

# Forage Economics



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4/11/2008 2:40:00 PM

## Feeder Cattle: Futures Find Support, Cattle Growers Search For “Gain Without Grain”

Cattle growers across the nation are searching for **“gain without grain”** with an all-time record high (and still climbing) corn market, but the **cost of other feeds have risen at nearly the same rate**; including distiller by-products, **hay, and pasture rent for forage**. Many cattle grazers own their grassland but the opportunity costs are pressuring ranchers to consider other options; such as, farm/hay production, rural development, or wildlife preservation/management. Cattle production’s sheer need for wide open spaces has helped it avoid much of the mass integration that other proteins have undergone, but the fixed costs of raising cattle make it very difficult for beef to compete and still compensate a cow/calf man, a backgrounder, a feeder, and a packer. Rarely do all these individuals reap profits at the same time, but currently all four are having a tough time finding a profit.

SOURCE: USDA-MO Dept of Ag Market News Service, St. Joseph, MO, Corbitt Wall, OIC/Greg Harrison, Market Reporters

2

## How might current economic conditions impact grass rents?



## Historical and forecasted diesel prices during principal farming months...

### Off-road Diesel Fuel Prices

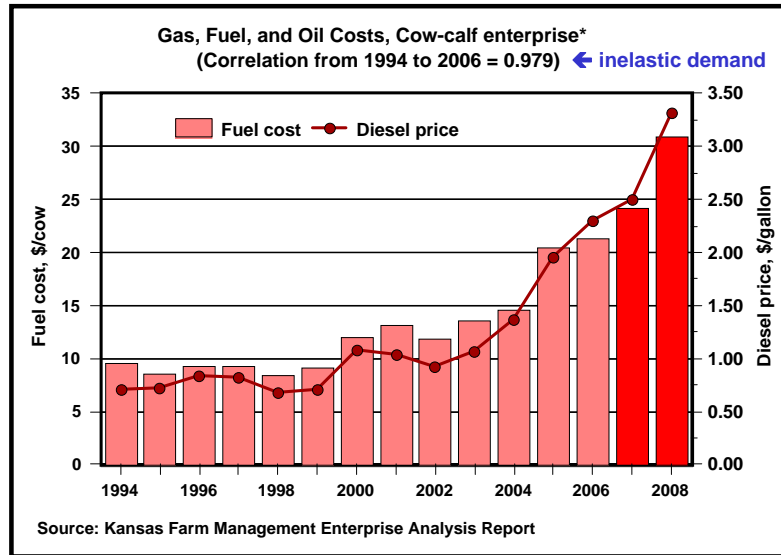
Year	Mar-Oct Diesel Price			Year-to-year percent change		
	SW KS	US (EIA)	Average	SW KS	US (EIA)	Average
2003	\$1.05	\$1.03	\$1.04	----	----	----
2004	\$1.37	\$1.34	\$1.35	30.0%	29.6%	29.8%
2005	\$2.04	\$1.99	\$2.01	48.5%	48.7%	48.6%
2006	\$2.41	\$2.30	\$2.36	18.6%	15.9%	17.2%
2007	\$2.52	\$2.37	\$2.44	4.4%	2.8%	3.6%
2008 (F)	\$3.42	\$3.20	\$3.31	35.7%	35.3%	35.5%
2009 (F)	\$3.27	\$2.89	\$3.08	-4.3%	-9.7%	-6.9%
2008 - 2007	\$0.90	\$0.84	\$0.87	35.7%	35.3%	35.5%
08 - Avg(03-07)	\$1.54	\$1.40	\$1.47	82.0%	77.4%	79.8%

F = forecast

Futures-based forecast based on 3/31/08 closing futures prices

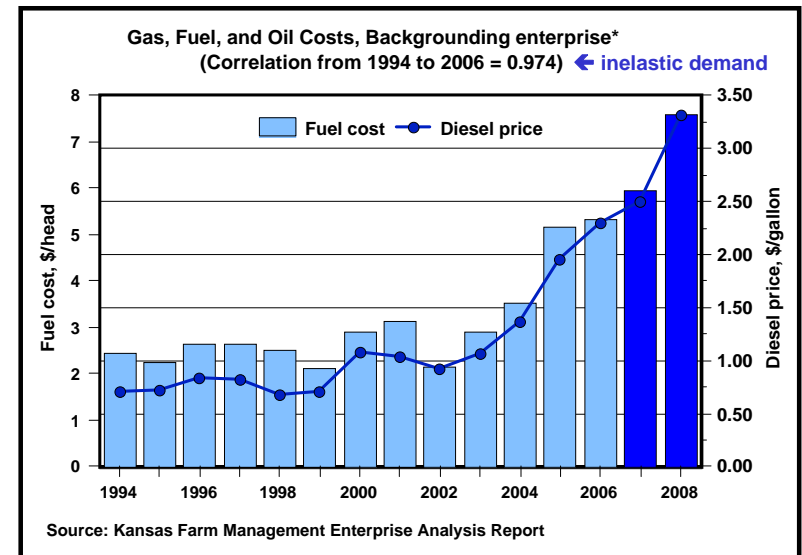
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## What do these high oil and diesel prices mean to the cattleman?



8

## What do these high oil and diesel prices mean to the cattleman?

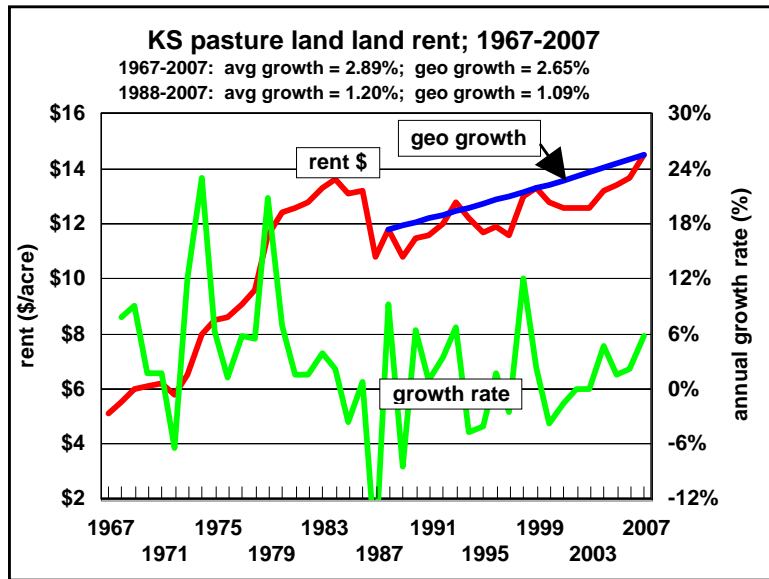


9

## Impact of high fuel prices on livestock operation costs...

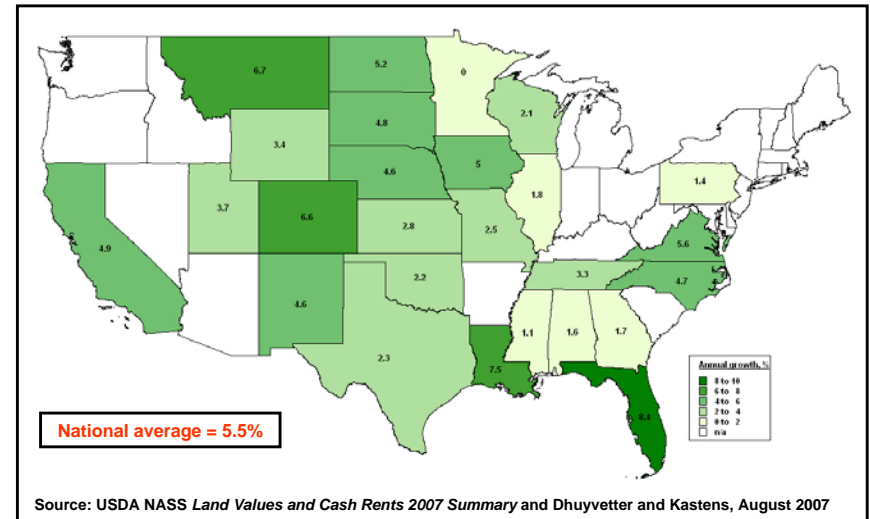
- Inelastic demand → not much can be done to manage higher fuel costs
- While the impact increasing fuel costs have on costs of production cannot be ignored, this might just be the tip of the iceberg...
- Much bigger question is how will high commodity prices (as the result of high energy prices) impact grass rents...

## Pasture rents

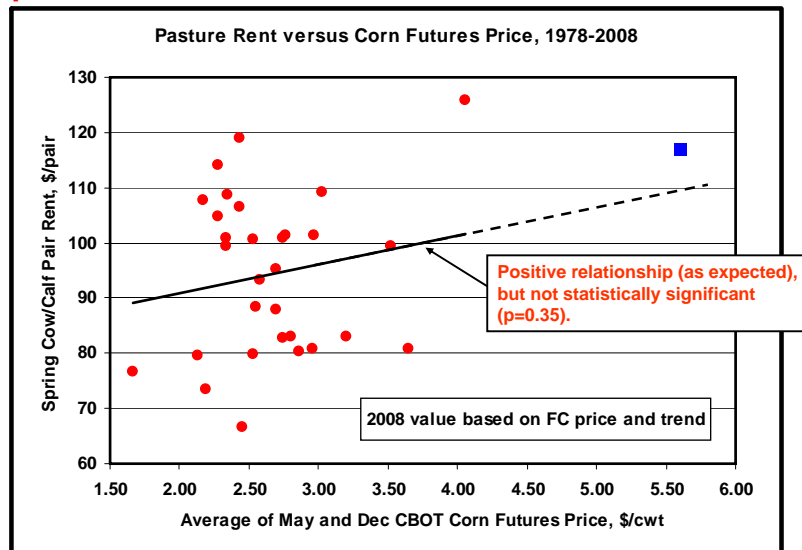


Suggested expected ag growth rate = 2.47% (but if ethanol continues . . . ?)

### Pasture Rent Average Annual Growth Rate Jan 1, 2002 to Jan 1, 2007, percent (geo mean)

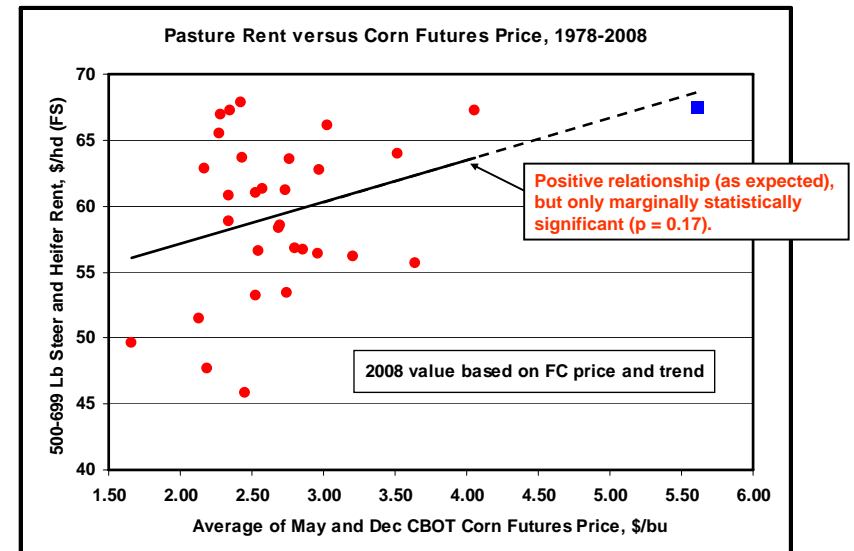


### What is the relationship between corn price and pasture rent?



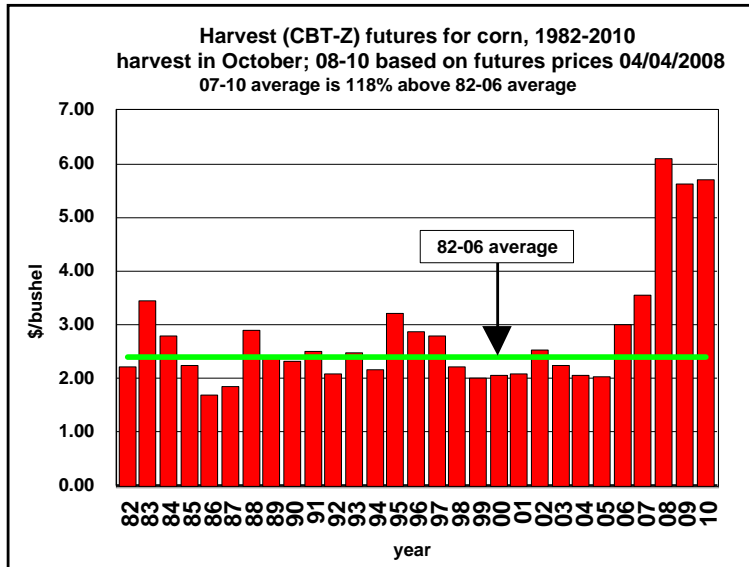
Source: Kansas Ag Statistics *Bluestem Pasture Report* and Dhuyvetter, August 2007

### What is the relationship between corn price and pasture rent?



Source: Kansas Ag Statistics *Bluestem Pasture Report* and Dhuyvetter, August 2007

## How long will strong prices stick around?



Hard to believe corn prices won't start impacting pasture rents more than in the past...

16

## Beef budgets used to estimate feed costs...



Budgets were simply used to calculate feed cost of gain and how it is impacted under various price scenarios to examine relative changes...

19

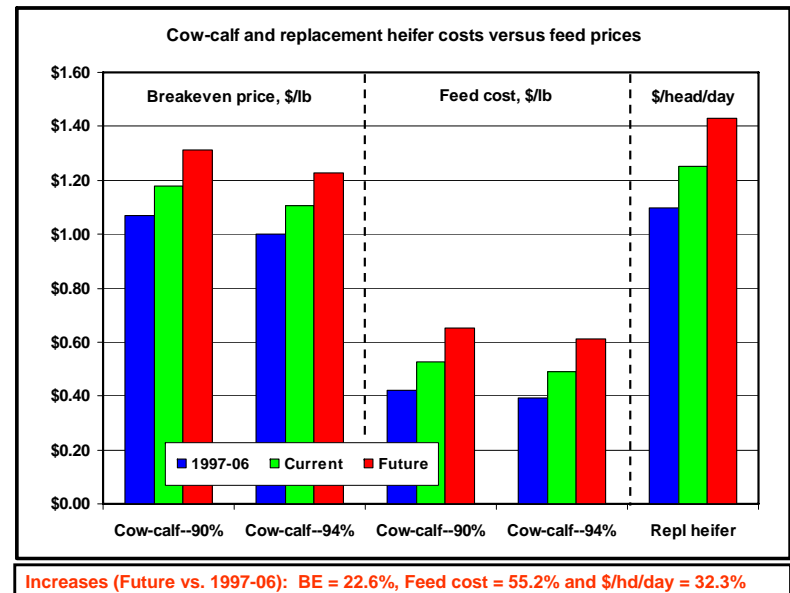
## Budget feed price assumptions...

Feed prices	Unit	10-yr avg (1997-06)	2007	% chg	Future	% chg
Corn	\$/bu	\$2.30	\$3.42	48.8%	\$5.00	46.1%
Grain sorghum	\$/bu	\$2.05	\$3.16	54.2%	\$4.65	47.3%
Supplement	\$/ton	\$177.53	\$224.63	26.5%	\$323.10	43.8%
Sorghum silage	\$/ton	\$14.72	\$21.90	48.8%	\$32.00	46.1%
Alfalfa	\$/ton	\$83.13	\$118.83	42.9%	\$156.25	31.5%
Crop residue	\$/ton	\$12.00	\$16.00	33.3%	\$20.00	25.0%
Prairie hay	\$/ton	\$61.68	\$81.17	31.6%	\$111.33	37.2%
Cane hay	\$/ton	\$39.25	\$58.41	48.8%	\$85.33	46.1%
Pasture charges						
AUM	\$/AUM	\$11.23	\$12.70	13.1%	\$15.24	20.0%
Western KS -- SL	\$/head	\$55.66	\$62.95	13.1%	\$75.54	20.0%
Western KS -- IES	\$/head	\$42.10	\$47.61	13.1%	\$57.13	20.0%
Eastern KS -- SL	\$/head	\$65.49	\$74.06	13.1%	\$88.87	20.0%
Eastern KS -- IES	\$/head	\$49.52	\$56.01	13.1%	\$67.21	20.0%
Wheat grazing	\$/cwt	\$2.00	\$2.40	20.0%	\$2.88	20.0%
Wheat graze-out	\$/cwt	\$2.15	\$2.60	20.9%	\$3.12	20.0%

Percent increase used in 2008 FM Guides

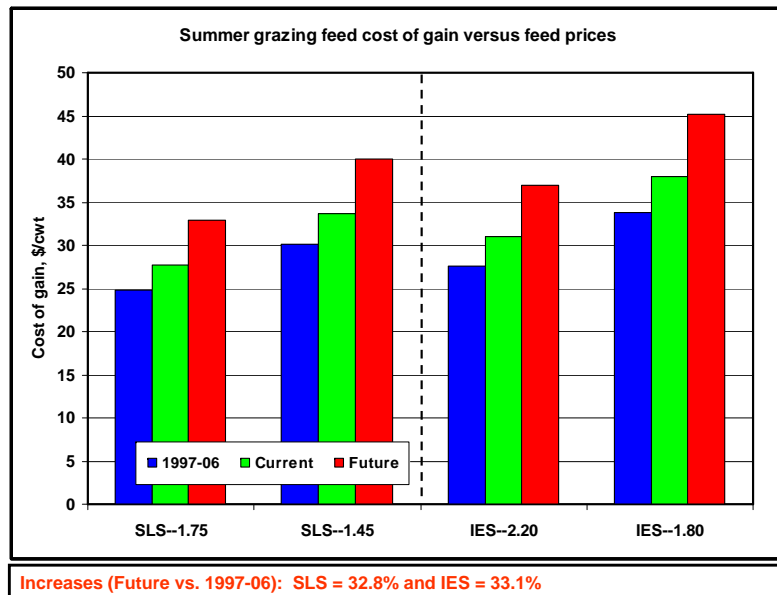
20

## Breeding enterprises...



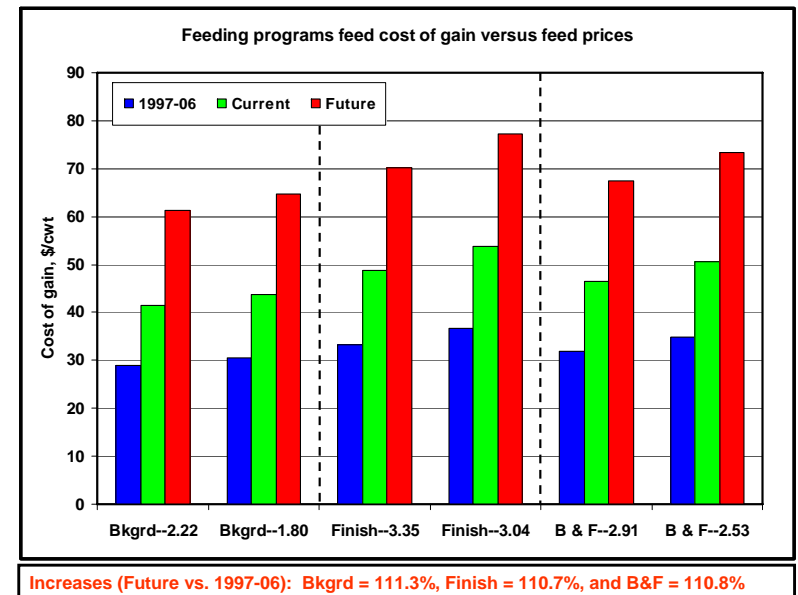
21

## Summer grazing enterprises...



22

## Feeding enterprises...



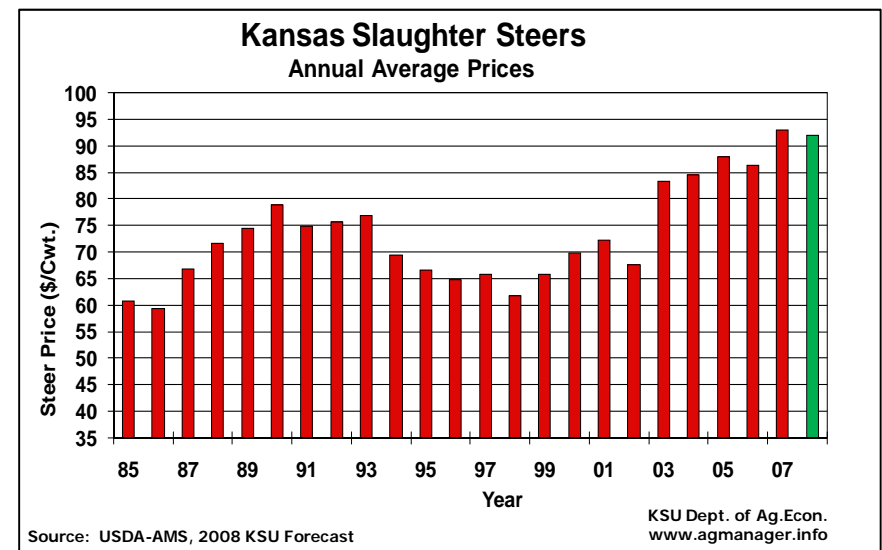
23

## What does all this mean?

- Feed COG in feeding programs increase over 100% relative to historical time period
- This compares to ~33% for summer grazing programs (based on +120% assumption)
- What do you do about this?
  - Pay less for cattle

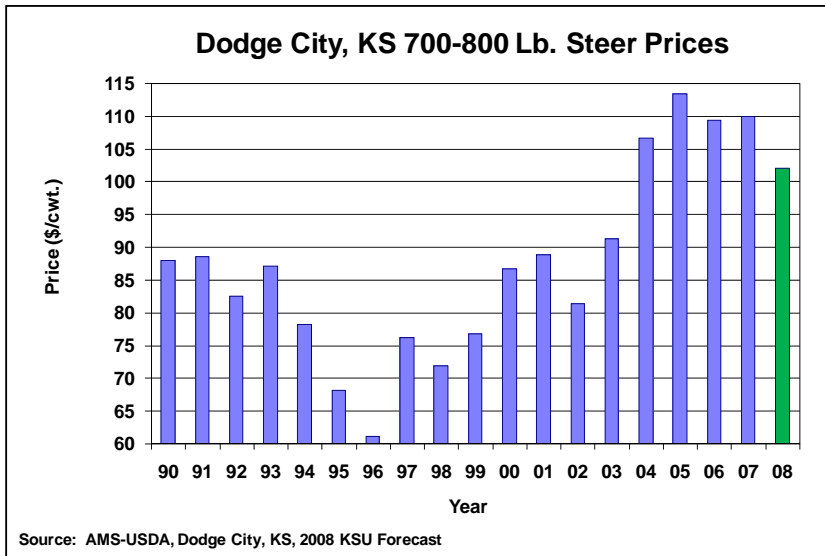
24

## Slaughter Cattle Prices Expected To Remain Near Record Level



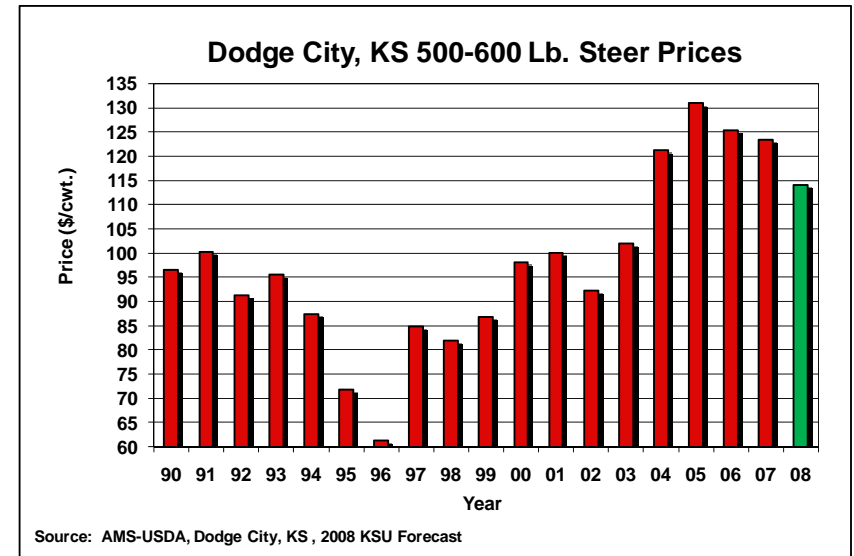
25

## Feed Costs Will Be A Big Factor in Feeder Price Outlook



26

## Feed Costs Will Be A Big Factor in Calf Price Outlook



27

### What does all this mean?

- Feed COG in feeding programs increase over 100% relative to historical time period
- This compares to ~33% for summer grazing programs (based on +120% assumption)
- What do you do about this?
  - Pay less for cattle
  - Find ways of putting on gain at lower cost
    - Leave cattle on grass longer
    - Background to heavier weights
    - Find alternative feedstuffs

29

### Find ways of putting on gain at lower cost...

- How high might grazing rates (summer grass SLS and IES programs) increase?
- Calculated pasture rates such that future feed COG relationships between feeding and grazing programs are similar to historical relationships
- Compared summer grass programs (west and east, SLS and IES) to drylot backgrounding programs
- Across all programs, increasing 2007 pasture rates 94% results in COG for grazing programs, relative to drylot backgrounding, that are proportional to what they were with 1997-2006 prices

30

## Cattle Thoughts . . .

- Ethanol is not going away – get used to it
- AVERAGE cow-calf profits will be lower
  - Good managers will continue to make money
- Grass rent will be higher
  - Still greatly preferred to grain
- Enterprise (crops vs. cattle) thinking will be especially important
  - Cropland devoted to grain production?
  - More reliance on grazing native grass?

31

## Forages Economic Decisions – Hay versus Graze?

- How forage stand is managed is critical
- Will cattle be owned or pasture rented out? (i.e., does cattle market or “value of gain” matter)
- Is grazing brome/fescue part of a “bigger” grazing program?
- How is hay packaged and marketed? (i.e., round bales, small square, big square – marketed to cattle producers, horse market?)
- What costs should all be included in analysis? (i.e., defining variable versus fixed costs)

32

## Forages Economic Decisions – Hay versus Graze?

The image shows three side-by-side screenshots of KSU Farm Management Guides. The first is titled 'Fescue Hay Cost-Return Budget in Central and Eastern Kansas'. The second is 'Brome Hay Cost-Return Budget in Central and Eastern Kansas'. The third is 'Summer Grazing of Steers in Eastern Kansas'. Each guide includes a table of costs and returns, and a summary of the economic analysis.

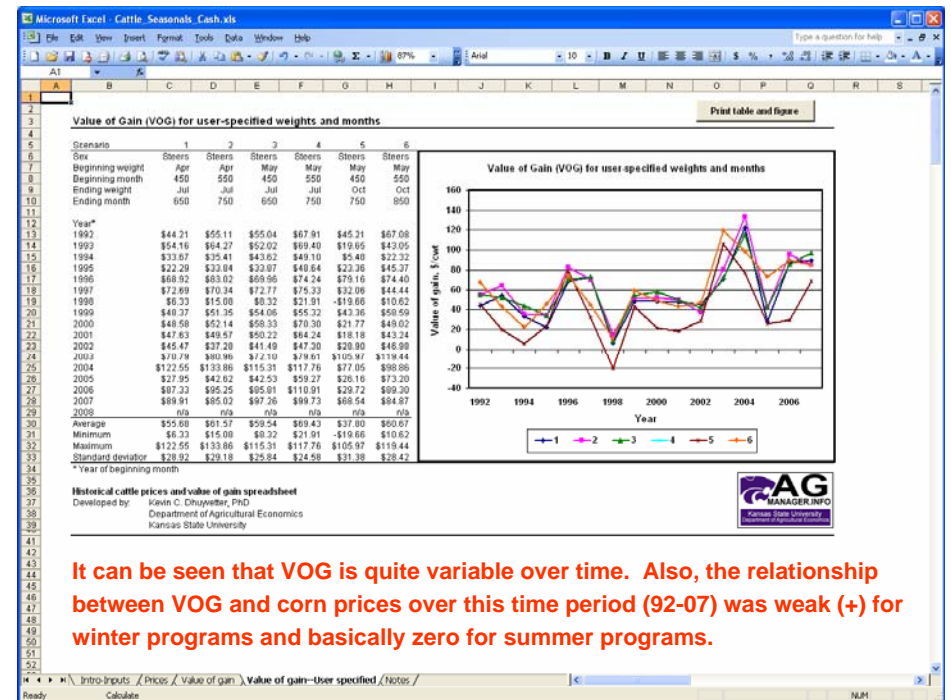
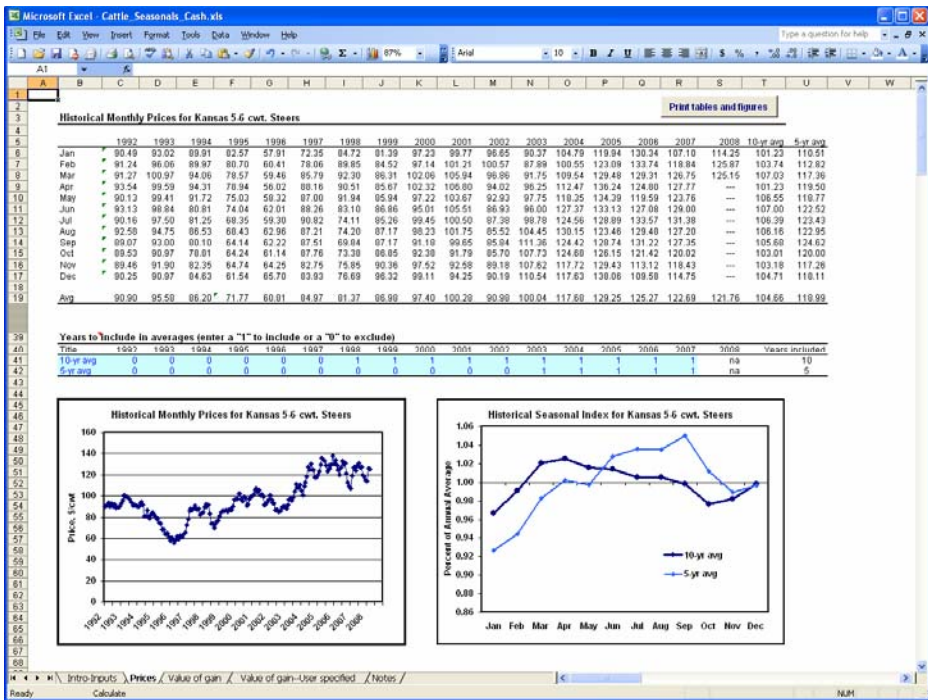
Starting point of analysis is KSU Farm Management Guides (Excel spreadsheets are available at [www.agmanager.info](http://www.agmanager.info))

33

The image shows a screenshot of the 'Cattle\_Seasonals\_Cash.xls' Excel spreadsheet. The interface includes a title bar, menu bar, and toolbar. The main content area displays a table with columns for 'Scenario' (1-6) and rows for 'Starting month', 'Ending month', 'Class (weight/sex) of Cattle - Starting', 'Class (weight/sex) of Cattle - Ending', 'Weight gain', and 'Months / Average daily gain (ADG)'. Below the table, there are several images of cattle. The spreadsheet is used to analyze historical cattle prices and value of gain for different weights and time periods.

Excel spreadsheet that allows user to examine historical price seasonality for various weights of steers and heifers as well as value of gain for specified weights and time period.

34



It can be seen that VOG is quite variable over time. Also, the relationship between VOG and corn prices over this time period (92-07) was weak (+) for winter programs and basically zero for summer programs.

Beef Basis - Home - Windows Internet Explorer

http://www.beefbasis.com/

# BEEFBASIS.COM

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Welcome to BeefBasis

**BeefBasis.com - Decision Support for America's Beef Producers**

The Cattle Basis Risk Analysis Tools at BeefBasis.com give producers the information and analytics they need to improve marketing decisions influenced by cattle basis risk. This site is completely free of charge to producers.

Basis, defined simply as the difference between the local cash markets and futures contract prices, can be complex and can vary dramatically between weight classes and market locations from year to year. Understanding the risk related to basis uncertainty, or "basis risk," is essential to making effective use of price risk management tools such as Chicago Mercantile Exchange (CME) futures and options and forward contracts.

The BeefBasis website was developed by Custom Ag Solutions, Inc. (CAS) and Kansas State University (K-State) in partnership with the USDA's Risk Management Agency (RMA).

**BeefBasis gives you relevant information and analytics you need to evaluate marketing decisions and manage your price risk.**

AMS  
USDA

BeefBasis In the News!

- BeefBasis is featured in the December issue of BEEF magazine Read
- Dr. Mintert talks about BeefBasis on the University of Nebraska's Market Journal Television View Video Clip (Requires RealPlayer)

Events

We have scheduled (or are working to schedule) training sessions in the following states:

- Alabama TBD
- Arkansas TBD

Beef Basis - Forecasting Tools - Basis and Price Forecast - Windows Internet Explorer

http://www.beefbasis.com/ForecastingTools/BasisandPriceForecast/Default.aspx

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## Feeder Cattle Basis Forecast

State: Kansas Location: Farmers & Ranchers Livestock Comm

Sex: Steer Frame: Lg & Med/Lg Grade: 1

Weight: 550 lbs/head Head: 120

Feeder Cattle Futures Price: 103.05 \$/cwt Live Cattle Futures Price: 96.18 \$/cwt Corn Futures Price: 5.98 \$/bu

Reference Contract: May 2008 Transaction Date: Apr 11, 2008

Reference Contract: Aug 2008 Transaction Date: Apr 11, 2008

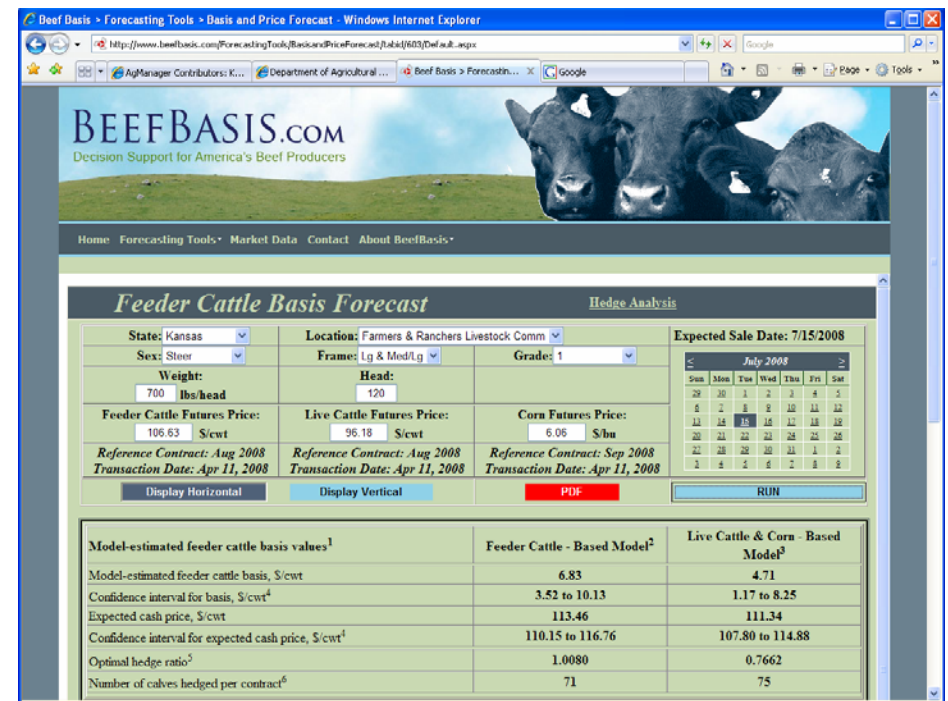
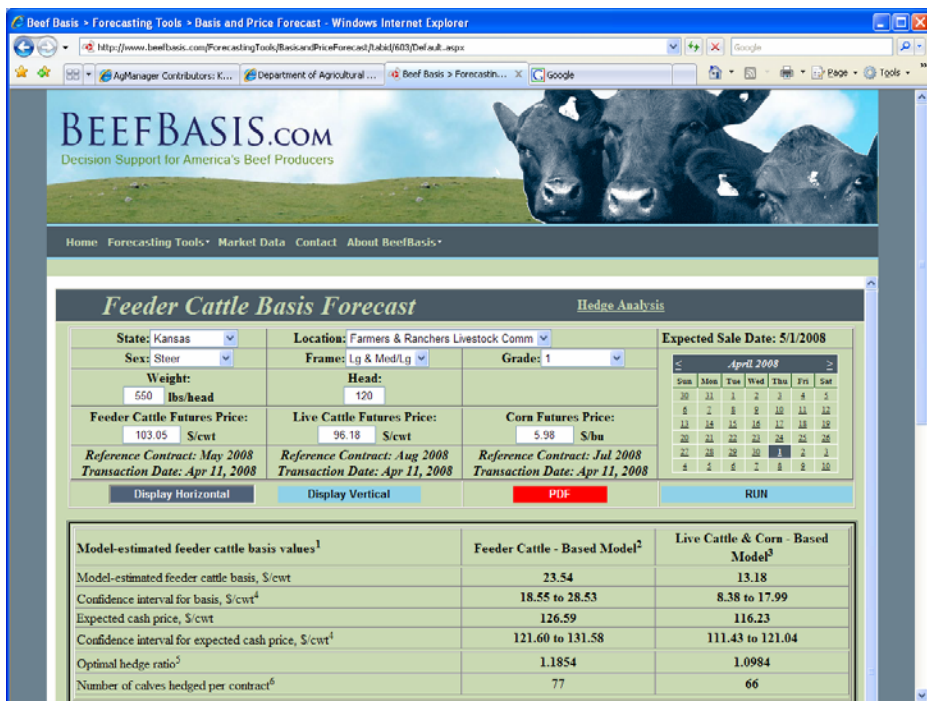
Reference Contract: Jul 2008 Transaction Date: Apr 11, 2008

Expected Sale Date: 5/1/2008

April 2008						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Instructions:

- 1) Select values from each of the pulldowns, enter values in each of the text boxes.
- 2) Hover cursor over entry labels for explanation of value to be entered.
- 3) When all values have been entered, click the run button.
- 4) Results are displayed here.



DC\_GR310 Dodge City, KS  
 USDA-KS Dept of Ag Market News Kansas Hay Market

Fri Apr 11, 2008

Southeast Kansas Alfalfa, brome and prairie hay steady. Movement variable, slow to moderate. Bluestem: Good, small squares 90.00 to mostly 100.00, mid and large squares 80.00-90.00, a little 100.00, large rounds 45.00-60.00. **Brome: Small square Good 90.00-110.00, Good mid and large squares 85.00-100.00, Good large round 50.00-60.00, Fair large round 35.00-45.00.**

North Central-Northeast Kansas Dairy and grinding alfalfa, prairie hay and brome steady. Movement moderate. Grass hay: Bluestem small square, Good 90.00-100.00, Mid square 75.00-90.00, large rounds 45.00-60.00. **Brome: Good, small square, 90.00- 110.00, Mid squares, 80.00-100.00, large round, 50.00-60.00, fair large round 40.00-50.00.** Straw large bales 45.00-60.00/T. Sudan, good large round 65.00. Corn stalks 35.00-40.00. Milo stalks, large round 40.00.

[http://www.ams.usda.gov/mnreports/dc\\_gr310.txt](http://www.ams.usda.gov/mnreports/dc_gr310.txt)

Economic Comparison of Haying versus Grazing								
Hay Production		Grazing						
	Per ac	Include (N=1,N=0)						
Total DM forage production, tons	2.50	100%	Total DM forage production, tons	0.85	2.78			
Hay production, tons	2.50	100%	Stocking rate, ac/head	0.85	1.0			
Hay price, \$/ton	\$60.00	100%	Market animal, \$/head	\$794	\$929			
Government indemnity payment	0.00	100%	Less cost of animal and death loss	\$672	\$787			
Miscellaneous income	0.00	100%	Miscellaneous income	0.00	0.00			
Total Income	\$150.00		Total Income	\$121.75	\$142.58			
Cost			Own Cattle	Per hd	Per ac	Include (N=1,N=0)	Rent out	Include (N=1,N=0)
Seed								
Herbicide								
Insecticide and fungicide								
Fertilizer and lime								
Crop consulting								
Crop insurance	0.00	0%	Hauling	0.00	0.00	100%	0.00	0%
Drying	0.00	0%	Utilities, fuel, and oil	8.00	9.37	100%	0.00	0%
Miscellaneous	6.81	0%	Facility and equipment repairs	7.00	8.20	100%	4.10	50%
Custom hire / machinery expense	76.71	97%	Professional fees	1.00	1.17	0%	0.00	0%
Non-machinery labor	7.40	50%	Miscellaneous	7.00	8.20	50%	0.00	0%
Irrigation	0.00	0%	Dep & Int on facilities and equip	1.51	1.77	0%	0.00	0%
Land charge / rent	36.38	0%	Insurance on facilities and equip	0.26	0.31	0%	0.00	0%
SUB TOTAL	\$78.11		SUB TOTAL	\$42.48	\$49.75		\$4.10	
Interest on 1/2 nonland costs	1.56	0%	Interest on feeder and 1/2 op costs	11.84	13.87	100%	0.04	0%
TOTAL COSTS	\$79.68		TOTAL COSTS	\$54.32	\$63.62		\$4.13	
Returns over Selected Costs	\$70.32		Returns over Selected Costs	\$67.42	\$78.96		\$64.31	

# Dryland Brome Hay Cost-Return Budget in Central and Eastern Kansas

Department of Agricultural Economics - [www.AgManager.info](http://www.AgManager.info)

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Sarah L. Foglemen  
Agricultural Economist

Gary L. Kilgore  
Crops and Soils, SE

INCOME PER ACRE	Yield Level, tons/ac			Your Farm
	1.0	2.5	3.5	
A. Yield per acre	1.0	2.5	3.5	_____
B. Price per ton	\$65.00	\$65.00	\$65.00	_____
C. Net government payment	\$0.00	\$0.00	\$0.00	_____
D. Indemnity payments	\$0.00	\$0.00	\$0.00	_____
E. Miscellaneous income	\$0.00	\$0.00	\$0.00	_____
F. Returns/acre ((A x B) + C + D + E)	\$65.00	\$162.50	\$227.50	_____
<b>COSTS PER ACRE</b>				
1. Seed	\$1.87	\$1.87	\$1.87	_____
2. Herbicide	6.95	6.95	6.95	_____
3. Insecticide / Fungicide	0.00	0.00	0.00	_____
4. Fertilizer and Lime	3.33	58.33	113.33	_____
5. Crop Consulting	0.00	0.00	0.00	_____
6. Crop Insurance	0.00	0.00	0.00	_____
7. Drying	0.00	0.00	0.00	_____
8. Miscellaneous	6.81	6.81	6.81	_____
9. Custom Hire / Machinery Expense	42.47	76.71	96.46	_____
10. Non-machinery Labor	4.10	7.40	9.30	_____
11. Irrigation				_____
a. Labor	0.00	0.00	0.00	_____
b. Fuel and Oil	0.00	0.00	0.00	_____
c. Repairs and Maintenance	0.00	0.00	0.00	_____
d. Depreciation on Equipment / Well	0.00	0.00	0.00	_____
e. Interest on Equipment	0.00	0.00	0.00	_____
12. Land Charge / Rent	29.10	36.38	43.66	_____
G. SUB TOTAL	\$94.63	\$194.45	\$278.38	_____
13. Interest on 1/2 Nonland Costs	2.46	5.93	8.80	_____
H. TOTAL COSTS	\$97.09	\$200.38	\$287.19	_____
I. RETURNS OVER COSTS (F - H)	(\$32.09)	(\$37.88)	(\$59.69)	_____
J. TOTAL COSTS/TON (H/A)	\$97.09	\$80.15	\$82.05	_____
K. RETURN TO ANNUAL COST ((I+13)/G)	-31.31%	-16.43%	-18.28%	_____

Use in analysis (Y=1, N=0)

0                      1                      0

**TABLE 1. Production Inputs -- Brome\***

**MF-2143**

ITEM	Yield Level (tons)			
	1.0	2.5	3.5	
Seed, lbs	1	1	1	\$1.87 /lb
Fertilizer:				
N (anhydrous)	0	0	0	\$0.40 /lb
N	0	60	120	\$0.55 /lb
P	0	20	40	\$0.60 /lb
K	0	20	40	\$0.50 /lb
Lime	333	333	333	\$0.01 /lb
Herbicide				
2, 4-D	1.0	1.0	1.0	\$6.95 /qt
xxxx				
xxxx				
xxxx				
Insecticide / Fungicide				
xxxx				
xxxx				
xxxx				
Irrigation water, inches	0	0	0	\$0.00 /in

\* Inputs and number of applications represent annualized amounts over the 20-year stand.

**TABLE 2. Machinery and Land Resources -- Brome \***

**MF-2143**

ITEM	Yield Level (tons)			Custom Rate
	1.0	2.5	3.5	
Tillage/Planting/Chemical Applications:				
Disk	0.05	0.05	0.05	\$7.93 /ac
Harrow	0.1	0.1	0.1	\$6.68 /ac
Field cultivate	0.05	0.05	0.05	\$7.25 /ac
Drill	0.05	0.05	0.05	\$12.60 /ac
Fertilizer application (dry)	0.05	1.05	1.05	\$4.20 /ac
Herbicide application	1	1	1	\$4.50 /ac
Swathing and conditioning	1	1	1	\$10.35 /ac
Sideraking	1	1	1	\$3.54 /ac
Harvest				
Baling (number of 1,500 lb bales/ac)	1.33	3.33	4.67	\$9.59 /bale
Hauling (number of 1,500 lb bales/ac)	1.33	3.33	4.67	\$3.88 /bale
Tarp/storage	0.00	0.00	0.00	\$0.00 /bale
Non-machinery labor	0.41	0.74	0.93	\$10.00 /hr
Irrigation labor	0.00	0.00	0.00	\$10.00 /hr
Land charge/rent	\$29.10	\$36.38	\$43.66	
Interest on capital				7.5%
<u>Irrigation Equipment</u>	<u>Investment, \$/ac</u>	<u>Years</u>	<u>Salvage value</u>	
Well, pump and gearhead value	n/a	n/a	n/a	
Power unit and meter	n/a	n/a	n/a	
Irrigation system	n/a	n/a	n/a	

\* Machinery operations represent annualized amounts over the 20-year stand.

Land use factor	1.0	1.0	1.0	
Drying cost, \$/unit	\$0.00	\$0.00	\$0.00	
Weight of bales, lbs.	1500	1500	1500	
Total bales per acre*	1.33	3.33	4.67	
Harvest efficiency, %	80.0%	80.0%	80.0%	
Moisture content of hay at harvest	90.0%	90.0%	90.0%	
Total DM produced per acre, lbs	2,222	5,556	7,778	
Increase in machinery costs (percent above custom rates)				10.0%

\* Assumes yield was entered as tons/acre

# Dryland Fescue Hay Cost-Return Budget in Central and Eastern Kansas

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INCOME PER ACRE	Yield Level, tons/ac			Your Farm
	1.0	2.5	3.5	
A. Yield per acre	1.0	2.5	3.5	_____
B. Price per ton	\$60.00	\$60.00	\$60.00	_____
C. Net government payment	\$0.00	\$0.00	\$0.00	_____
D. Indemnity payments	\$0.00	\$0.00	\$0.00	_____
E. Miscellaneous income	\$0.00	\$0.00	\$0.00	_____
F. Returns/acre ((A x B) + C + D + E)	\$60.00	\$150.00	\$210.00	_____
<b>COSTS PER ACRE</b>				
1. Seed	\$1.13	\$1.13	\$1.13	_____
2. Herbicide	6.95	6.95	6.95	_____
3. Insecticide / Fungicide	0.00	0.00	0.00	_____
4. Fertilizer and Lime	3.33	58.33	113.33	_____
5. Crop Consulting	0.00	0.00	0.00	_____
6. Crop Insurance	0.00	0.00	0.00	_____
7. Drying	0.00	0.00	0.00	_____
8. Miscellaneous	6.81	6.81	6.81	_____
9. Custom Hire / Machinery Expense	42.47	76.71	96.46	_____
10. Non-machinery Labor	4.10	7.40	9.30	_____
11. Irrigation				_____
a. Labor	0.00	0.00	0.00	_____
b. Fuel and Oil	0.00	0.00	0.00	_____
c. Repairs and Maintenance	0.00	0.00	0.00	_____
d. Depreciation on Equipment / Well	0.00	0.00	0.00	_____
e. Interest on Equipment	0.00	0.00	0.00	_____
12. Land Charge / Rent	29.10	36.38	43.66	_____
G. SUB TOTAL	\$93.89	\$193.71	\$277.64	_____
13. Interest on 1/2 Nonland Costs	2.43	5.90	8.77	_____
H. TOTAL COSTS	\$96.32	\$199.61	\$286.41	_____
I. RETURNS OVER COSTS (F - H)	(\$36.32)	(\$49.61)	(\$76.41)	_____
J. TOTAL COSTS/TON (H/A)	\$96.32	\$79.84	\$81.83	_____
K. RETURN TO ANNUAL COST ((I+13)/G)	-36.09%	-22.56%	-24.36%	_____

Use in analysis (Y=1, N=0)

0

0

0

**TABLE 1. Production Inputs -- Fescue\***
**MF-2146**

ITEM	Yield Level (tons)			
	1.0	2.5	3.5	
Seed, lbs	0.75	0.75	0.75	\$1.50 /lb
Fertilizer:				
N (anhydrous)	0	0	0	\$0.40 /lb
N	0	60	120	\$0.55 /lb
P	0	20	40	\$0.60 /lb
K	0	20	40	\$0.50 /lb
Lime	333	333	333	\$0.01 /lb
Herbicide				
2, 4-D	1.0	1.0	1.0	\$6.95 /qt
xxxx				
xxxx				
xxxx				
Insecticide / Fungicide				
xxxx				
xxxx				
xxxx				
Irrigation water, inches	0	0	0	\$0.00 /in

\* Inputs and number of applications represent annualized amounts over the 20-year stand.

**TABLE 2. Machinery and Land Resources -- Fescue \***
**MF-2146**

ITEM	Yield Level (tons)			Custom Rate
	1.0	2.5	3.5	
Tillage/Planting/Chemical Applications:				
Disk	0.05	0.05	0.05	\$7.93 /ac
Harrow	0.1	0.1	0.1	\$6.68 /ac
Field cultivate	0.05	0.05	0.05	\$7.25 /ac
Drill	0.05	0.05	0.05	\$12.60 /ac
Fertilizer application (dry)	0.05	1.05	1.05	\$4.20 /ac
Herbicide application	1	1	1	\$4.50 /ac
Swathing and conditioning	1	1	1	\$10.35 /ac
Sideraking	1	1	1	\$3.54 /ac
Harvest				
Baling (number of 1,500 lb bales/ac)	1.33	3.33	4.67	\$9.59 /bale
Hauling (number of 1,500 lb bales/ac)	1.33	3.33	4.67	\$3.88 /bale
Tarp/storage	0.00	0.00	0.00	\$0.00 /bale
Non-machinery labor	0.41	0.74	0.93	\$10.00 /hr
Irrigation labor	0.00	0.00	0.00	\$10.00 /hr
Land charge/rent	\$29.10	\$36.38	\$43.66	
Interest on capital				7.5%
<u>Irrigation Equipment</u>	<u>Investment, \$/ac</u>	<u>Years</u>	<u>Salvage value</u>	
Well, pump and gearhead value	n/a	n/a	n/a	
Power unit and meter	n/a	n/a	n/a	
Irrigation system	n/a	n/a	n/a	

\* Machinery operations represent annualized amounts over the 20-year stand.

Land use factor	1.0	1.0	1.0	
Drying cost, \$/unit	\$0.00	\$0.00	\$0.00	
Weight of bales, lbs.	1500	1500	1500	
Total bales per acre*	1.33	3.33	4.67	
Harvest efficiency, %	80.0%	80.0%	80.0%	
Moisture content of hay at harvest	90.0%	90.0%	90.0%	
Total DM produced per acre, lbs	2,222	5,556	7,778	
Increase in machinery costs (percent above custom rates)				10.0%

\* Assumes yield was entered as tons/acre

# Summer Grazing of Steers in Eastern Kansas

Department of Agricultural Economics - [www.AgManager.info](http://www.AgManager.info)



Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Rodney Jones

Agricultural Economist

	Season-Long		Early-Intensive		Your Farm
	Above Avg	Below Avg	Above Avg	Below Avg	
<b>RETURNS PER HEAD</b>					
1. Market animal (see Table 1)	\$873.44	\$828.90	\$793.65	\$770.63	_____
2. Less cost of animal (see Table 1)	660.00	660.00	660.00	660.00	_____
3. Less death loss	13.10	12.43	11.90	11.56	_____
4. Other income	0.00	0.00	0.00	0.00	_____
<b>A. GROSS RETURNS PER HEAD</b>	<b>\$200.34</b>	<b>\$156.47</b>	<b>\$121.75</b>	<b>\$99.07</b>	_____
<b>COSTS PER HEAD</b>					
5. Summer pasture	\$77.28	\$77.28	\$58.44	\$58.44	_____
6. Harvested forage	0.00	0.00	0.00	0.00	_____
7. Grain	0.00	0.00	0.00	0.00	_____
8. Supplement, mineral and salt	5.00	5.00	2.50	2.50	_____
9. Other feed	0.00	0.00	0.00	0.00	_____
10. Labor	8.64	8.64	6.48	6.48	_____
11. Veterinary, drugs, and supplies	13.00	13.00	10.00	10.00	_____
12. Marketing costs	5.00	5.00	5.00	5.00	_____
13. Hauling	0.00	0.00	0.00	0.00	_____
14. Utilities, fuel, and oil	9.00	9.00	8.00	8.00	_____
15. Facility and equipment repairs	9.00	9.00	7.00	7.00	_____
16. Professional fees (legal, accounting, etc.)	2.00	2.00	1.00	1.00	_____
17. Miscellaneous	8.00	8.00	7.00	7.00	_____
18. Depreciation on facilities and equipment	1.30	1.30	0.65	0.65	_____
19. Interest on facilities and equipment	1.52	1.52	0.76	0.76	_____
20. Insurance and taxes on facilities and equip	0.53	0.53	0.26	0.26	_____
<b>B. SUB TOTAL</b>	<b>\$140.26</b>	<b>\$140.26</b>	<b>\$107.09</b>	<b>\$107.09</b>	_____
21. Interest on feeder and 1/2 operating costs	22.38	22.38	10.95	10.95	_____
<b>C. TOTAL COSTS</b>	<b>\$162.65</b>	<b>\$162.65</b>	<b>\$118.04</b>	<b>\$118.04</b>	_____
<b>D. RETURNS OVER TOTAL COSTS (A - C)</b>	<b>\$37.69</b>	<b>-\$6.18</b>	<b>\$3.71</b>	<b>-\$18.97</b>	_____
22. Hundredweight produced	2.50	2.06	1.54	1.25	_____
23. Feed cost per hundredweight	\$32.87	\$39.94	\$39.50	\$48.86	_____
<b>E. BREAKEVEN PRICE, \$/cwt</b>	<b>\$102.79</b>	<b>\$108.82</b>	<b>\$110.47</b>	<b>\$115.31</b>	-----
<b>F. ASSET TURNOVER <math>((1 + 4 - 3)/\text{Investment})^1</math></b>	<b>124.69%</b>	<b>118.33%</b>	<b>115.81%</b>	<b>112.45%</b>	-----
<b>G. NET RETURN ON INVESTMENT <math>((D + 19 + 21)/\text{Investment})^1</math></b>	<b>8.93%</b>	<b>2.57%</b>	<b>2.28%</b>	<b>-1.08%</b>	-----

<sup>1</sup> Investment equals total value of feeder calf, facilities, and equipment

Use in analysis (Y=1, N=0)

0                      0                      1                      0

**Table 1. Factors Used for Summer Grazing in Eastern Kansas Cost-Return Budget**

	Season-Long		Early-Intensive		
	Level 1	Level 2	Level 1	Level 2	
Days on pasture	150	150	75	75	
Average daily gain	1.75	1.45	2.20	1.80	
Purchase weight	550	550	550	550	
Purchase price	\$120.00	\$120.00	\$120.00	\$120.00	
Sale weight, \$/cwt	813	768	715	685	
Sale price, \$/cwt	\$107.50	\$108.00	\$111.00	\$112.50	
Pasture charge, \$/head	\$77.28	\$77.28	\$58.44	\$58.44	
Mineral and salt, lbs/day	\$500 /ton	0.133	0.133	0.133	
Labor, hours	\$10.80 /hr	0.80	0.80	0.60	
Investment in facilities, \$/head	\$20.00	\$20.00	\$10.00	\$10.00	
Investment in equipment, \$/head	\$10.00	\$10.00	\$5.00	\$5.00	
	Useful life	Salvage	Interest	Insurance	Tax rate
	(years)	value, (%)	rate, (%)	rate, (%)	(%)
Facilities	20	35%	7.50%	0.25%	1.50%
Equipment	10	35%	7.50%	0.25%	1.50%
Interest rate on operating costs and purchased cattle					7.5%
<b>OTHER INPUT ASSUMPTIONS</b>					
		Season-Long		Early-Intensive	
		Level 1	Level 2	Level 1	Level 2
Death loss		1.5%	1.5%	1.5%	1.5%
Other income, \$/head		\$0.00	\$0.00	\$0.00	\$0.00
<b>COSTS, \$/head</b>					
Harvested forage, lbs/day	\$60 /ton	0	0	0	0
Grain, lbs/day	\$0.050 /lb	0	0	0	0
Supplement, lbs/day	\$200 /ton	0	0	0	0
Other feed, lbs/day	\$350 /ton	0	0	0	0
Veterinary, drugs, and supplies		\$13.00	\$13.00	\$10.00	\$10.00
Marketing costs		\$5.00	\$5.00	\$5.00	\$5.00
Hauling		\$0.00	\$0.00	\$0.00	\$0.00
Utilities, fuel, and oil		\$9.00	\$9.00	\$8.00	\$8.00
Facility and equipment repairs		\$9.00	\$9.00	\$7.00	\$7.00
Professional fees (legal, accounting, etc.)		\$2.00	\$2.00	\$1.00	\$1.00
Miscellaneous		\$8.00	\$8.00	\$7.00	\$7.00
Total investment (facilities, equipment, feeder calf)		\$690.00	\$690.00	\$675.00	\$675.00
Stocking rate, ac/head		1.75	1.75	0.85	0.85
Pasture cost, \$/ac		\$44.16	\$44.16	\$68.44	\$68.44
Intake, % of average body weight		2.75%	2.50%	3.00%	2.75%
DM forage consumed, lbs/head		2,810.2	2,470.3	1,423.1	1,273.6
DM forage consumed, lbs/acre		1,605.8	1,411.6	1,666.7	1,491.5
Harvest efficiency		30.0%	30.0%	30.0%	30.0%
Total DM produced per acre, lbs		5,352.7	4,705.4	5,555.6	4,971.8

## Economic Comparison of Haying versus Grazing

Hay Production			Grazing				
	Per ac	Include (Y=1,N=0)	Per hd	Own Cattle Per ac	Include (Y=1,N=0)	Rent out Per ac	Include (Y=1,N=0)
Total DM forage production, tons	2.78			2.78			
Hay production, tons	2.50	100%	0.85	1.0		1.0	
Hay price, \$/ton	\$65.00	100%	\$794	\$929	100%		
Government/indemnity payment	0.00	100%	\$672	\$787	100%		
Miscellaneous income	0.00	100%	0.00	0.00	100%	68.44	100%
<b>Total Income</b>	<b>\$162.50</b>		<b>\$121.75</b>	<b>\$142.58</b>		<b>\$68.44</b>	
<b>Cost</b>			<b>Cost</b>				
Seed	\$0.00	0%	\$0.00	\$0.00	0%	\$0.00	0%
Herbicide	0.00	0%	2.50	2.93	100%	0.00	0%
Insecticide and fungicide	0.00	0%	6.48	7.59	100%	0.00	0%
Fertilizer and lime	0.00	0%	10.00	11.71	100%	0.00	0%
Crop consulting	0.00	0%	5.00	5.86	100%	0.00	0%
Crop insurance	0.00	0%	0.00	0.00	100%	0.00	0%
Drying	0.00	0%	8.00	9.37	100%	0.00	0%
Miscellaneous	3.41	50%	7.00	8.20	100%	4.10	50%
Custom hire / machinery expense	74.41	97%	0.00	0.00	0%	0.00	0%
Non-machinery labor	3.70	50%	3.50	4.10	50%	0.00	0%
Irrigation	0.00	0%	0.00	0.00	0%	0.00	0%
Land charge / rent	0.00	0%	0.00	0.00	0%	0.00	0%
<b>SUB TOTAL</b>	<b>\$81.52</b>		<b>\$42.48</b>	<b>\$49.75</b>		<b>\$4.10</b>	
Interest on 1/2 nonland costs	3.06	100%	10.46	12.25	100%	0.03	100%
<b>TOTAL COSTS</b>	<b>\$84.57</b>		<b>\$52.94</b>	<b>\$62.00</b>		<b>\$4.13</b>	
<b>Returns over Selected Costs</b>	<b>\$77.93</b>		<b>\$68.81</b>	<b>\$80.58</b>		<b>\$64.31</b>	

