



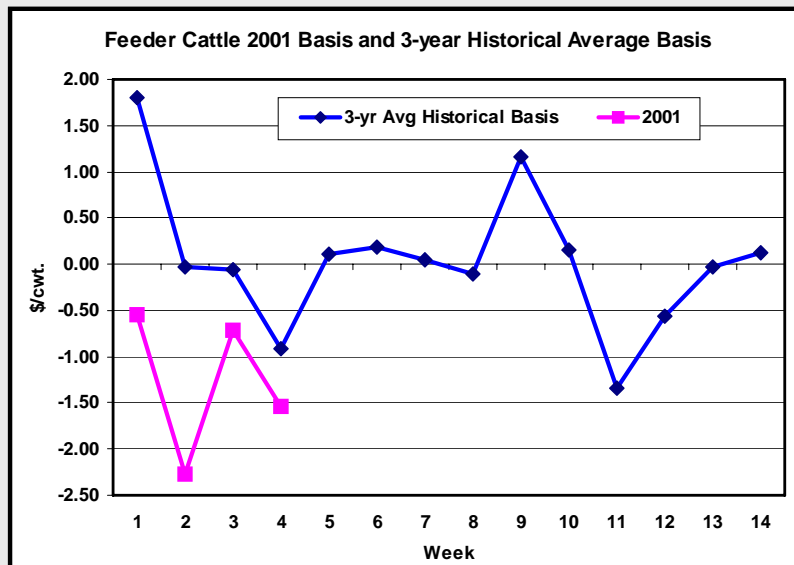
## LRP Basis: Forecasting basis

Kevin Dhuyvetter  
Extension Agricultural Economist  
K-State Research and Extension

Presented at K-State Risk Management Workshops  
Winter 2005

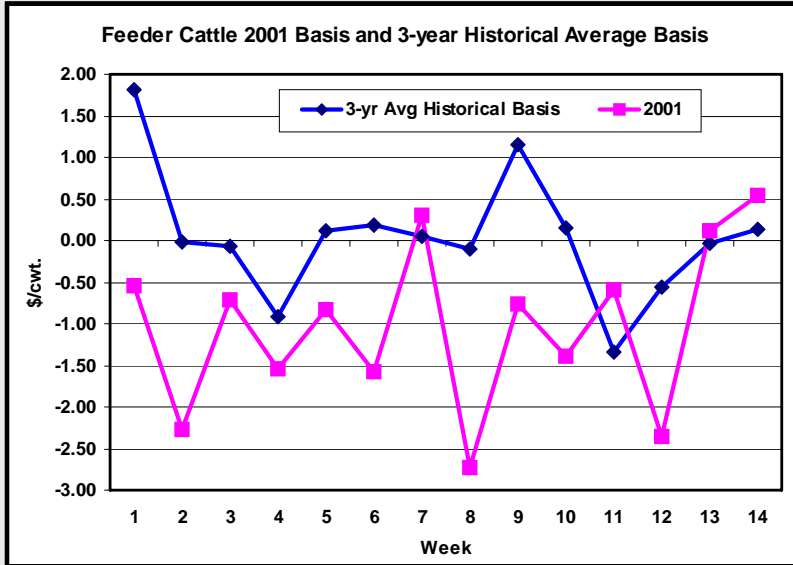


## Should forecast consider current basis?

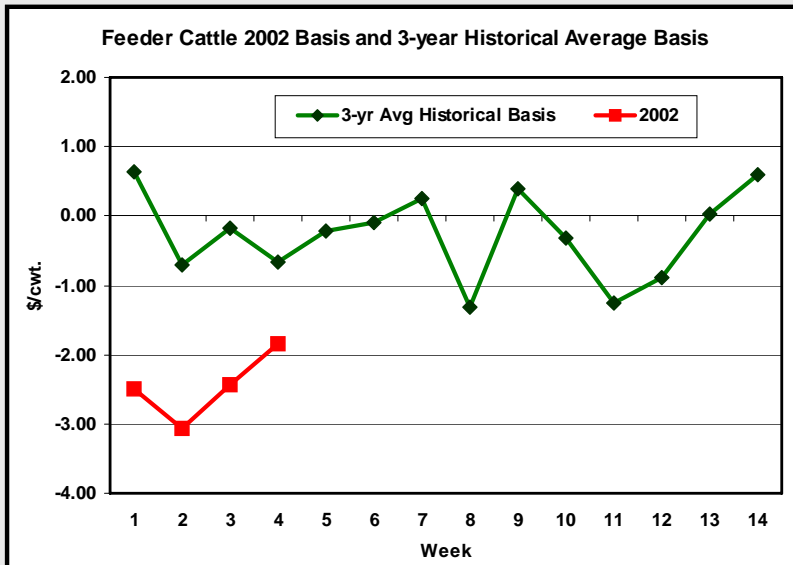




## Should forecast consider current basis?

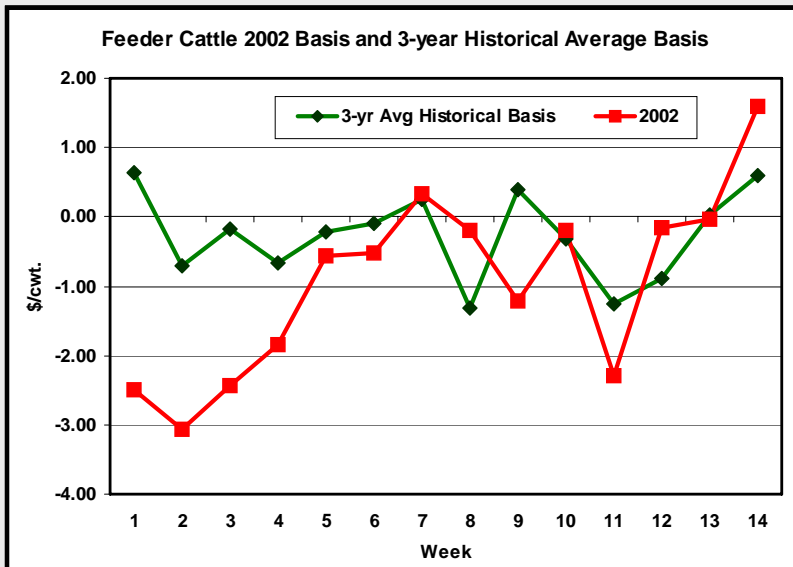


## Should forecast consider current basis?





## Should forecast consider current basis?



## Livestock Basis Forecasts: How Beneficial Is Current Information?

Glynn T. Tonsor  
Kevin C. Dhuyvetter  
James R. Mintert

*Journal of Agricultural and Resource Economics*, 29(2,2004):228-241



## Objectives

- Compare livestock basis forecasting accuracy using forecasts:
  - from “simple” historical averages
  - incorporating current basis deviation from historical averages
- Evaluate optimal amount of current information to include
  - Over several time horizons (1993-2002 and 1998-2002)
  - Identify the \$/cwt. gained in basis forecasting



## Methodology

Basis forecast (BF):

$$BF_{tk} = \text{HistAvg}_t + (X * (\text{Basis}_{t-k} - \text{HistAvg}_{t-k}))$$

where:

HistAvg is historical average basis (3-year and 4-year for feeder cattle and live cattle, respectively)

X represents the proportion of current basis deviation from historical average which is included in the forecasts (0 to 1.0)

t denotes the week (1-520 for 10 year period)

k denotes the forecast horizon (# of weeks between forecast date and the week being forecasted) (k=4, 8, 12, 16, 20, and 24)

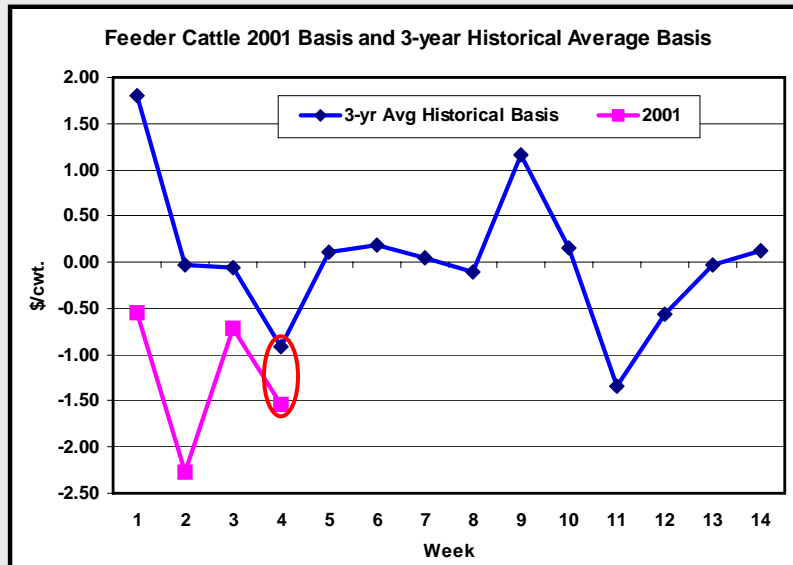


## Methodology (continued)

- The “X” variable was solved for such that it minimized the sum of squared errors (i.e. optimized in-sample)
- Out-of-sample MAEs were then calculated for:
  - Forecasts over the last full 10 and 5 years of data
  - Forecasts made 4, 8, 12, 16, 20, 24 weeks prior to the week being forecasted.
  - Forecasts made using the “optimal” amount of the current basis deviation from the historical average

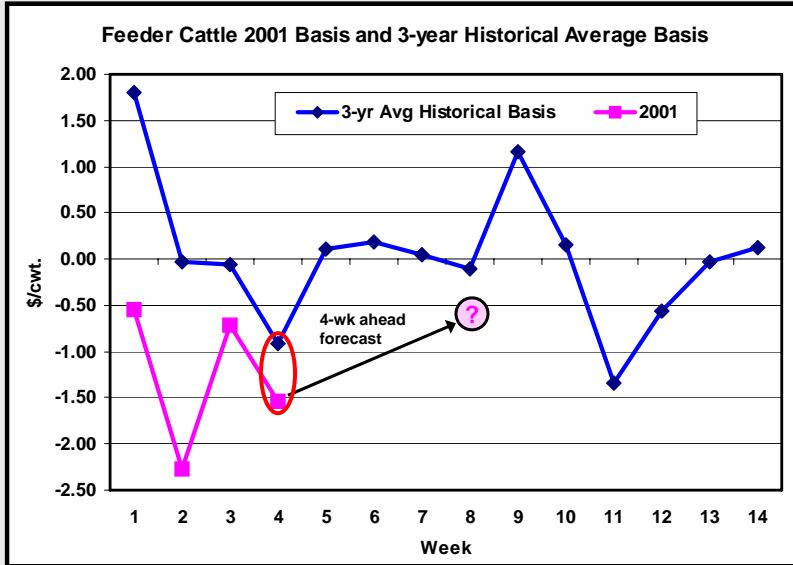


## Should forecast consider current basis?

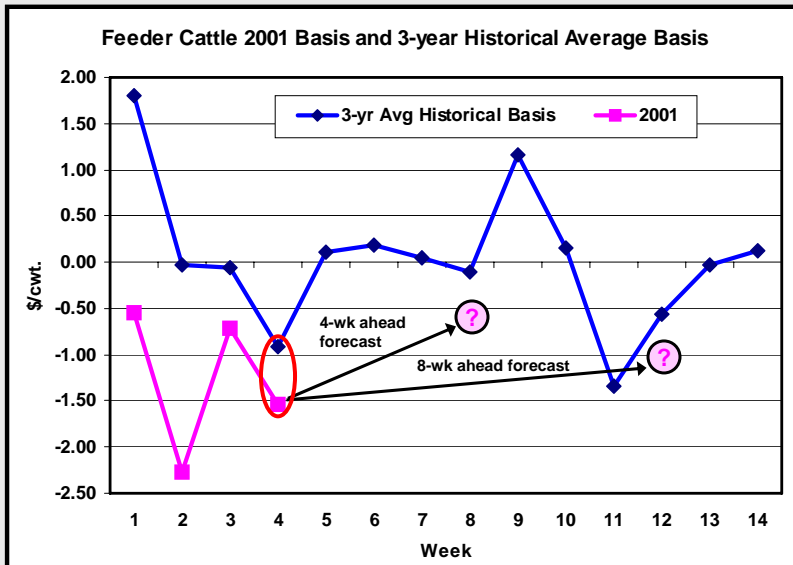




## Should forecast consider current basis?

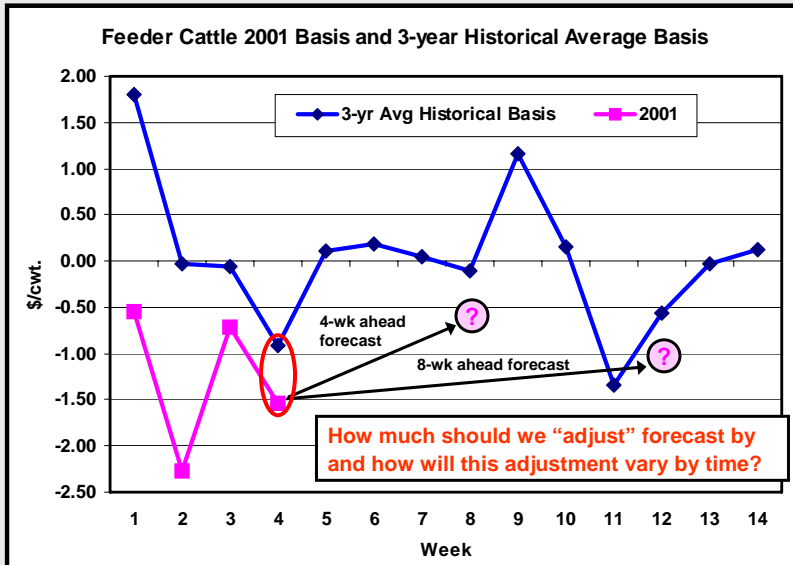


## Should forecast consider current basis?

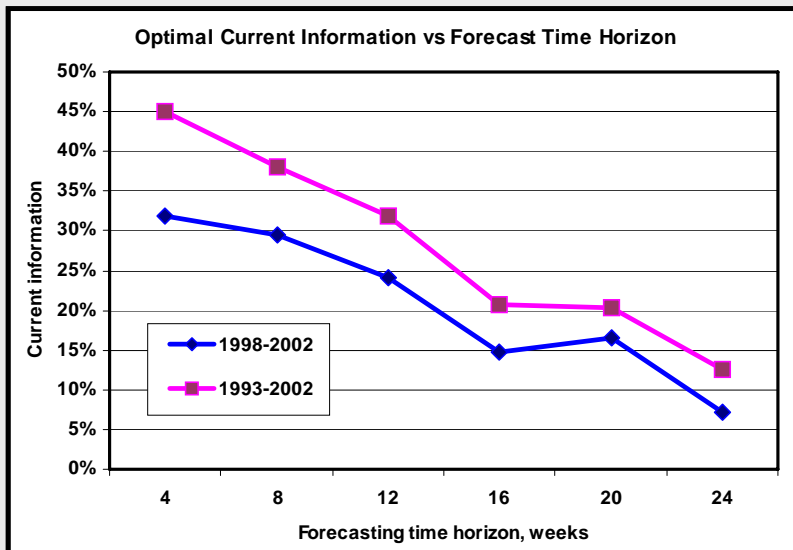




## Should forecast consider current basis?



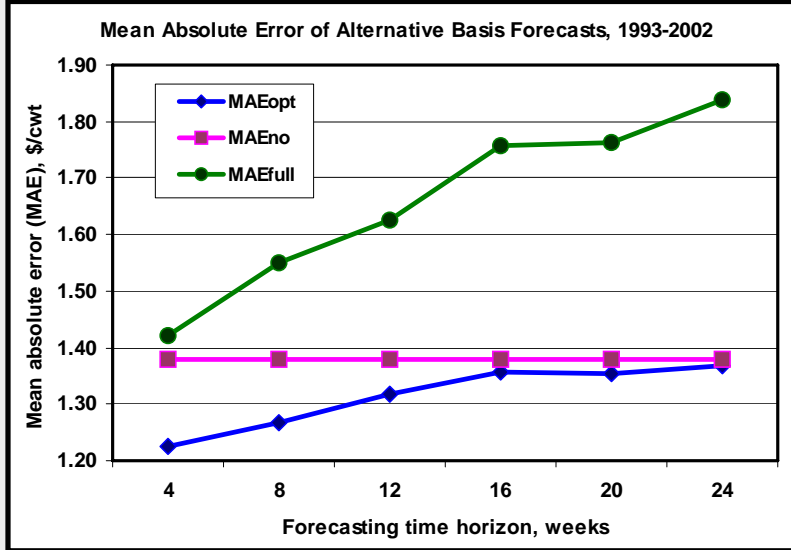
## Current information to include...



Value of current information lessens for further out forecasts



## Impact of current information on MAE



Incorporating 100% of current information worsens forecasts

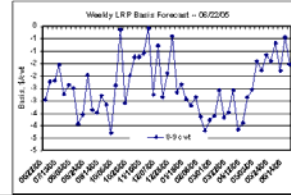
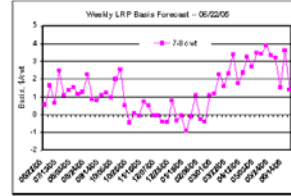
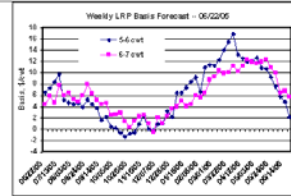


- LRP basis forecasts incorporating current information...
- Basis for next 52 weeks is forecasted for four weight categories of steers for Kansas auctions.
- Information is posted to KSU website [www.agmanager.info](http://www.agmanager.info)

LRP Steer Basis Forecasts, Kansas Combined Auctions<sup>1</sup>

Week Date	Weight Category of Steers			
	5-6 cwt	6-7 cwt	7-8 cwt	8-9 cwt
09/22/05	6.43	4.48	0.55	-2.95
09/29/05	7.96	5.87	1.82	-2.22
07/06/05	8.39	4.71	0.65	-2.19
07/13/05	9.76	7.83	2.51	-1.95
07/20/05	5.23	6.08	1.10	-2.72
07/27/05	4.70	6.50	1.38	-2.37
08/03/05	4.44	5.30	1.56	-2.49
08/10/05	4.68	4.95	1.16	-3.91
08/17/05	3.95	5.98	1.29	-3.54
08/24/05	5.26	7.97	2.28	-1.97
08/31/05	4.43	6.31	0.86	-3.35
09/07/05	3.75	5.16	0.78	-3.46
09/14/05	1.64	4.54	1.12	-2.78
09/21/05	2.23	4.64	1.25	-3.15
09/28/05	0.52	2.49	0.88	-4.29
10/05/05	0.24	2.84	2.80	-2.37
10/12/05	-0.54	2.98	2.52	-0.14
10/19/05	-1.29	1.27	0.52	-3.08
10/26/05	-0.79	0.43	-0.45	-1.95
11/02/05	-0.53	1.50	0.09	-1.23
11/09/05	0.91	2.30	-0.07	-1.23
11/16/05	2.45	2.55	0.72	-1.07
11/23/05	0.07	1.04	0.50	-0.07
11/30/05	-0.24	-0.49	-0.04	-3.75
12/07/05	0.95	2.12	-0.04	-0.79
12/14/05	1.07	1.14	-0.38	-2.84
12/21/05	3.23	2.35	-0.41	-1.88
12/28/05	2.19	3.82	0.79	-0.40
01/04/06	6.45	4.01	-0.33	-2.84
01/11/06	6.44	5.07	-0.05	-2.33
01/18/06	7.37	4.14	-0.92	-2.92
01/25/06	8.40	4.54	-0.09	-3.17
02/01/06	9.22	6.02	1.59	-2.84
02/08/06	6.66	5.70	-0.24	-3.63
02/15/06	10.92	6.45	-0.36	-4.21
02/22/06	11.44	8.79	1.12	-3.76
03/01/06	11.31	9.27	1.18	-3.59
03/08/06	12.27	10.34	2.27	-2.56
03/15/06	14.04	9.92	1.61	-3.06
03/22/06	15.47	10.19	2.32	-3.45
03/29/06	16.86	11.22	2.39	-2.55
04/05/06	13.18	10.32	1.76	-4.15
04/12/06	12.54	11.29	2.25	-2.89
04/19/06	11.99	12.34	3.24	-1.85
04/26/06	12.05	11.90	2.73	-2.53
05/03/06	12.66	11.63	3.47	-1.40
05/10/06	10.64	11.90	3.44	-1.77
05/17/06	10.75	12.44	3.89	-1.14
05/24/06	9.27	10.97	3.34	-1.39
05/31/06	7.61	9.96	3.19	-0.80
06/07/06	5.91	6.45	1.53	-1.76
06/14/06	4.85	6.83	3.83	-0.44
06/21/06	2.18	5.73	1.41	-1.52

<sup>1</sup> Forecasts are based on 4-year average adjusted for current deviations from 4-year average.







## 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 often forecasted using historical basis information, but incorporating “current” information can improve forecast accuracy.

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

**Questions ?**