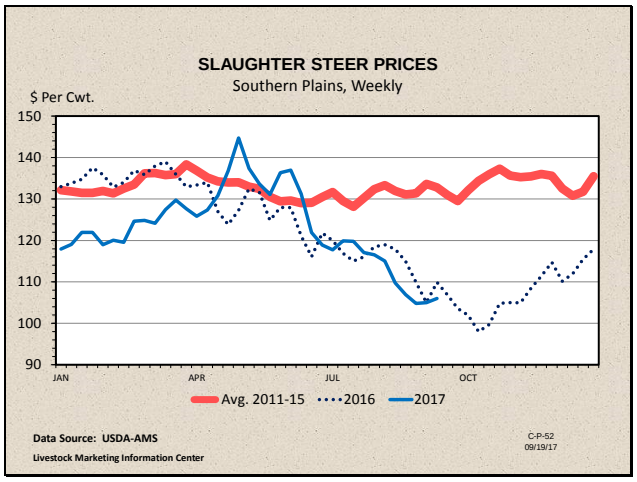
- Changes
  - Political
  - Policy
- Uncertainty
  - Global Economy
  - U.S. Economy
  - Trade
    - Exchange Rates
- Volatility
  - Markets
  - Futures

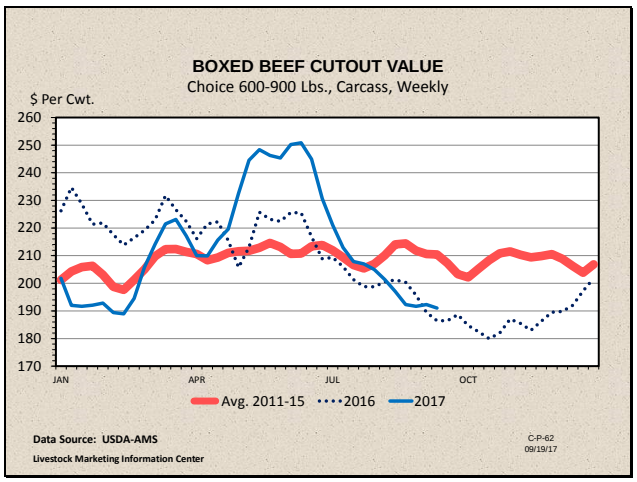
Major Beef Market Factors

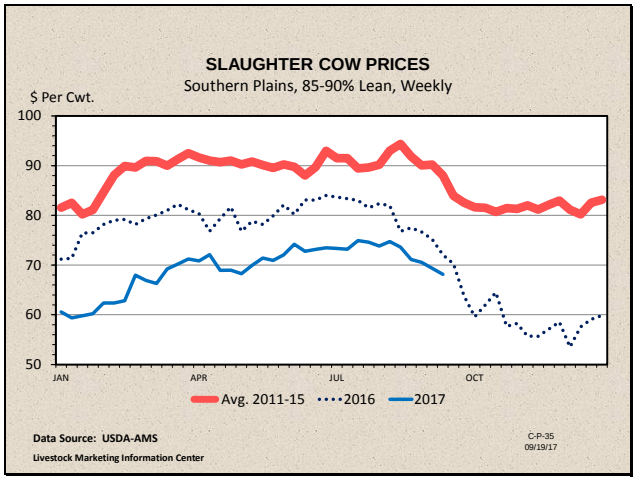
- Cattle Inventory and Beef Production
- Beef Demand
- International Trade
- Feed and Input Markets
- Forage Conditions

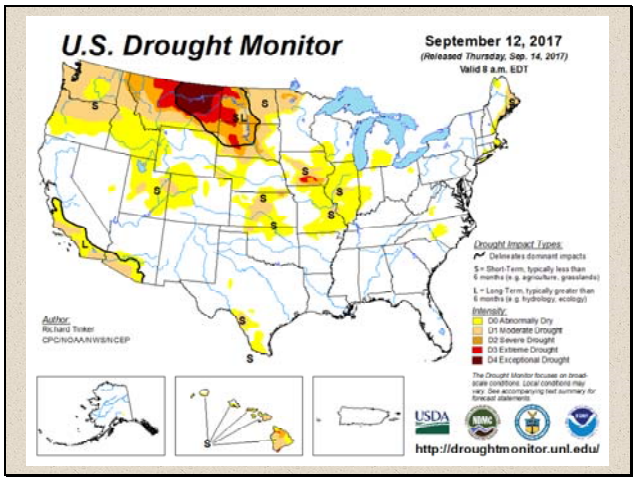



MED. & LRG. #1 FEEDER STEER PRICES
700-800 Pounds, Southern Plains, Weekly
$ Per Cwt.
190
180
170
160
150
140
130
120
110
JAN
APR
JUL
OCT
Avg. 2011-15
2016
2017
Data Source: USDA-AMS
Livestock Marketing Information Center
C-P-49
09/19/17


SLAUGHTER STEER PRICES
Southern Plains, Weekly
$ Per Cwt.
150
140
130
120
110
100
90
JAN
APR
JUL
OCT
Avg. 2011-15
2016
2017
Data Source: USDA-AMS
Livestock Marketing Information Center
C-P-52
09/19/17


BOXED BEEF CUTOUT VALUE
Choice 600-900 Lbs., Carcass, Weekly
$ Per Cwt.
260
250
240
230
220
210
200
190
180
170
JAN
APR
JUL
OCT
Avg. 2011-15
2016
2017
Data Source: USDA-AMS
Livestock Marketing Information Center
C-P-62
09/19/17

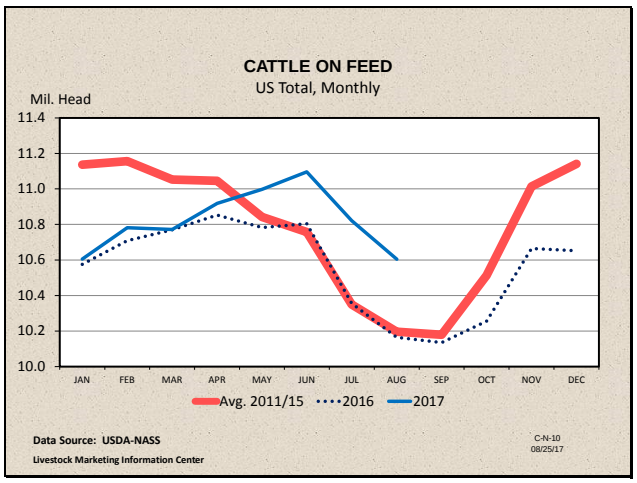


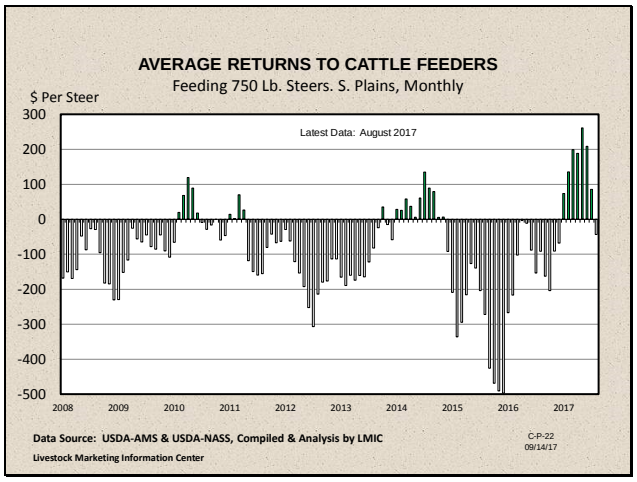


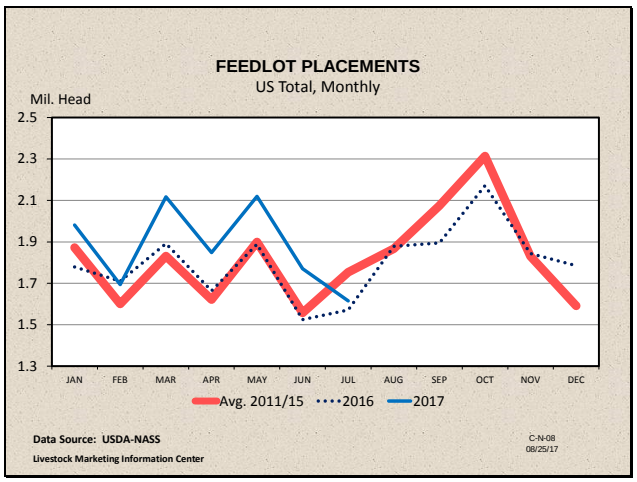
U.S. Cattle Inventory

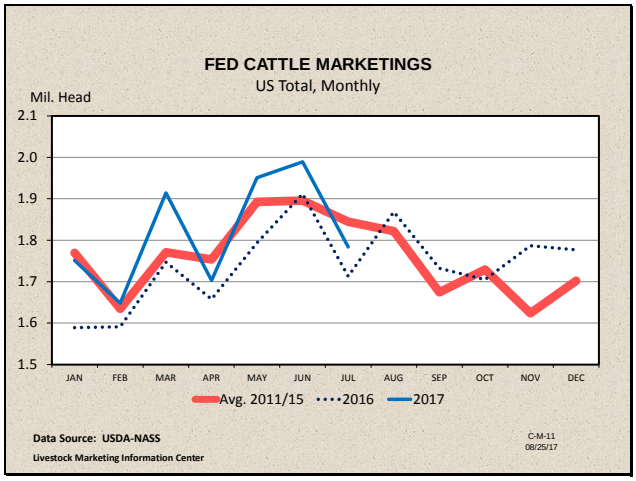
July 1

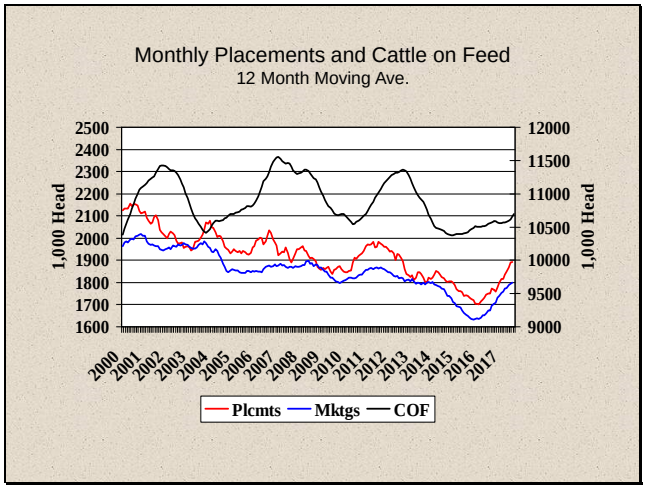
	2015	2016	2017	Jul as % of Jan
	1000 Head		1000 Head	
All Cattle and Calves	98200		102600	109.6
Beef Cows	30500		32500	104.1
Dairy Cows	9300		9400	
Beef Replacements	4800		4700	73.2
Dairy Replacements	4200		4200	
Feeder Supply	35400		37000	
Cattle on Feed	12100		12800	
	2015	2016	2017	% YOY
Calf Crop	34086.7	35082.7	36300	+3.5


CATTLE ON FEED
US Total, Monthly
Mil. Head
11.4
11.2
11.0
10.8
10.6
10.4
10.2
10.0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Avg. 2011/15
2016
2017
Data Source: USDA-NASS
Livestock Marketing Information Center
C-N-10
08/25/17


AVERAGE RETURNS TO CATTLE FEEDERS
Feeding 750 Lb. Steers. S. Plains, Monthly
$ Per Steer
Latest Data: August 2017
300
200
100
0
-100
-200
-300
-400
-500
2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
Data Source: USDA-AMS & USDA-NASS, Compiled & Analysis by LMIC
Livestock Marketing Information Center
C-P-22
09/14/17


FEEDLOT PLACEMENTS
US Total, Monthly
Mil. Head
2.5
2.3
2.1
1.9
1.7
1.5
1.3
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Avg. 2011/15
2016
2017
Data Source: USDA-NASS
Livestock Marketing Information Center
C-N-08
08/25/17





Cattle Slaughter

Federally Inspected, 1000 Head

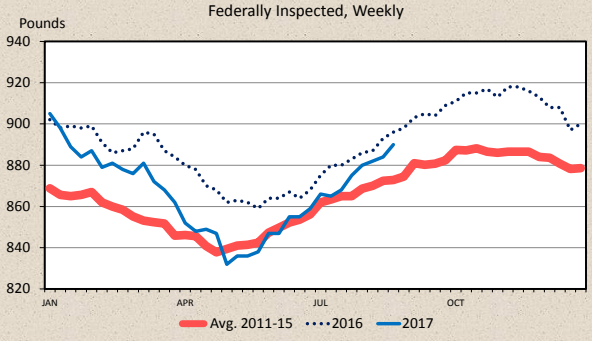
	2015	2016	% Change 2015 to 2016	% Change YTD 2016 to 2017
Steers	15331	16495	+7.6	+3.2
Heifers	7351	7698	+4.7	+11.4
Dairy Cows	2915	2885	-1.0	+3.7
Beef Cows	2236	2543	+13.7	+11.2
Bulls	462	494	+6.8	+13.5
Total	28296	30115	+6.4	+6.1

Latest data: September 2, 2017

Steer to Heifer Slaughter Ratio
12 month MA

Latest: June 2017

STEER DRESSED WEIGHT
Federally Inspected, Weekly



Data Source: USDA-AMS & USDA-NASS
Livestock Marketing Information Center

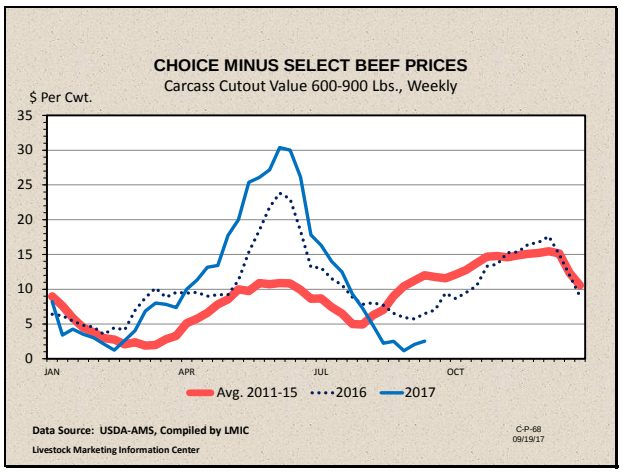
C-S-18
09/08/17

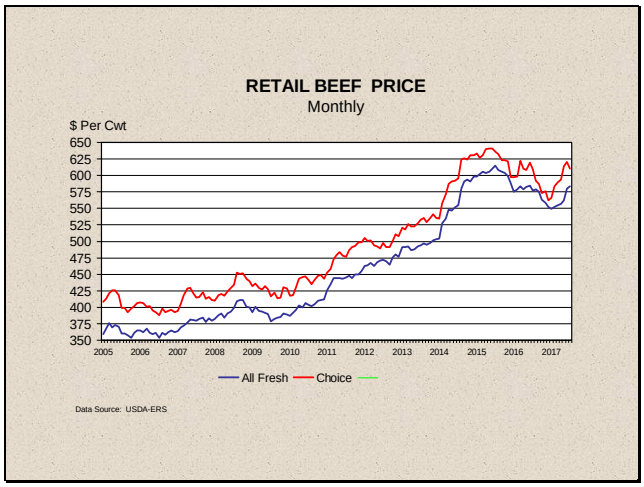
2018 Meat Production and Consumption

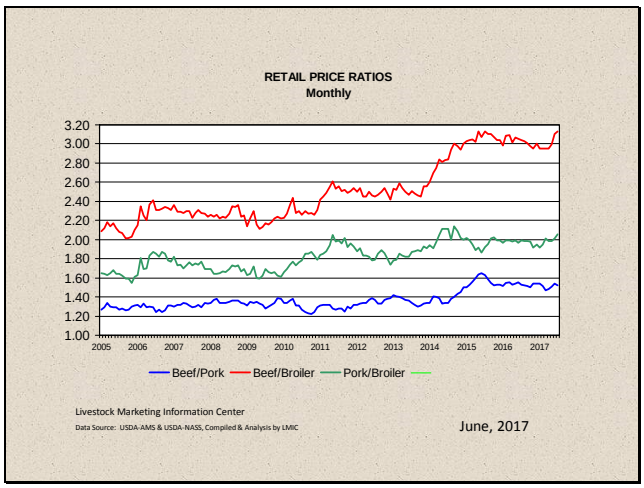
	Production					Consum. Change	Consum. Per Capita	Consum. Change
	2016	2017	2016-2017	2018	2017-2018	2016-2017	2018	2017-2018
	Million lbs.	Million lbs.	% Change	Million lbs.	% Change	% Change	Retail Lbs.	% Change
Beef	25221	26200	+3.9	27261	+4.1	+1.8	57.5	+1.8
Pork	24941	25678	+2.9	26445	+3.0	-0.4	50.4	+1.2
Broilers	40261	40583	+0.8	40531	-0.1	-0.3	87.9	-1.6
Total	97193	99166	+2.0	101204	+2.1	+0.3	215.0	+0.2

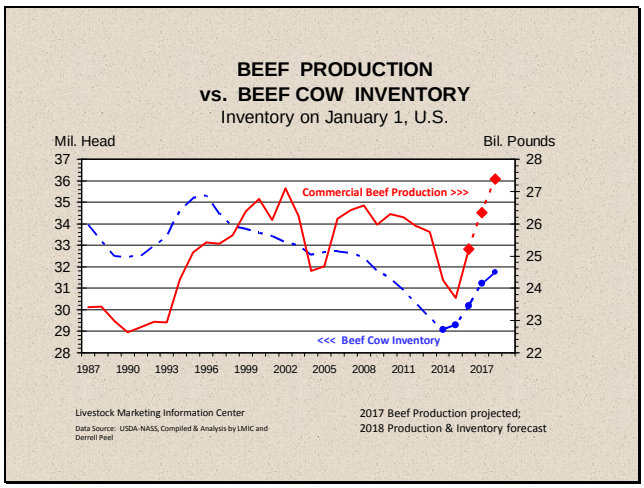
2017 projected; 2018 forecast

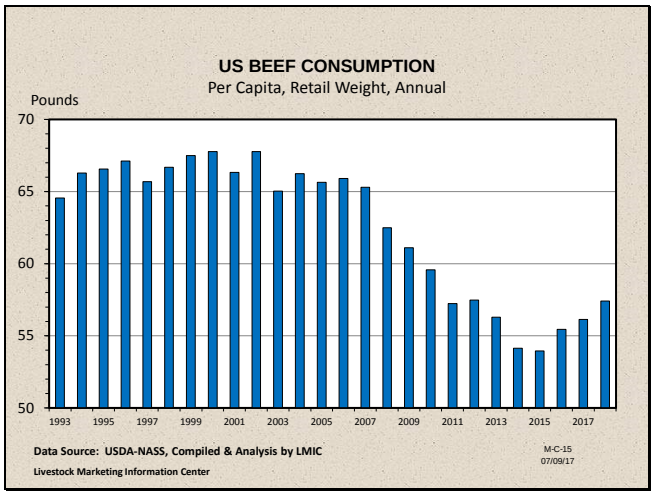
LMIC, August 27, 2017


CHOICE MINUS SELECT BEEF PRICES
Carcass Cutout Value 600-900 Lbs., Weekly
$ Per Cwt.
35
30
25
20
15
10
5
0
JAN
APR
JUL
OCT
Avg. 2011-15
2016
2017
Data Source: USDA-AMS, Compiled by LMIC
Livestock Marketing Information Center
C-P-68
09/19/17


RETAIL BEEF PRICE
Monthly
$ Per Cwt
650
625
600
575
550
525
500
475
450
425
400
375
350
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
All Fresh
Choice
Data Source: USDA-ERS


RETAIL PRICE RATIOS
Monthly
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Beef/Pork
Beef/Broiler
Pork/Broiler
Livestock Marketing Information Center
Data Source: USDA-AMS & USDA-NASS, Compiled & Analysis by LMIC
June, 2017

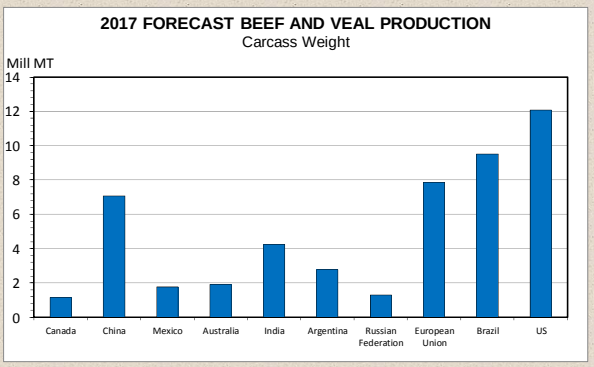

BEEF PRODUCTION
vs. BEEF COW INVENTORY
Inventory on January 1, U.S.
Mil. Head
Bil. Pounds
37
36
35
34
33
32
31
30
29
28
28
27
26
25
24
23
22
Commercial Beef Production >>>
<<< Beef Cow Inventory
1987 1990 1993 1996 1999 2002 2005 2008 2011 2014 2017
Livestock Marketing Information Center
Data Source: USDA-NASS, Compiled & Analysis by LMIC and Derrell Peel
2017 Beef Production projected;
2018 Production & Inventory forecast


US BEEF CONSUMPTION
Per Capita, Retail Weight, Annual
Pounds
70
65
60
55
50
1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017
Data Source: USDA-NASS, Compiled & Analysis by LMIC
Livestock Marketing Information Center
M-C-15
07/09/17

Major Beef Producing and Consuming Countries, 2017 Projected

PRODUCTION	CONSUMPTION
1. USA	1. USA
2. Brazil	2. China
3. EU	3. EU
4. China	4. Brazil
5. India	5. Argentina
6. Argentina	6. India
7. Australia	7. Mexico
8. Mexico	8. Russia
9. Pakistan	9. Turkey
10. Turkey	10. Pakistan

Source: USDA-FAS, Apr 2017



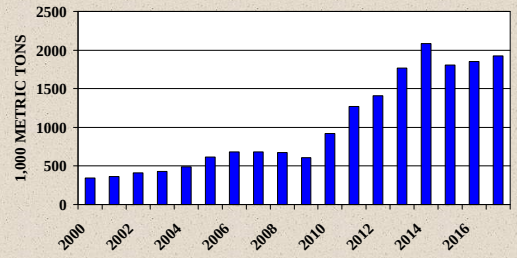
Data Source: USDA-FAS
Livestock Marketing Information Center

Major Beef Trading Countries, 2017 Projected

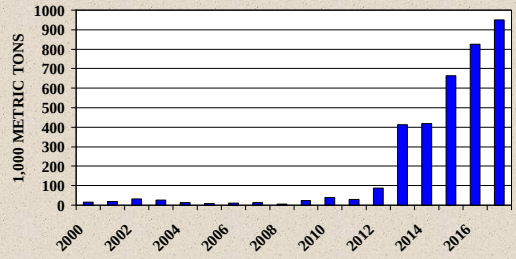
EXPORTS	IMPORTS
1. India	1. USA
2. Brazil	2. China
3. Australia	3. Japan
4. USA	4. South Korea
5. New Zealand	5. Russia
6. Canada	6. Hong Kong
7. Uruguay	7. EU
8. Paraguay	8. Egypt
9. EU	9. Chile
10. Mexico	10. Canada

Source: USDA-FAS, Apr 2017

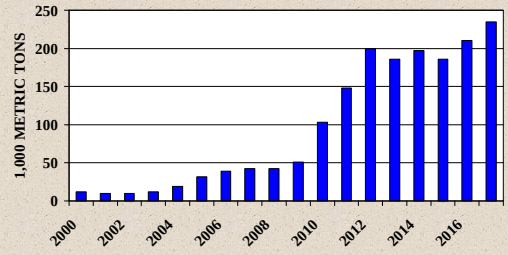
India: Beef Exports

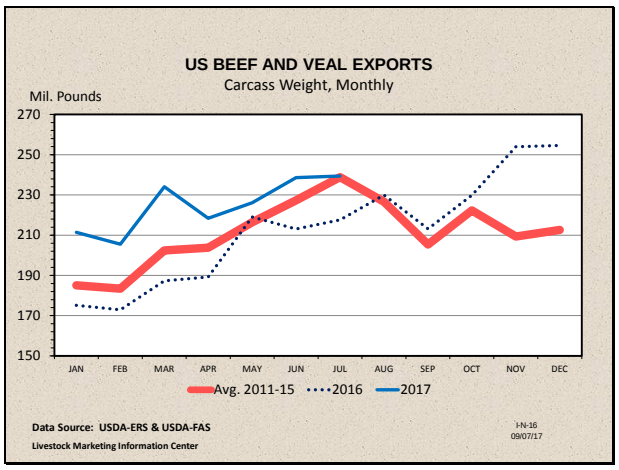


China: Beef Imports



Mexico: Beef Exports



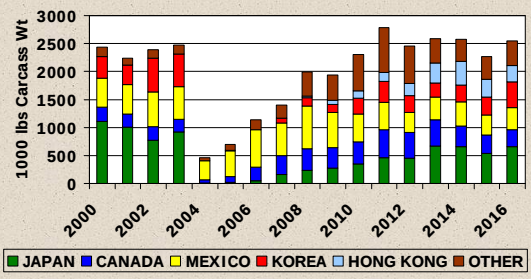


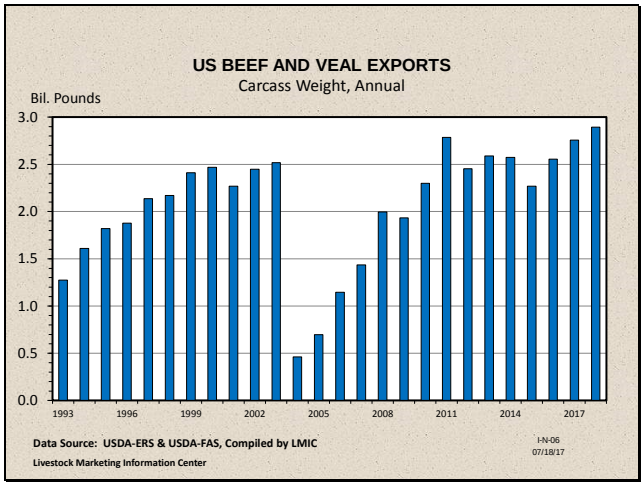
U.S. Beef Exports

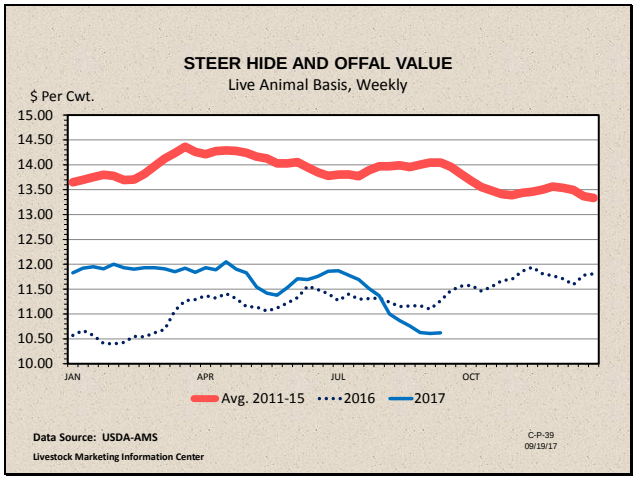
	2015 (1000 lbs.)	% Change 2014 to 2015	2016 (1000 lbs.)	% Change 2015 to 2016	% of Total Exports	YTD % Of 2016
Japan	538353	-18.7	655516	+21.7	25.7	+25.7
Mexico	363023	-16.6	393811	+8.6	15.4	+6.5
Hong Kong	315784	-24.1	293693	-6.9	11.5	+9.2
Canada	323774	-11.1	308234	-4.7	12.1	+1.6
S. Korea	318809	+5.9	454680	+42.6	17.8	+12.6
Total	2265950	-11.9	2549810	+12.6		+14.2

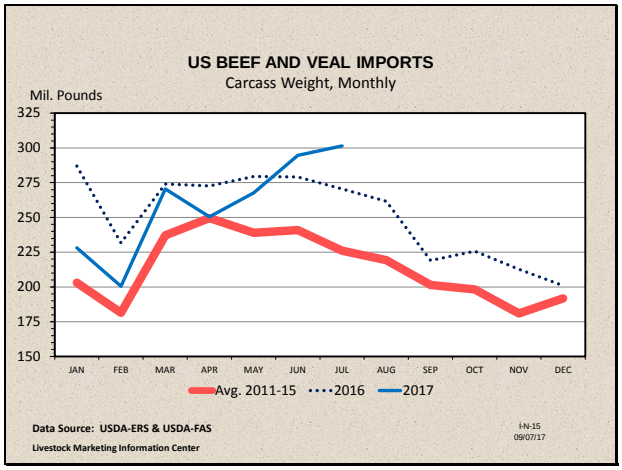
YTD: Jan-Jul

U.S. Beef Exports
Major Markets




US BEEF AND VEAL EXPORTS
Carcass Weight, Annual
Bil. Pounds
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1993
1996
1999
2002
2005
2008
2011
2014
2017
Data Source: USDA-ERS & USDA-FAS, Compiled by LMIC
Livestock Marketing Information Center
I-N-06
07/18/17


STEER HIDE AND OFFAL VALUE
Live Animal Basis, Weekly
$ Per Cwt.
15.00
14.50
14.00
13.50
13.00
12.50
12.00
11.50
11.00
10.50
10.00
JAN
APR
JUL
OCT
Avg. 2011-15
2016
2017
Data Source: USDA-AMS
Livestock Marketing Information Center
C-P-39
09/19/17


US BEEF AND VEAL IMPORTS
Carcass Weight, Monthly
Mil. Pounds
325
300
275
250
225
200
175
150
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Avg. 2011-15
2016
2017
Data Source: USDA-ERS & USDA-FAS
Livestock Marketing Information Center
I-N-15
09/07/17

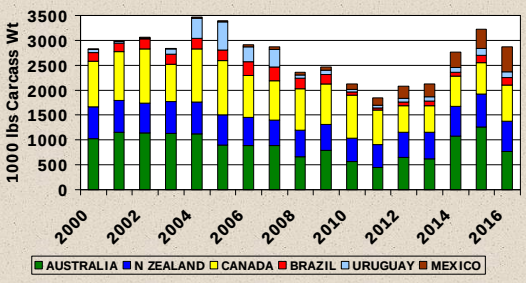
U.S. Beef Imports

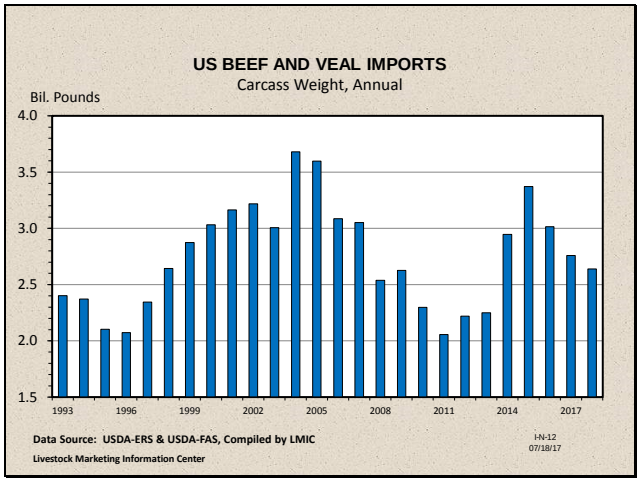
	2015 (1000 lbs.)	% Change 2014 to 2015	2016 (1000 lbs.)	% Change 2015 to 2016	% of Total Exports	2017 YTD % of 2016
Australia	1258266	+16.2	767142	-39.0	+25.4	-29.6
Canada	628397	+4.4	718063	+14.3	+23.8	+2.9
New Zealand	661287	+10.7	613121	-7.3	+20.3	-13.8
Mexico	391937	+26.4	493446	+25.9	+16.4	+34.1
Brazil	149580	+83.6	152142	+2.1	+5.1	+26.5
Total	3370484	+14.4	3015673	-10.5		-4.3

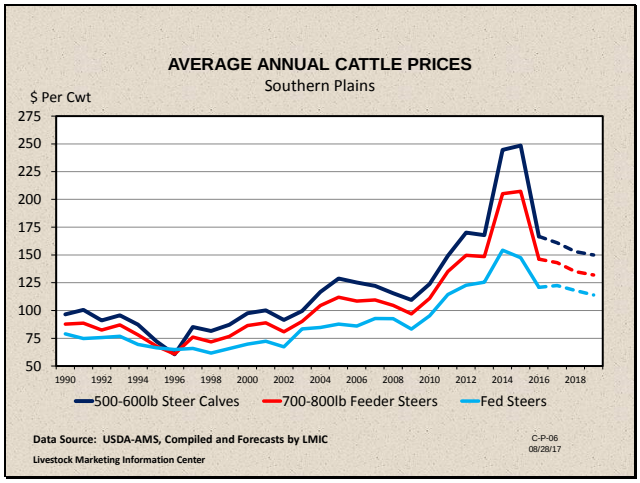
YTD: Jan-Jul

U.S. Beef Imports

Major Markets



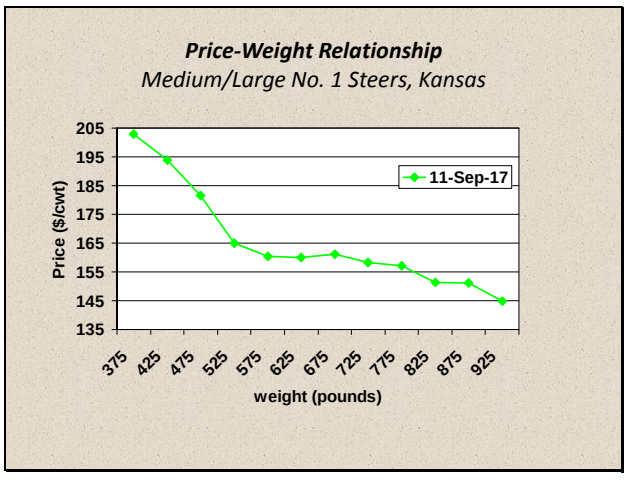


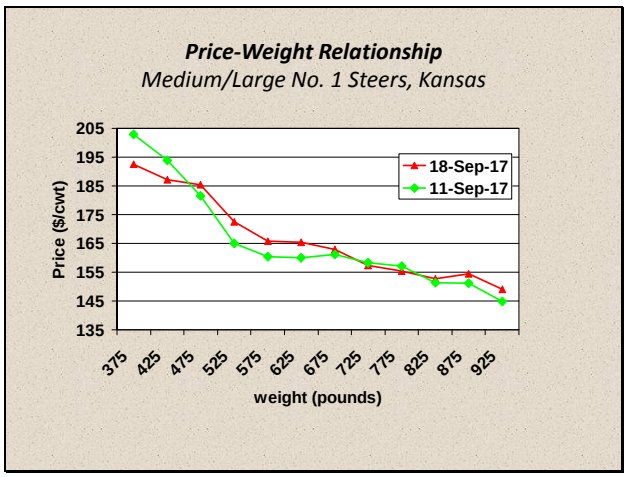


2017 Cattle Price Forecasts

		Feeder Steer Price (Southern Plains)				Fed Steer	
		5-600 lb. ($/cwt.)	% chg from Last Year	7-800 lb. ($/cwt.)	% chg from Last Year	5-mkt avg. ($/cwt)	% chg from Last Year
2016	IV	138.44	-32.0	129.07	-27.2	107.69	-15.7
	Annual	166.29	-33.8	145.61	-30.1	120.85	-18.6
2017	I	157.38	-19.6	132.88	-17.3	122.96	-8.8
	II	170.49	-1.9	149.30	0.0	132.76	+4.0
	III	162-164	+3.7	147-149	+2.7	111-112	-1.5
	IV	148-153	+8.7	137-140	+7.3	114-115	+6.3
	Annual	159-162	-3.5	141-143	-2.5	120-121	-0.3
2018	Annual	150-156	-4.7	133-137	-4.9	116-119	-2.5

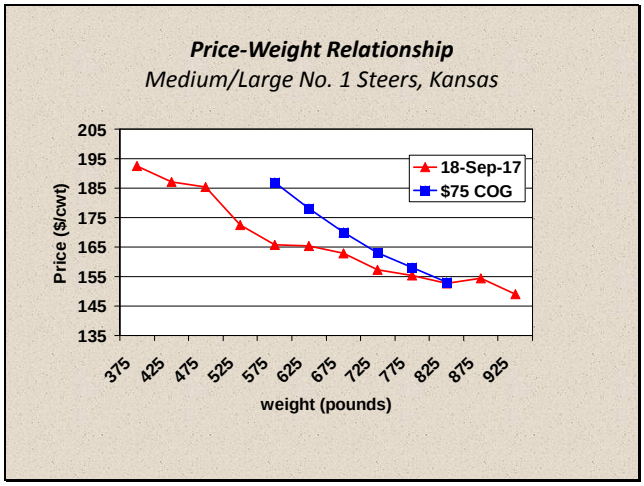
LMIC, September 1, 2017





Steer Price, Total Value and Value of Gain
September 18, 2017, Combined Kansas

Weight (lbs)	Average Price ($/cwt.)	Total Value ($/hd)	VOG 400 lb. Beg. Weight ($/lb.)	VOG 450 lb. Beg. Weight ($/lb	VOG 500 lb. Beg. Weight ($/lb.)	VOG 550 lb. Beg. Weight ($/lb.)	VOG 600 lb. Beg. Weight ($/lb.)	VOG 650 lb. Beg. Weight ($/lb.)
400	$188.83	$755						
450	$185.81	$836	$1.62					
500	$176.75	$884	$1.28	$0.95				
550	$168.57	$927	$1.15	$0.91	$0.87			
600	$165.60	$994	$1.19	$1.05	$1.10	$1.33		
650	$164.16	$1,067	$1.25	$1.15	$1.22	$1.40	$1.47	
700	$160.47	$1,123	$1.23	$1.15	$1.20	$1.31	$1.30	$1.13
750	$156.35	$1,173	$1.19	$1.12	$1.16	$1.23	$1.19	$1.06
800	$154.03	$1,232	$1.19	$1.13	$1.16	$1.22	$1.19	$1.10
850	$153.67	$1,306	$1.22	$1.18	$1.21	$1.26	$1.25	$1.20
900	$151.09	$1,360	$1.21	$1.16	$1.19	$1.24	$1.22	$1.17

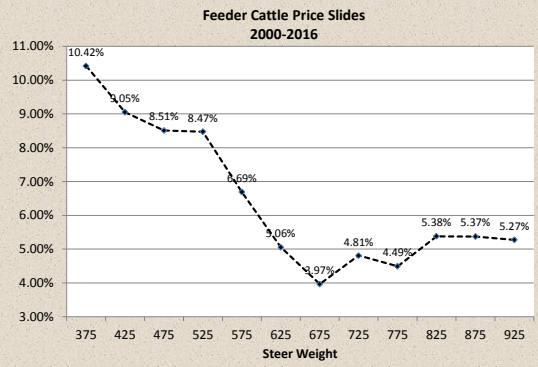


Cow-Calf Corner

The Weekly Email Newsletter

From OSU Animal Science and Agricultural Economics

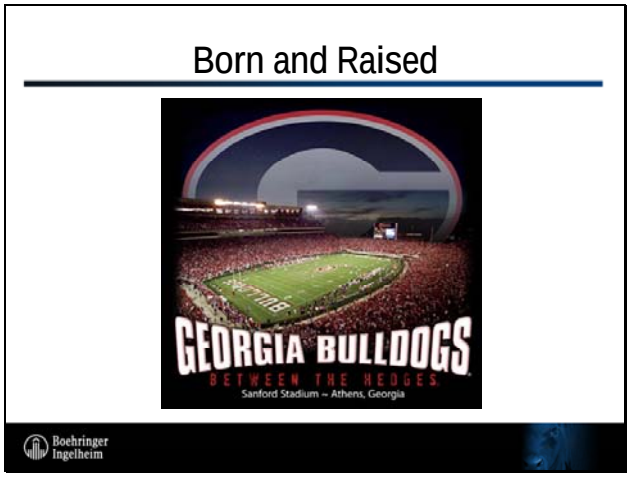
- Send Email to **derrell.peel@okstate.edu**



Notes – Notes -- Notes

Setting Calves Up for Success this Fall

Dr. Peggy Thompson
Boehringer Ingelheim Professional Services



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Prevention Works – Vaccines

- Disease prevention is key to animal health
- Prevention is preferable to treatment

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True or False?

- Do vaccines protect animals(calves) from disease?

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Vaccination is One Part of Preventive Medicine

- Vaccines do not protect from disease
- Immune system protects from disease
- Vaccines trigger an immune system response
- If at a later time the animal is exposed, the immune system can more rapidly respond to the pathogen

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Terminology

- Vaccination = administering a vaccine to an animal (procedure)
- Immunization = mount an immune response against a particular antigen (pathogen)
  - Is dependent upon the animal to respond to the vaccine
  - Many factors may prevent or interfere with a protective immune response from developing

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Bovine Respiratory Disease

- Most common, economically important disease of calves

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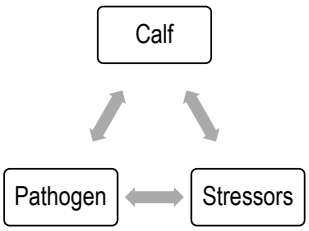
Bovine Respiratory Disease Complex



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Why So Much Fuss Over Respiratory Tract Viruses?

- Can damage mucosa of upper resp tract ⇒ ↓ physical barrier
- Can be immunosuppressive
- Predispose to secondary bacterial infections!

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Effect of BVDV PI Calves

"70% to 100% of susceptible nonvaccinated calves become infected after exposure to PI calves."

Fulton RW, Briggs RE, Ridpath JF, et al. *Can J Vet Res* 2005;69:161–169.

Boehringer Ingelheim

Effect of BVDV PI Calves

"Exposure to a PI calf was defined as housing in the same pen with or a pen adjacent to a PI calf, which resulted in exposed cattle having a 43% greater risk for respiratory tract disease, compared with cattle that were not exposed to a PI calf. Exposed cattle also had greater risk for treatment of respiratory tract disease and received more treatments than cattle that were not exposed."

- Loneragan GH, Thomson DU, Montgomery DL, et al. *J Am Vet Med Assoc* 2005; 226:595–601.

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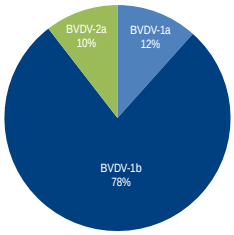
BVDV PI Subgenotypes

21,743 calves sampled



Fulton RW, Hessman B, Johnson BJ *et al*. *JAVMA* 2006; 228: 578-584.

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Bacterial Pneumonia

– the disease

- *Mannheimia haemolytica* bacteria are normal inhabitants of the nasal passages of cattle
- Following stress, viral infection, etc…..
  - *Mannheimia haemolytica* multiply and invade the lungs
- Rapidly growing *Mannheimia haemolytica* organisms produce a leukotoxin
  - white blood cell destruction >>> lung tissue damage

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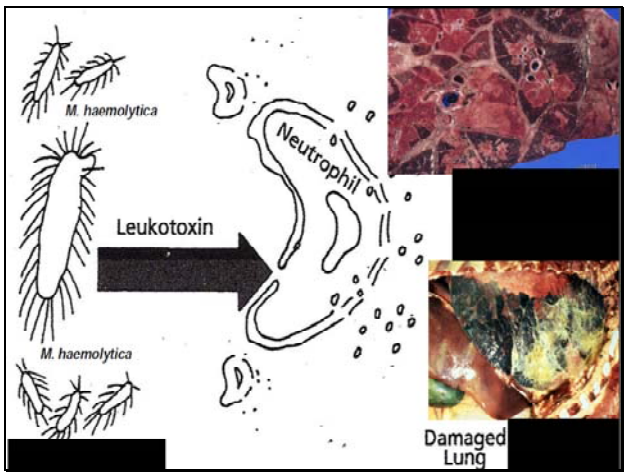
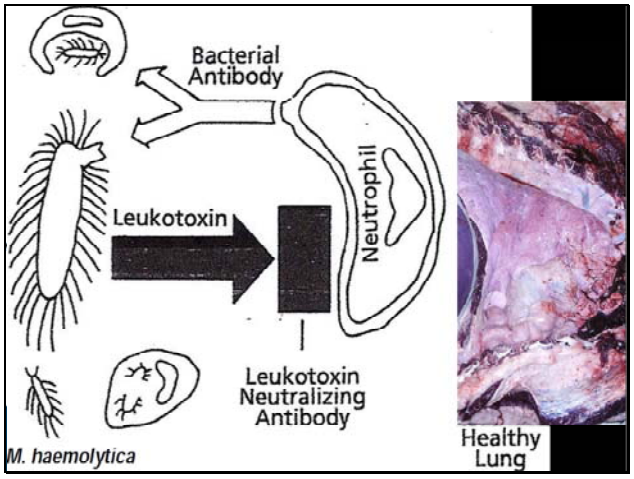
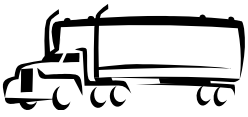




Risk Factors Associated with BRD

Weaning, nutrition, environment, parasites, transport, commingling, etc…



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Risk Factors Associated with BRD

Inadequate Passive Transfer

=

3 TIMES

more likely to be treated for BRD in the feedlot

(Wittum & Perino, 1995)

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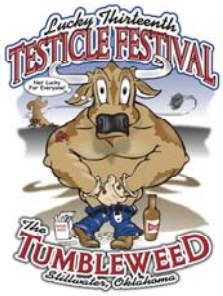
Risk Factors Associated with BRD



- Bulls 3.32 times more likely to have BRD than steers
- (Richeson, 2013)

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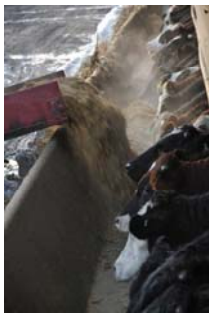
Risk Factors Associated with BRD

- Starter rations containing ≥ 75% concentrate



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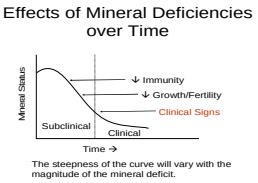
Immune System Function

- Vital parts
  - Energy
  - Protein
  - Copper, selenium, zinc..
  - Vitamin A, D, E



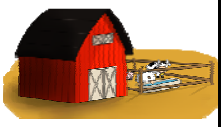
Dr Jeff Hall, Utah State Univ

Boehringer Ingelheim

Prevention Starts on the Farm

Newly weaned, non-vaccinated calves are:

- Stressed
- Exposed to new pathogen isolates
- Minimal or no protection
- Not able to develop maximal immunity
- High risk of developing pneumonia



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Vaccine Goals

- Vaccination ⇒ Immunity
- Immunity ⇒ Disease resistance
- Disease resistance ⇒ Improved performance
- Improved performance ⇒ Increased potential revenue/profits

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Vaccine Goals

- Goal = Raise the level of immunity (resistance) in the herd to prevent severe disease outbreaks
- Reduces the occurrence of outbreaks with high morbidity and/or mortality
  - ↓ # of animals that exhibit clinical disease and/or minimize clinical disease in some to allow a more rapid recovery
- Not all animals will be protected – some individuals may still get sick/die

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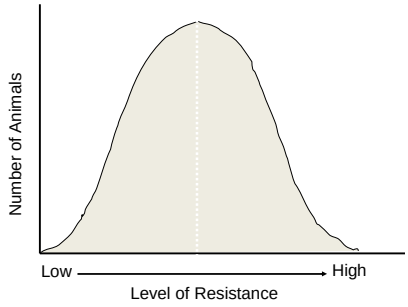
Disease Resistance



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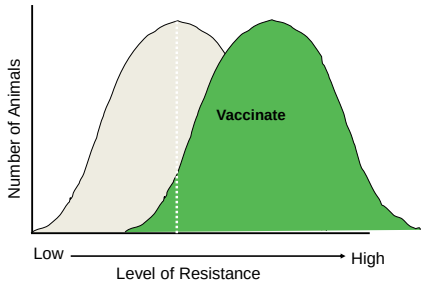
Disease Resistance following Vaccination



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Risk Categories

- Low-Risk
  - preconditioned
  - castrated (healed)
  - dehorned (healed)
  - vaccinated
    - resp viral vaccines
    - ? blackleg shot (most programs include)
    - ? pasteurella shot (most programs include)
  - weaned
    - not walking fence or bawling
  - bunk broke

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Risk Categories (cont.)

- High-Risk, Exposed
  - generally put together cattle (small farms, 1 or > auction markets)
  - commingled
    - ↑ exposure to pathogens
    - added stress (nutrition, social, etc.)
  - many may be sick upon arrival

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Arrival Considerations

- Let cattle settle down & relax
- Stress: decreases immune response
- Provide good quality hay
- Provide clean water

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Processing Considerations

- Process 12 – 24 hours
- PI test?
- Viral vaccine- IBRV, BVDV I & II, PI3, BRSV
- Recent data = in certain situations may delay viral vaccinations
- *Mannheimia haemolytica?*
- 7 way Blackleg?
- Dewormer
- Metaphylaxis?
- Work cattle quietly

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Things to Consider before Purchase

- Work with your veterinarian on an arrival vaccination protocol
- Work with your nutritionist on a receiving/starter ration

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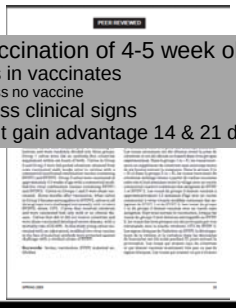
What about Maternal Antibodies?

Pyramid ® 5 vaccination of 4-5 week old calves:
- 0% death loss in vaccinates
  - 33% death loss no vaccine
- significantly less clinical signs
- positive weight gain advantage 14 & 21 days post-challenge



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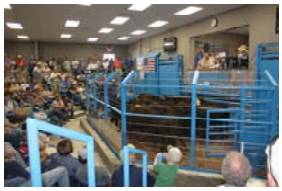
Long Haul High Risk Calves

- May consider…



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PEER REVIEWED

Effects of delayed respiratory viral vaccine and/or inclusion of an immunostimulant on feedlot health, performance, and carcass merits of auction-market derived feeder heifers

K.C. Rogers,[1] DVM, MS; D.G. Miles,[1] DVM, MS; D.G. Renter,[2] DVM, PhD; J.E. Sears,[3] DVM; J.L. Woodruff,[4] DVM
[1]Veterinary Research and Consulting Services, LLC, Greeley, CO 80634
[2]Center for Outcomes Research and Education, Kansas State University, Manhattan, KS 66506
[3]Bayer Animal Health, Shawnee Mission, KS 66216
[4]Boehringer Ingelheim Vetmedica, Inc., St. Joseph, MO 64506
Corresponding author: Dr. K.C. Rogers, vrcskcr@aol.com

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Study Design

- 5179 high-risk crossbred heifer calves
  - OK & TX origin, 8/25/2015 through 10/15/2015
  - 624 lb ave (602-650 lb range)
  - large commercial feedlot in western KS
- Cattle penned by treatment group:
  - 15 x 4-pen replicates (60 pens total) ~ 85 head/pen
- Calves randomized at processing chute

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Study Groups

Treatment	On Arrival	30 DOF ± 5
Arrival Pyramid® (AP)	Micotil® + Presponse® SQ + Pyramid® 5	Pyramid® 5
Arrival Pyramid® + Zelnate® (APZ)	Micotil® + Presponse® SQ + Pyramid® 5 + Zelnate®	Pyramid® 5
Delayed Pyramid® (DP)	Micotil® + Presponse® SQ	Pyramid® 5
Delayed Pyramid® + Zelnate® (DPZ)	Micotil® + Presponse® SQ + Zelnate®	Pyramid® 5

Courtesy of Del Miles

Boehringer Ingelheim

Health performance @ 60 DOF

	DP	AP	DPZ	APZ	P-value Pyr.	P-value Zel.	P-value P*Z
No. Calves (pens)	1296 (15)	1290 (15)	1293 (15)	1300 (15)	-	-	-
BRD 1 Treatment, %	22.92	23.17	22.92	21.78	0.70	0.55	0.55
BRD 2 Treatments, %	8.36	9.39	7.49	9.67	0.04	0.66	0.44
BRD 3 Treatments, %	4.34	4.98	3.53	3.95	0.35	0.10	0.92
BRD Case Fatality, %	11.88	14.03	8.61	11.63	0.16	0.12	0.70
BRD Mortality, %	2.85	3.45	1.98	2.54	0.19	0.05	0.86
Overall Mortality, %	3.26	3.79	2.15	2.79	0.20	0.03	0.74

Courtesy of Dave Renter

Health performance at close-out

	DP	AP	DPZ	APZ	P-value Pyr.	P-value Zel.	P-value P*Z
BRD 1st treatment, %	26.03	25.50	25.18	25.16	0.82	0.63	0.83
BRD Retreat. Risk, %	37.95	43.59	36.17	44.35	0.01	0.84	0.64
BRD Case Fatality, %	13.44	16.08	10.28	13.11	0.14	0.10	0.85
BRD Mortality, %	3.61	4.36	2.65	3.36	0.15	0.06	0.88
Overall Mortality, %	5.35	5.88	3.79	5.02	0.13	0.04	0.45
BRD Outs, % (Dead+Removal)	4.17	4.98	3.47	4.21	0.16	0.18	0.95

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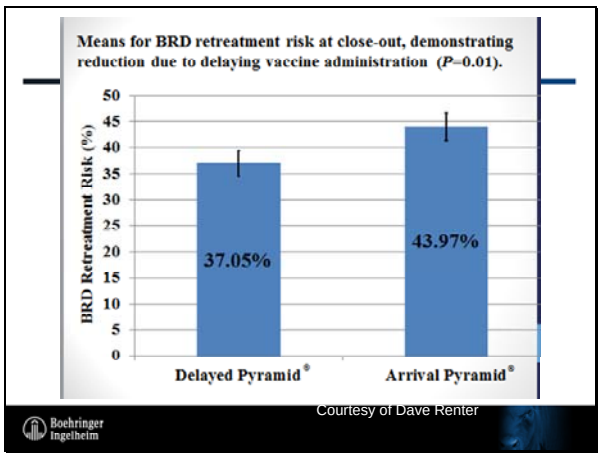
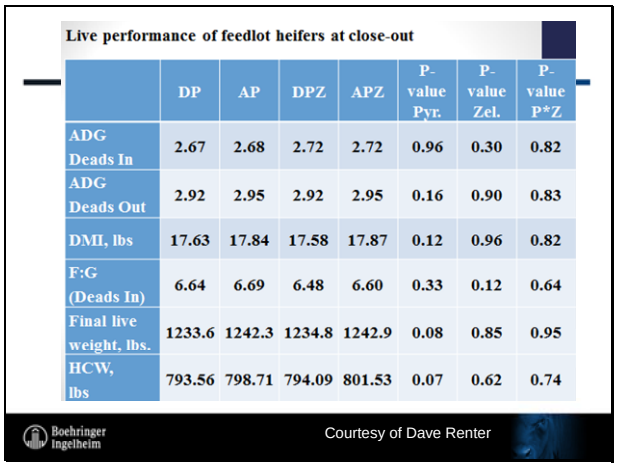
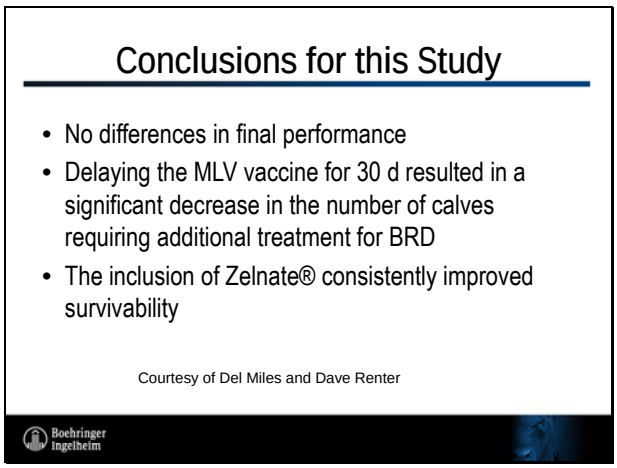
Courtesy of Dave Renter





	DP	AP	DPZ	APZ	P-value Pyr.	P-value Zel.	P-value P*Z
ADG Deads In	2.67	2.68	2.72	2.72	0.96	0.30	0.82
ADG Deads Out	2.92	2.95	2.92	2.95	0.16	0.90	0.83
DMI, lbs	17.63	17.84	17.58	17.87	0.12	0.96	0.82
F:G (Deads In)	6.64	6.69	6.48	6.60	0.33	0.12	0.64
Final live weight, lbs.	1233.6	1242.3	1234.8	1242.9	0.08	0.85	0.95
HCW, lbs	793.56	798.71	794.09	801.53	0.07	0.62	0.74



Package Insert

PYRAMID® 5 + Presponse® SQ

For Veterinary Use Only

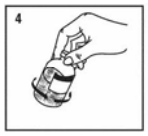
Indications

For vaccination of healthy dairy or beef cattle as an aid in the prevention of disease caused by infectious bovine rhinotracheitis virus, bovine virus diarrhea (types 1 and 2), bovine parainfluenza 3, bovine respiratory syncytial virus, and as an aid in the reduction of severity of pneumonic pasteurellosis caused by *Mannheimia haemolytica*. A duration of immunity of 217 days has been demonstrated against respiratory disease caused by BVD type 1b. Vaccination provides a protective effect against the development of post-challenge viremia and leukopenia. This product aids in the prevention of persistent BVD type 1 and type 2 infection of the fetal calf when it is used subcutaneously in the cow or heifer 30 to 60 days pre-breeding. This vaccine may be used in pregnant cows or calves nursing pregnant cows provided the cows were vaccinated pre-breeding, according to label instructions, with any Express® FP vaccine, Pyramid 5, Pyramid 10, Pyramid 3, Pyramid 3 + Presponse SQ, or Pyramid 5 + Presponse SQ.

A duration of immunity of 217 days has been demonstrated against respiratory disease caused by BVDV type 1b. Vaccination provides a protective effect against the development of post-challenge viremia and leukopenia.

PYRAMID® + PRESPONSE® SQ

Things to Remember when using Vaccines



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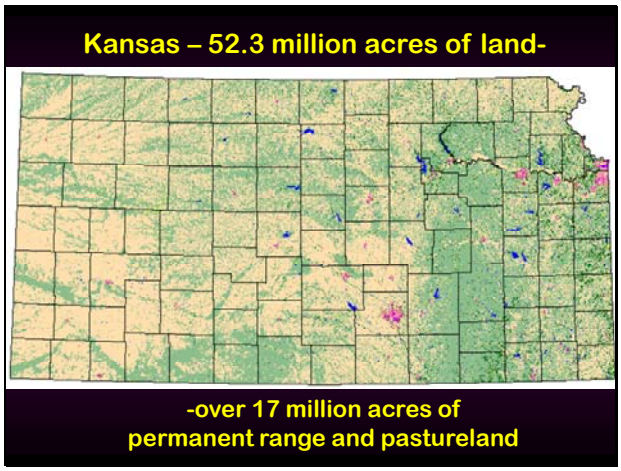
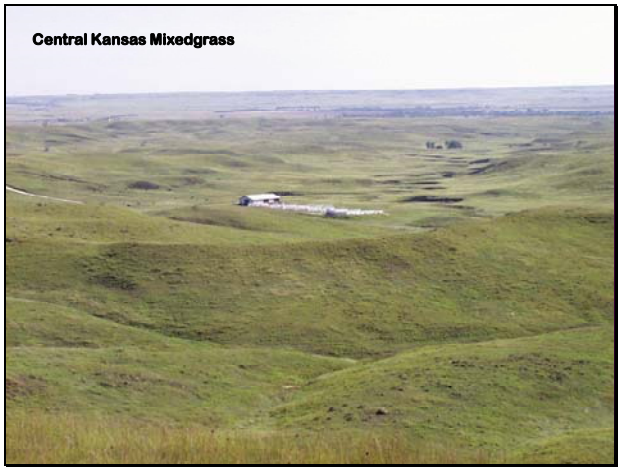
Notes – Notes -- Notes

A Different Intensive Early Stocking Strategy for Optimized Marketing Opportunities

Dr. Keith Harmoney
K-State Agricultural Research Center, Hays, KS




Eastern Kansas Tallgrass

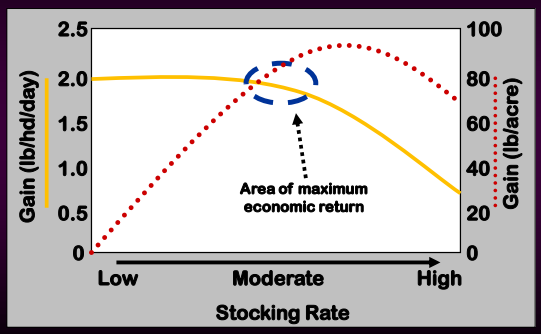

Central Kansas Mixedgrass


Western Kansas Shortgrass

The Primary Use and Goal

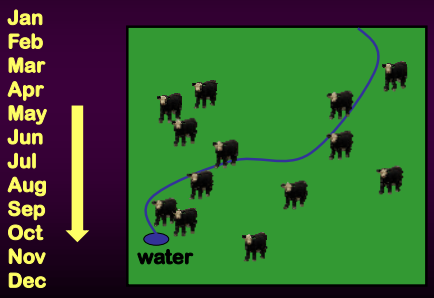
Efficient beef production per acre-
to get maximum individual gain from the
greatest number of animals

Relationship of Stocking Rate, Animal Production, and Economic Return



Season-Long Stocking (SLS)

-stocking animals on one pasture
for the entire grazing season (5-6 months)



Season-Long Stocking

-1X moderate stocking rate and density for the growing season

-Selectivity of most nutritious plants and plant parts, important for late season gains

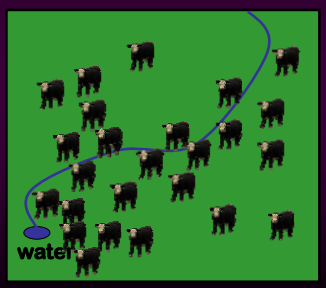
-Individual animal gains of 230-250 lbs

-Production per acre from 50-65 lbs

Intensive-Early Stocking (2X IES)

-stocking 2X the season-long number of animals during the early grazing season (2.5 – 3.0 months)

Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec



Intensive-Early Stocking (2X IES)

-1X moderate stocking rate, but 2X stocking density for the first half of growing season, animals removed at mid-season

-Animal density greatest when grass is most nutritious

-Reduces some selectivity, ≈70% of area grazed

-Early season animal gains equal to SLS

-Production per acre greater than SLS in the east, equal to SLS in the west

Intensive-Early Stocking (2X IES) with prescribed spring burning

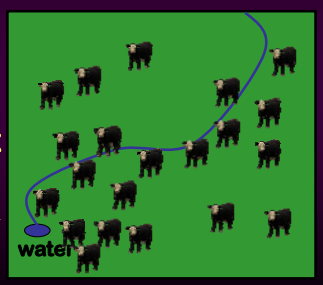
-same stocking attributes as 2X IES

-high forage quality, no carryover residual forage at spring turnout
-greater animal intake
-improved individual animal performance and production per acre over 2X IES

Modified IES (1.6X + 1)

-stocking 1.6X the season-long number of animals during the early grazing season (2.5 – 3.0 months), reducing density to 1X during the late season

Jan
Feb
Mar
Apr 1.6X
May
Jun
Jul 1X
Aug
Sep
Oct
Nov
Dec



Modified IES (1.6X+1)

-Utilize positive components of both SLS and 2X IES systems to maintain individual performance and increase production per acre

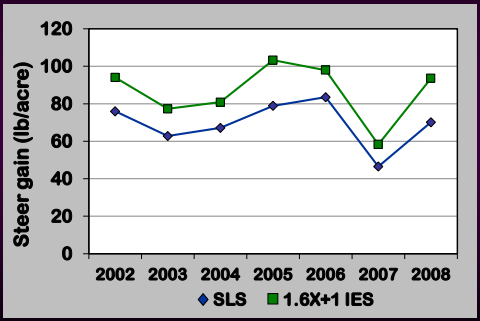
-1.6X animal density for first half of growing season, heaviest animals removed at mid-season
-1X animal density the last half of growing season

-Animal density greatest when grass is most nutritious
-Allows more animal selectivity late in the season

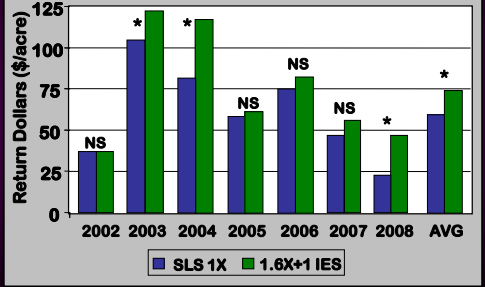
Season-Long Stocking vs. Modified IES (1.6X+1) Hays, 2002-2008

	Early Season (~May 1-July 15)		Late Season (~July 15-Oct 1)		Beef
	ADG (lb)	Total Gain (lb)	ADG (lb)	Total Gain (lb)	(lb/ac)
SLS	1.71[a]	128[a]	1.35[a]	106[a]	69[b]
IES 1.6X+1	1.54[b]	115[b]	1.37[a]	107[a]	85[a]

Steer Performance on Native Range 2002-2008, Hays



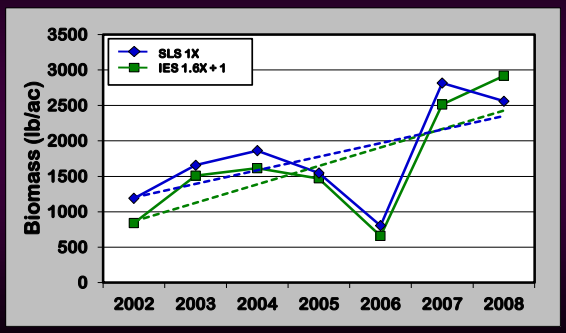
$ Return Per Acre on Native Range, Hays



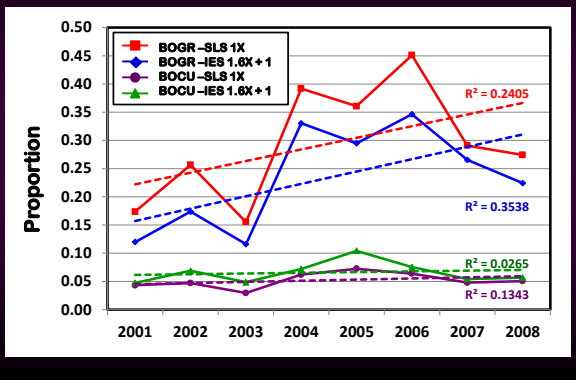
Carcass Comparison

Trait	SLS	1.6X+1		
	SL	Avg.	Oct	July
Feedlot Start Wgt, lbs.	846 *	794	801	783
Finished Wgt, lbs.	1394 *	1333	1331	1335
Carcass Wgt, lbs.	868 *	825	827	820
Marbling Score	5.54 *	5.27	5.42	5.23
Dressing %	64.5	63.9	64.4	63.2
Feedlot Gain, lbs.	546 *	539	531	552
Ribeye area, in^2	13.4 *	13.0	13.0	12.9
Days on Feed	150	147	150	144
Number of Head	278	446	280	166
Net Value, $/head	46.00		38.92	89.70

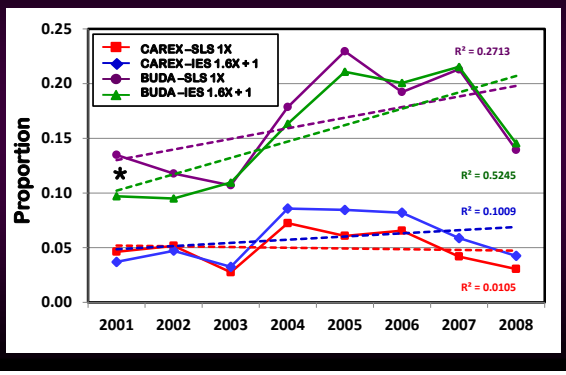
End of Growing Season Biomass, Hays



Blue and Sideoats Grama Composition on Short Grass Rangeland



Buffalograss and Sedge Composition on Short Grass Rangeland



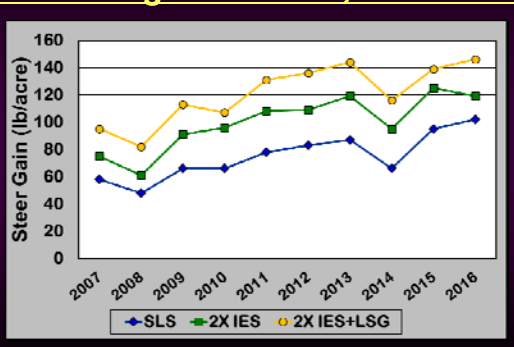
2X IES + Late Season Grazing (2X IES+LSG)

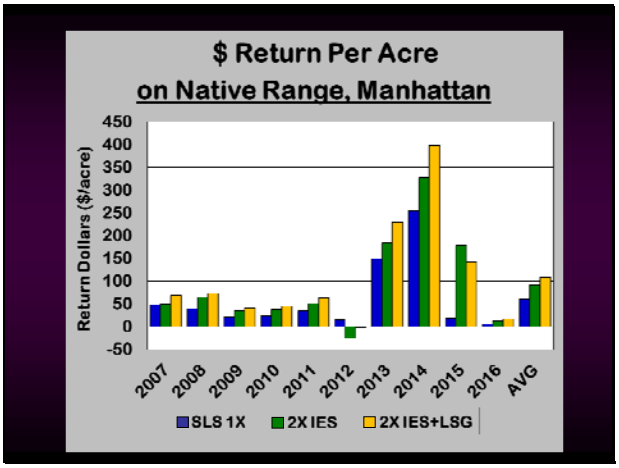
-Utilize positive components of both SLS and 2X IES systems to maintain individual performance and increase production per acre

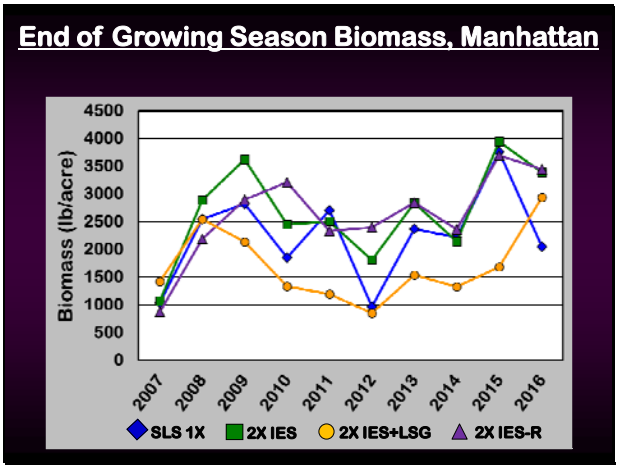
-2X animal density for first half of growing season, half of the animals removed at mid-season
-1X animal density the last half of growing season

-A System that alternates years between 2X IES and 2X IES+LSG

Steer Performance on Native Range 2007-2016, Manhattan







Main benefits of Modified IES (1.6X+1) or 2X IES+LSG System

-Increased beef lb/acre produced (26% at Hays, 43 and 23% at Manhattan)

-Increased net returns/acre (19% at Hays, 75 and 18% at Manhattan)

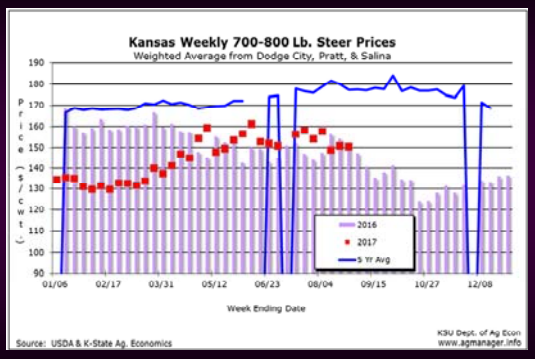
-No change in vegetative production the year after modified stocking or late season grazing

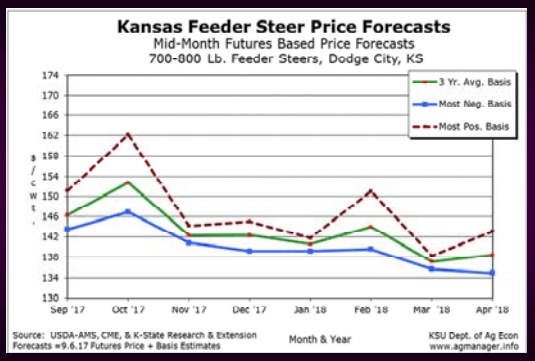
Other benefits of Modified IES (1.6X+1) or 2X IES+LSG System

-Potential for light stockers to put on more weight

-Lessens marketing risk

-Opportunity to market in other production sectors

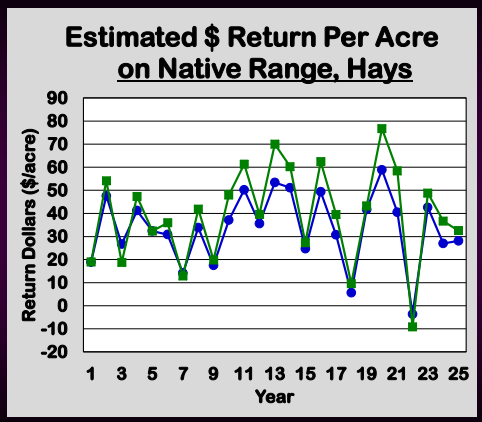




Lessens Risk

-The Modified IES system had a greater net return/acre than SLS for 22 of the 25 years.

-A previous 2X IES+LSG system had a greater net return/acre in 30% of the years, yet never had the lowest net return compared to SLS and 2X IES.



-Use replacement heifers in IES, fixed time AI and early ultrasound, late season graze those settled AI

Comparison of SLS and Modified IES 1.6X+1 with Heifers

	May Heifer BW	July Heifer BW	October Heifer BW	Early Gain	Total Gain	FSCR
	lb	lb	lb	lb/acre	lb/acre	%
SLS	772	909	987	34	54	52
MIES	770	900	980	52*	73*	44

Comparison of SLS and Modified IES 1.6X+1 with Heifers

-Residual Pasture Dry Matter Availability

Heifer Stocking Treatment			
July		October	
SLS	MIES	SLS	MIES
lb/acre			
2174	2052	1986	1974

Conclusions

-Using a different IES system with late season grazing has potential to increase beef production and net returns per acre

-Can achieve this production increase and also lessen marketing risk

-May be able to expand this stocking strategy to other classes of cattle

The Primary Use and Goal

Efficient beef production per acre-
to get maximum individual gain from the greatest number of animals

Continue to test strategies to make beef production more efficient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