



LRP Basis: Understanding the basics

Kevin Dhuyvetter
Extension Agricultural Economist
K-State Research and Extension

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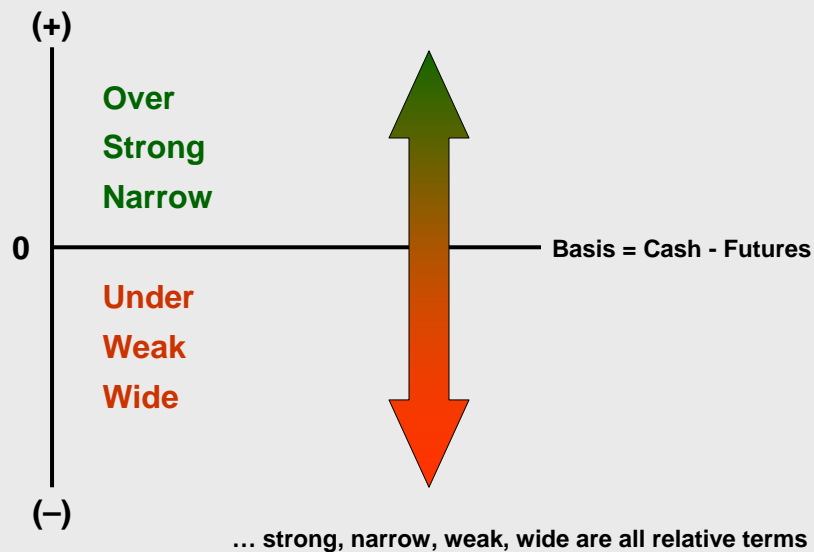


What is Basis?

- Basis is the difference between two prices.
- In commodity marketing, basis is generally referred to the difference between a specific cash price and a specific futures price.
- Mathematically: $\text{Basis} = \text{Cash} - \text{Futures}$
- Nearby and Deferred



Basis terminology



Basis

- Generally, basis is more predictable than cash or futures prices due to:
 - Convergence
 - Futures and cash prices move together (same fundamental conditions generally affect both markets)
 - Year-to-year stability



How should basis be calculated?

- Determine:
 - Location, date, quality, futures contract
- Daily vs. weekly (grain vs. livestock)



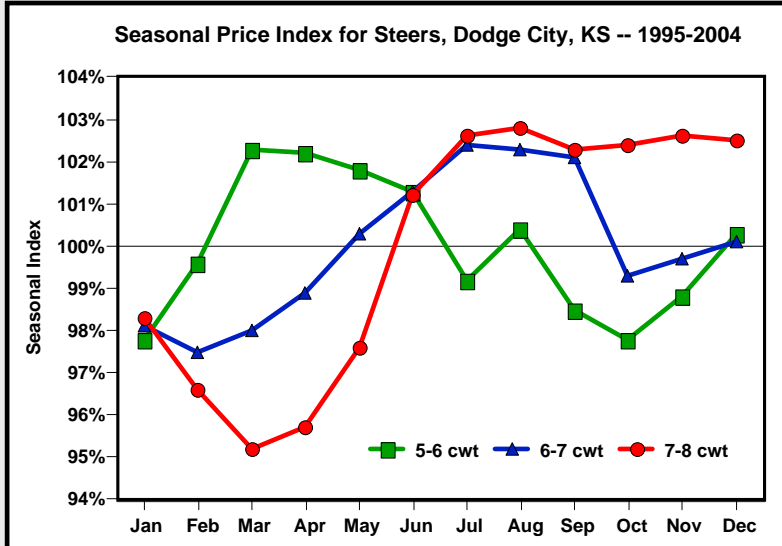
How should basis be calculated?

- Mathematically: $\text{Basis} = \text{Cash} - \text{Futures}$
- It is “easy” to calculate basis ...

... but it is important to use the “right” price if we want the information to be useful.



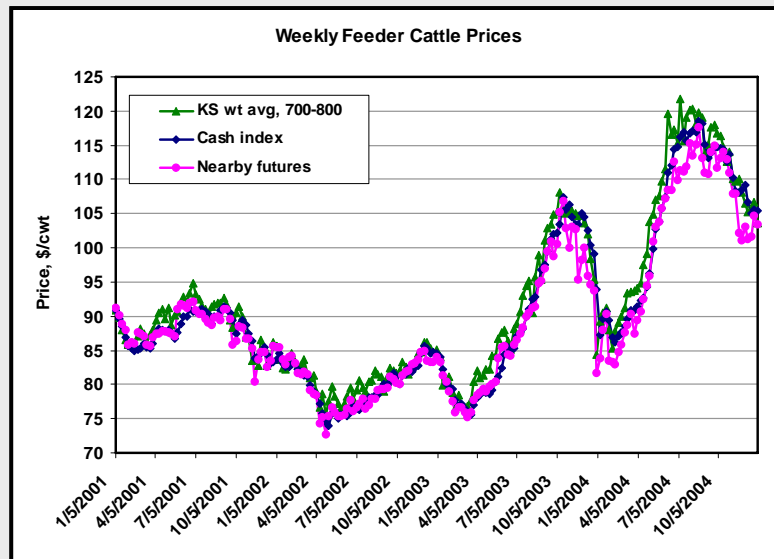
Feeder cattle price indices



Basis patterns will vary by calf weight



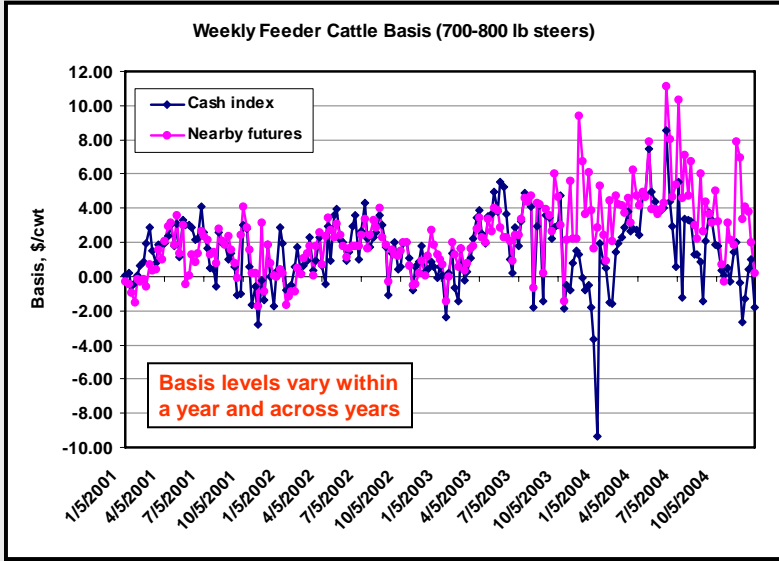
Weekly average feeder cattle prices



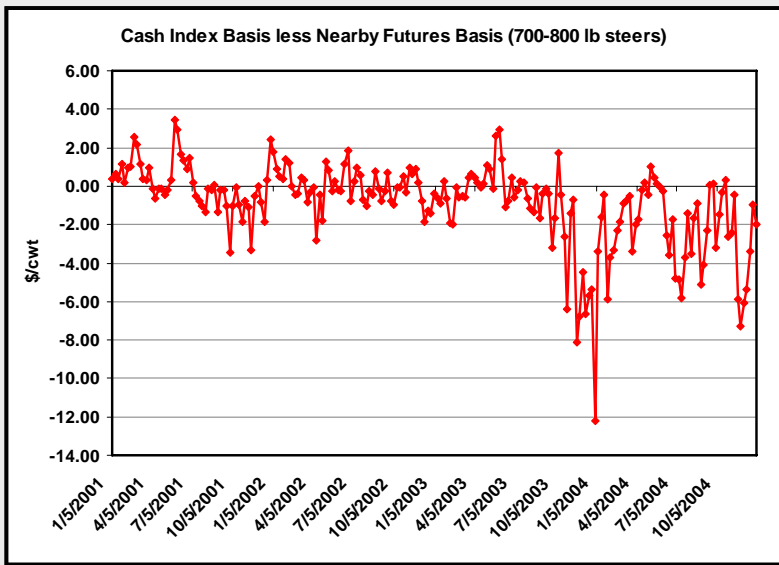
Prices appear to move together quite well



LRP versus hedging basis

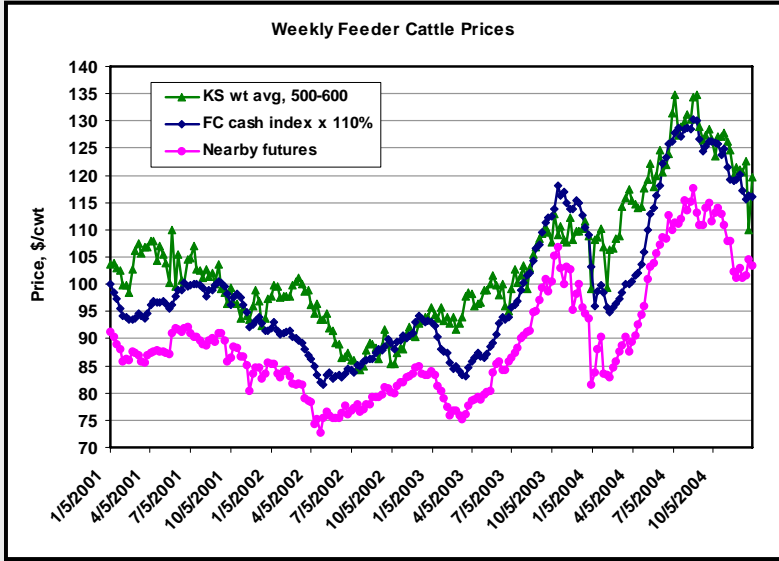


LRP versus hedging basis

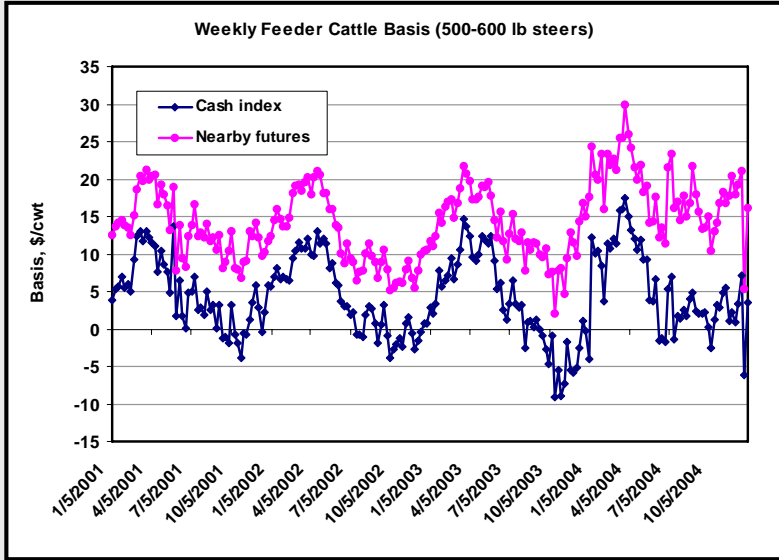




LRP versus hedging basis



LRP versus hedging basis





Uses of basis information

- Judge cash/contract bids
- Storage decisions
- Lifting hedges
- Projecting cash prices
- Picking marketing
- Evaluating hedging alternatives



Futures prices are price expectations

$$\begin{array}{r} \text{Futures price} \\ + \text{expected basis} \\ \hline \text{Expected cash price}^* \end{array}$$

* Simple and reasonably accurate procedure for formulating cash price forecast.

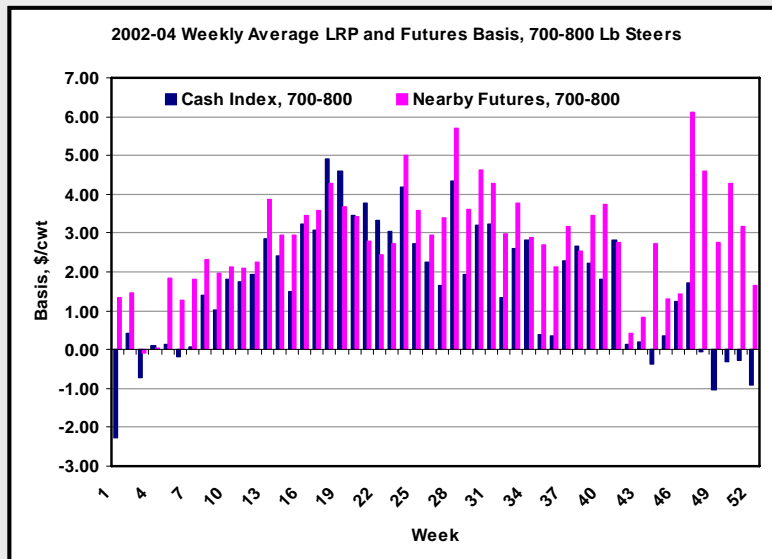


Forecasting basis

- Where does “expected” basis come from?
- Basis forecast = f (historical basis)
- Research has generally shown there is little benefit to complex fundamental models compared to historical averages.
- “Optimal” historical averages
 - ➔ Livestock, 3-yr or 4-yr average

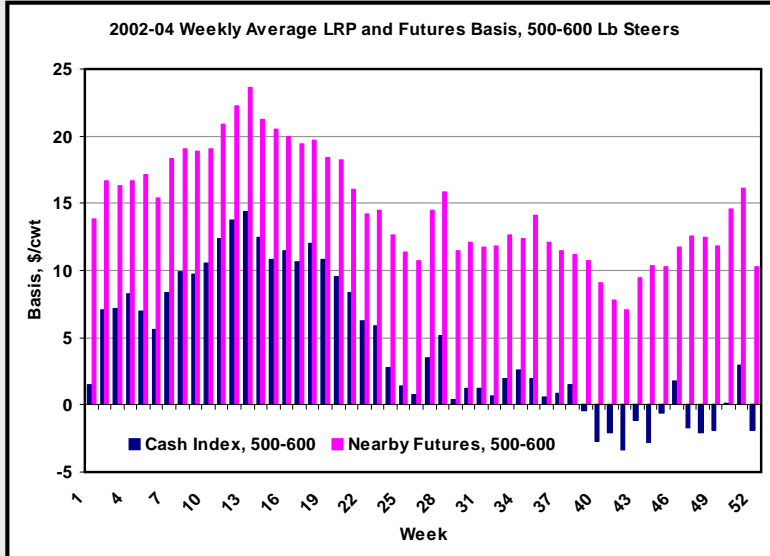


LRP versus hedging basis...





LRP versus hedging basis...



Basis as it relates to put options

Put option strike (97.9%)	\$96.00
+ Expected basis	3.50
- Premium	2.13
<hr/>	
= Expected minimum selling price	\$97.37

Based on May FC futures of \$98.02 on 2/11/05 and expected selling date of mid May



Basis as it relates to LRP

LRP coverage level (93.9%)	\$92.29
+ Expected basis	4.00
- Premium	1.21
= Expected minimum selling price	\$95.08

Based on LRP quotes on 2/11/05 and ending date of 5/13/05
(expected ending value = \$98.31, 13 week endorsement)

Livestock Reports v1.03 - LRP Coverage Prices, Rates, and Actual Ending Values - Report for 02/ - Microsoft Internet Explorer

Address: http://www3.rma.usda.gov/apps/livestock_reports/criteria_flow.cfm

Select Criteria Main Menu Formatted Print 02/12/2005 10:51:50 AM

LRP Coverage Prices, Rates, and Actual Ending Values - Report for 02/11/2005

USDA subsidizes 13 percent of total LRP premium.

State	County	Endorsement Length	Commodity	Type	Practice	Crop Year	Expected End Value	Coverage Price	Coverage Level	Rate	Cost Per CWT	End Date	Actual End Value
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.311	\$92.290	0.938900	0.013122	1.211	05/13/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.311	\$90.290	0.918400	0.011264	1.017	05/13/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.311	\$88.290	0.898100	0.009174	0.810	05/13/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.311	\$86.290	0.877700	0.006490	0.560	05/13/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.311	\$84.290	0.857400	0.005920	0.499	05/13/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.311	\$82.290	0.837000	0.005043	0.415	05/13/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.311	\$80.290	0.816700	0.004484	0.360	05/13/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.704	\$92.430	0.936400	0.017678	1.634	06/10/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.704	\$90.430	0.916200	0.013613	1.231	06/10/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.704	\$88.430	0.895900	0.010517	0.930	06/10/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.704	\$86.430	0.875600	0.007289	0.630	06/10/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.704	\$84.430	0.855400	0.006100	0.515	06/10/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.704	\$82.430	0.835100	0.005396	0.444	06/10/2005	
20	KANSAS	998 ALL COUNTIES	0801 FEEDER CATTLE	810 STEERS WEIGHT 2	997 NO PRACTICE SPECIFIED	2005	98.704	\$80.430	0.814900	0.004911	0.395	06/10/2005	



How should basis be calculated?

- Average over several years (years may vary depending on commodity)
 - ➔ Average = expected value
- Measure variability (risk)
 - ➔ Historical range (highs and lows), standard deviation
 - ➔ Variability measure indication of risk

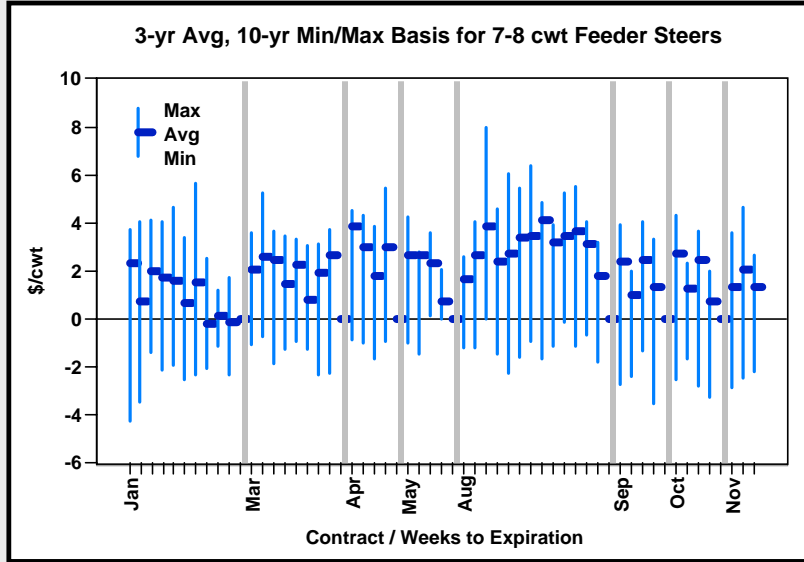


How do we deal with missing data?

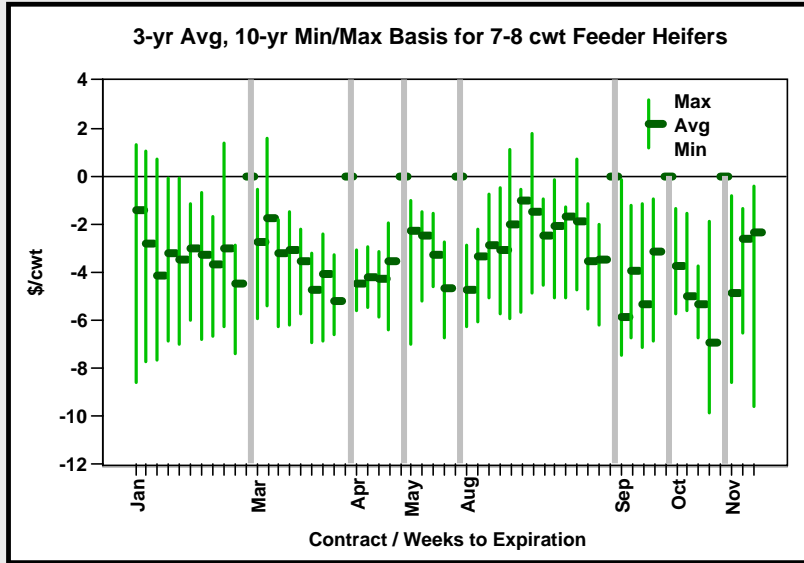
Weekly Dodge City Steer Prices								
Date (Wed)	Year	Week	Futures	Contract	4-5 cw t	5-6 cw t	6-7 cw t	7-8 cw t
1995-2004								
Purecount			522		382	406	442	488
Count			522		522	522	522	522
Average			79.70		96.40	88.70	82.51	79.86
Min			50.8		52.57	50.12	51.08	49.89
Max			118.37		150	132.08	122.75	121.75
09/01/2004	2004	35	110.15	Sep	144.77	132.08	114.85	113.17
09/08/2004	2004	36	110.85	Sep	132.00	120.50	115.12	114.77
09/15/2004	2004	37	113.97	Sep	137.96	123.89	n/a	113.71
09/22/2004	2004	38	114.70	Sep	136.00	132.00	118.53	117.27
09/29/2004	2004	39	114.80	Sep	n/a	n/a	n/a	n/a
10/06/2004	2004	40	113.10	Oct	128.64	n/a	119.46	117.42
10/13/2004	2004	41	114.10	Oct	142.69	127.14	115.72	114.52
10/20/2004	2004	42	112.25	Oct	n/a	124.99	110.89	115.88
10/27/2004	2004	43	114.07	Oct	137.03	122.82	113.26	114.46
11/03/2004	2004	44	107.92	Nov	134.75	119.14	109.48	111.50
11/10/2004	2004	45	108.20	Nov	136.16	118.48	112.83	109.51
11/17/2004	2004	46	108.37	Nov	133.50	115.56	107.71	110.29
11/24/2004	2004	47	102.27	Jan	n/a	n/a	n/a	n/a
12/01/2004	2004	48	103.27	Jan	n/a	115.25	110.00	n/a
12/08/2004	2004	49	102.42	Jan	n/a	121.10	n/a	106.42
12/15/2004	2004	50	102.07	Jan	129.00	116.67	108.36	105.13
12/22/2004	2004	51	104.72	Jan	n/a	n/a	108.32	107.00
12/29/2004	2004	52	103.05	Jan	n/a	n/a	n/a	n/a



Dodge City 7-8 cwt feeder steer basis

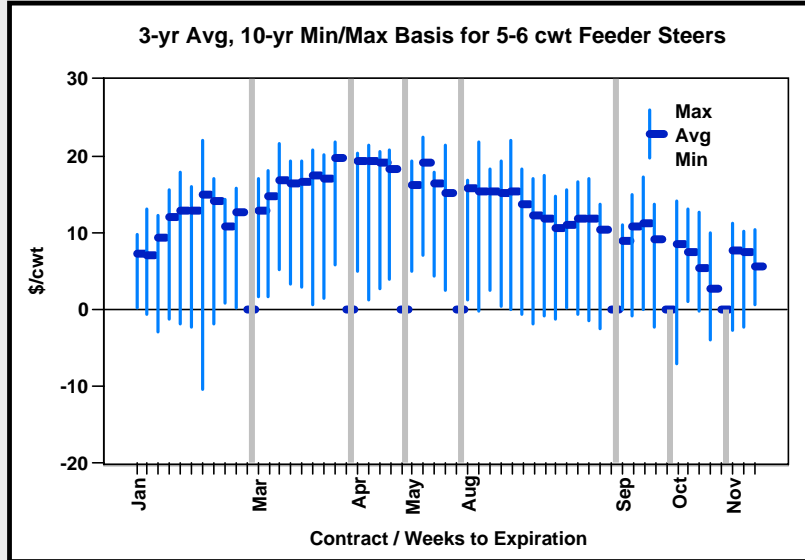


Dodge City 7-8 cwt feeder heifer basis





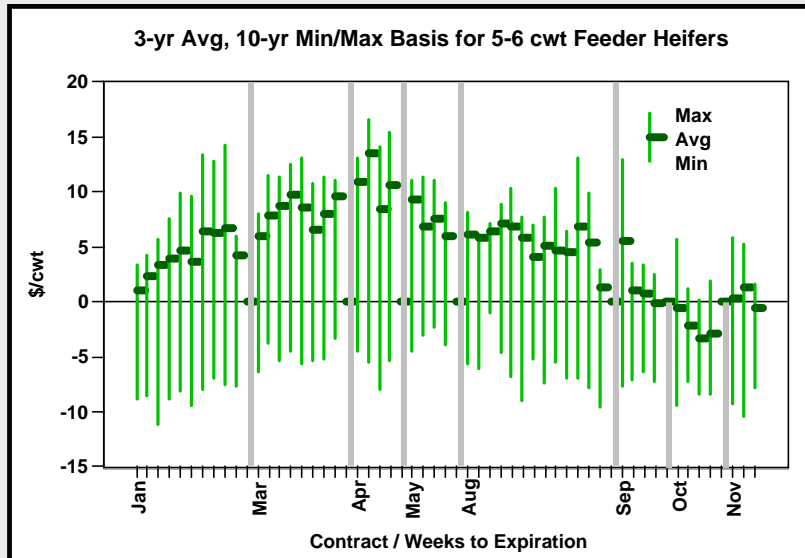
Dodge City 5-6 cwt feeder steer basis



1995-2004



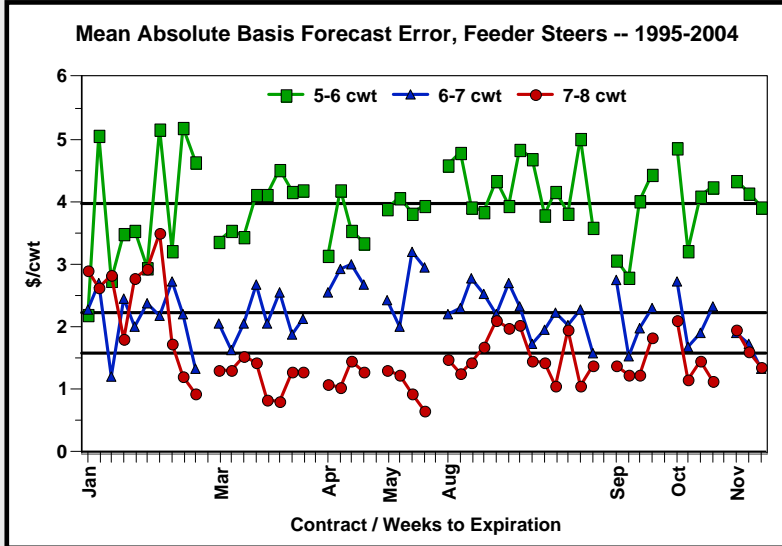
Dodge City 5-6 cwt feeder steer basis



1995-2004



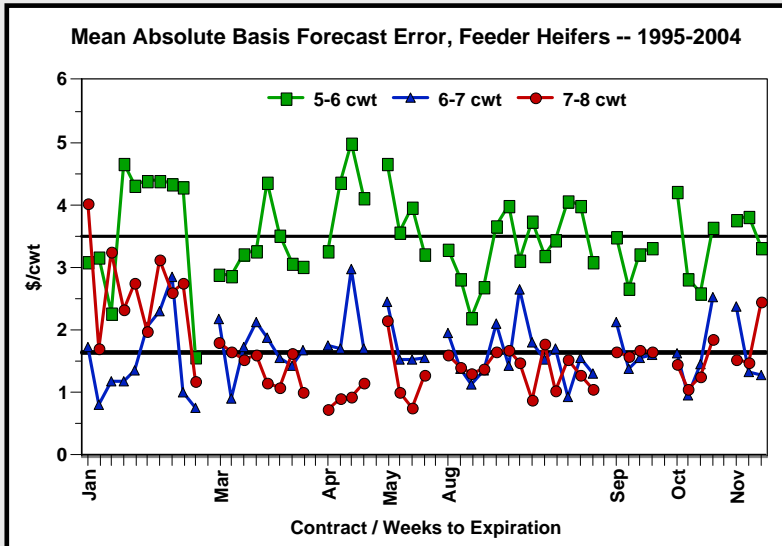
Absolute forecast error = 3-yr average - actual



Easier to predict heavier weight steers



Absolute forecast error = 3-yr average - actual



Easier to predict heavier weight heifers (easier to predict heifers than steers)



Conclusion

- Basis is generally more predictable than prices.
- Very important when thinking about basis to make sure relevant/correct prices are used.
- Ignoring missing data in a multiple year average may lead to inappropriate averages.
- Basis is typically forecasted using historical basis information.

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Interactive Crop Basis Tool
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- Updated Crop Databases**
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Contact Us:
Department of Agricultural Economics
342 Waters Hall
KS 66506
8702

Kevin C. Dhuyvetter
785-532-3527
kcd@ksu.edu

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