LRP Basis: Forecasting basis

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Presented at K-State Risk Management Workshops
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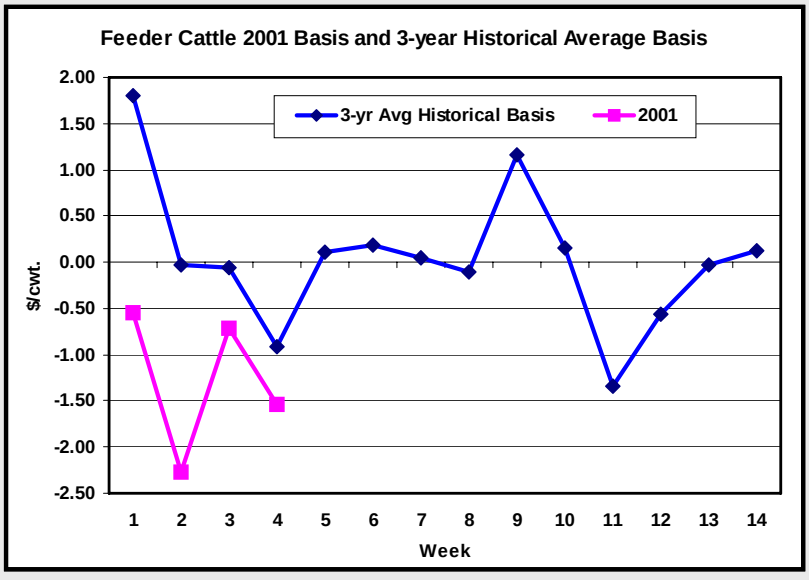
Should forecast consider current basis?



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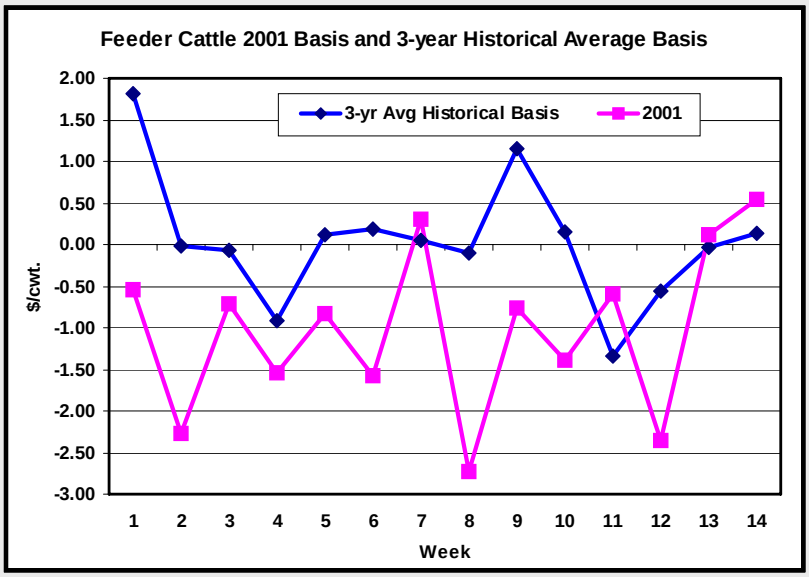

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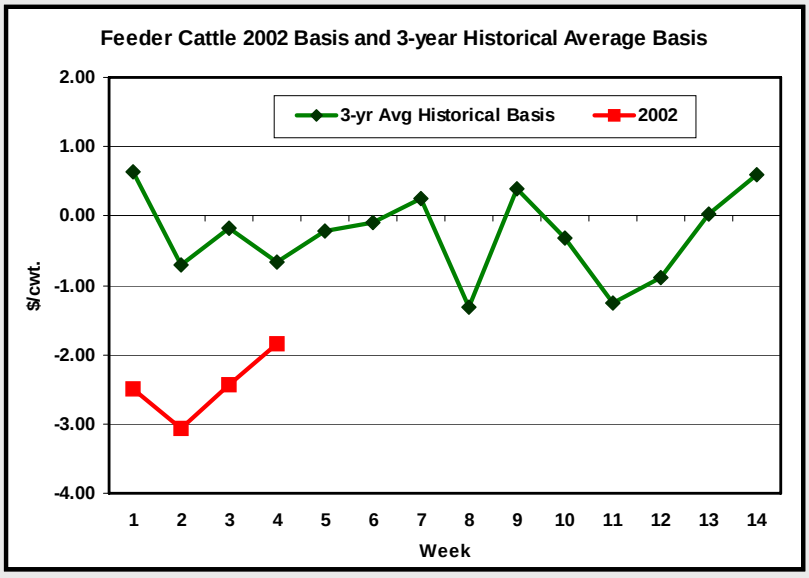

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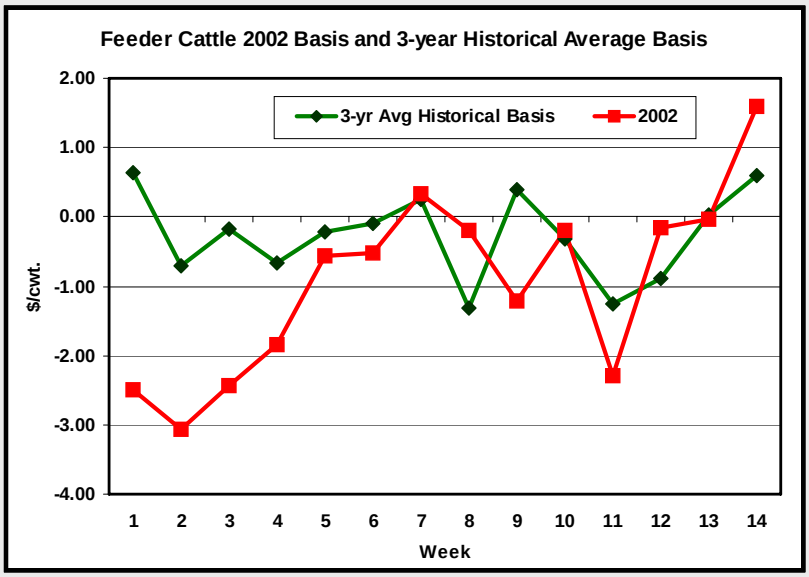

Livestock Basis Forecasts: How Beneficial Is Current Information?

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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):

$$BF_{tk} = HistAvg_{t} + (X^{*}(Basis_{t-k} - HistAvg_{t-k}))$$

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)

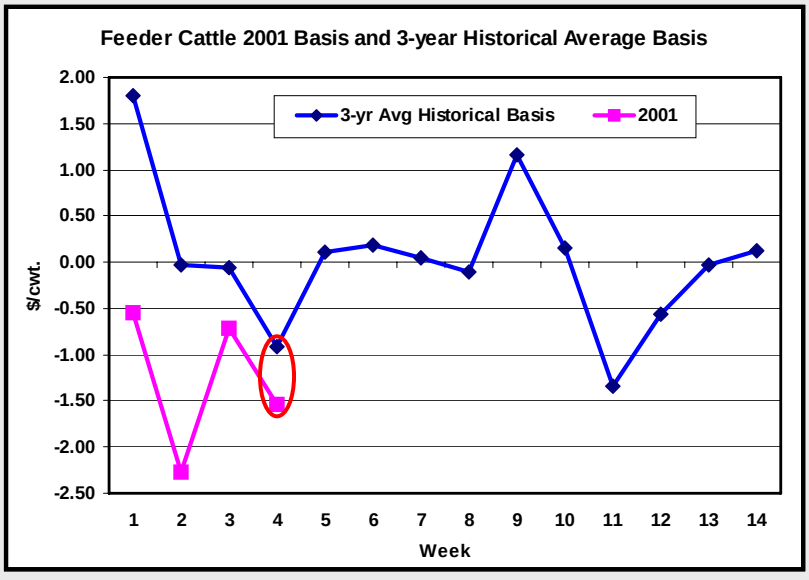
t denotes the week (1-520 for 10 year period)

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?



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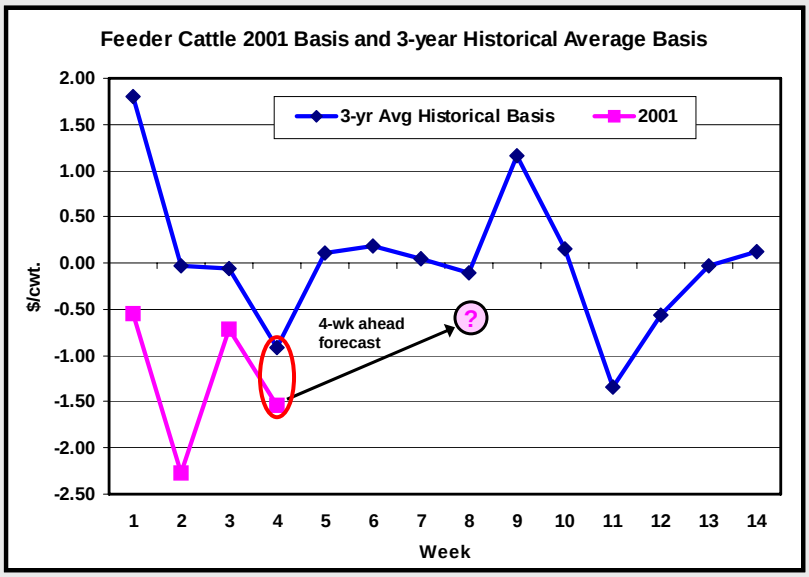

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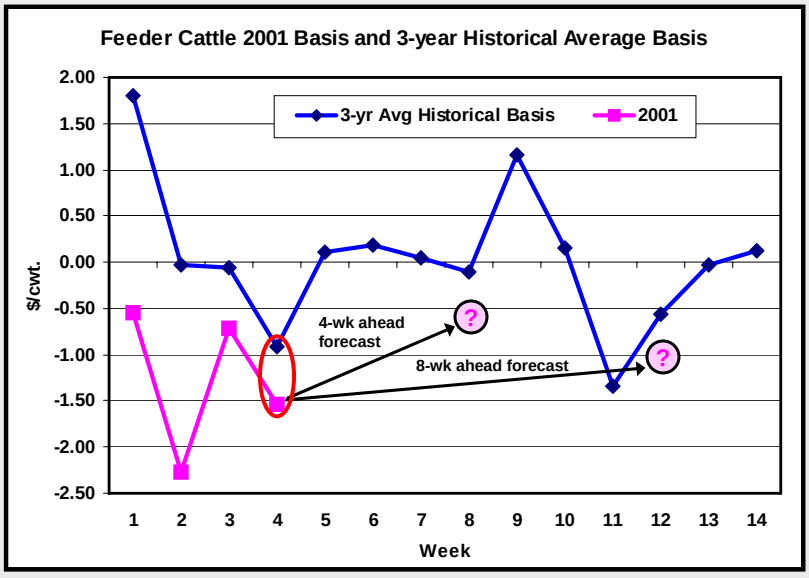

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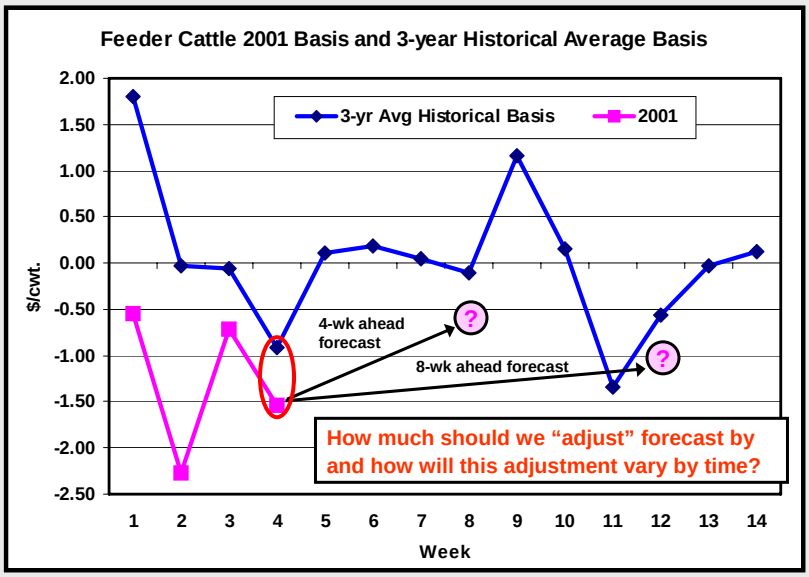
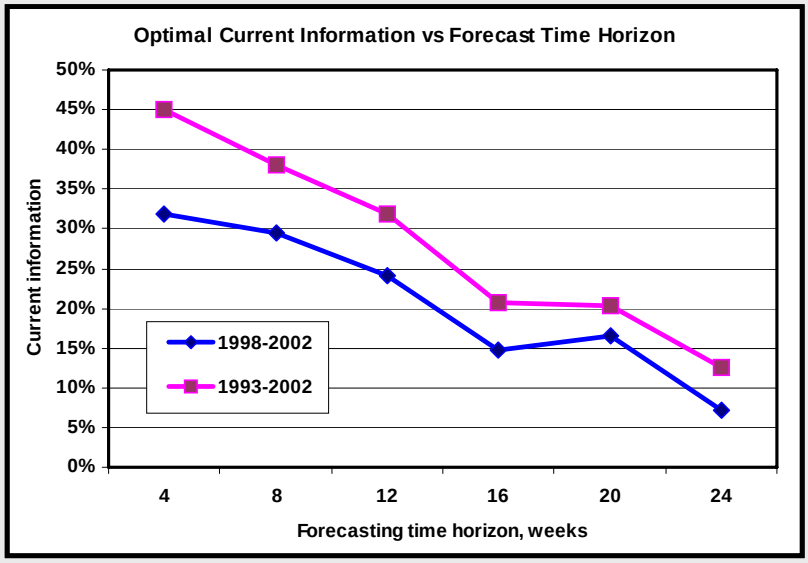
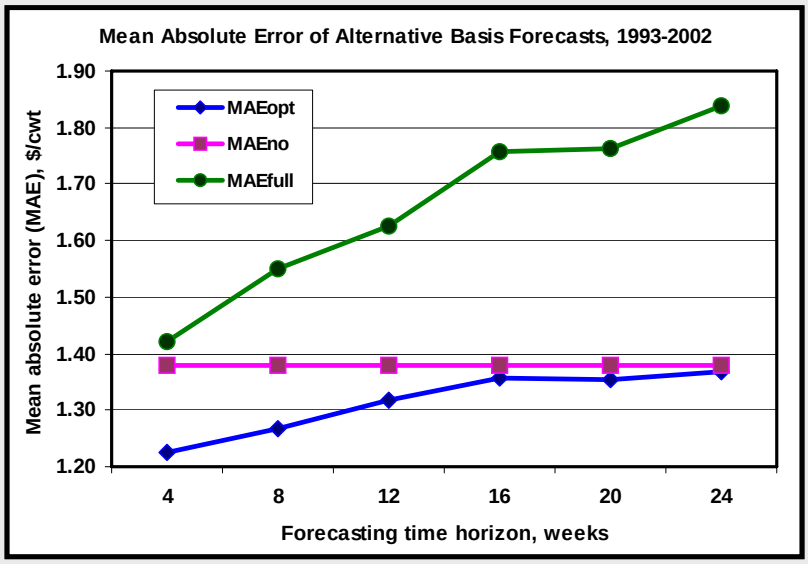


Current information to include…



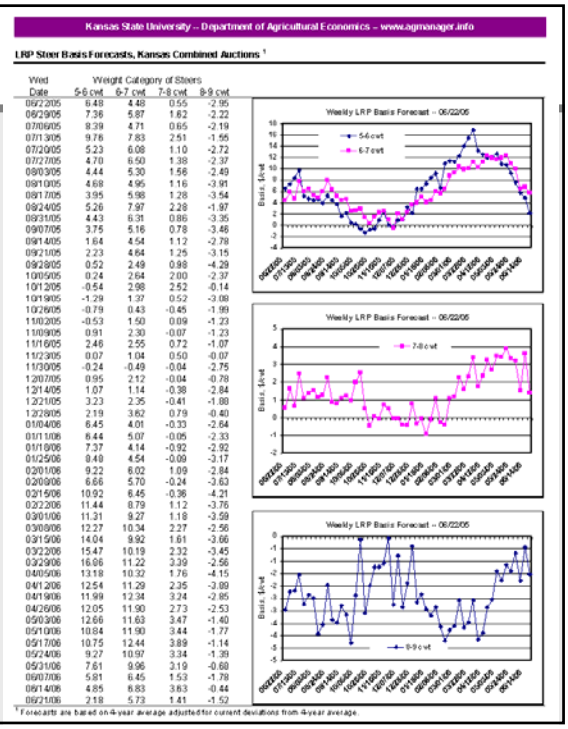
Value of current information lessens for further out forecasts

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



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.