Influence of Weather and Technology on Corn Yields

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2007 Illinois Farm Economic Summit

The Profitability of Illinois Agriculture: Where to from Here?

Conventional Wisdom

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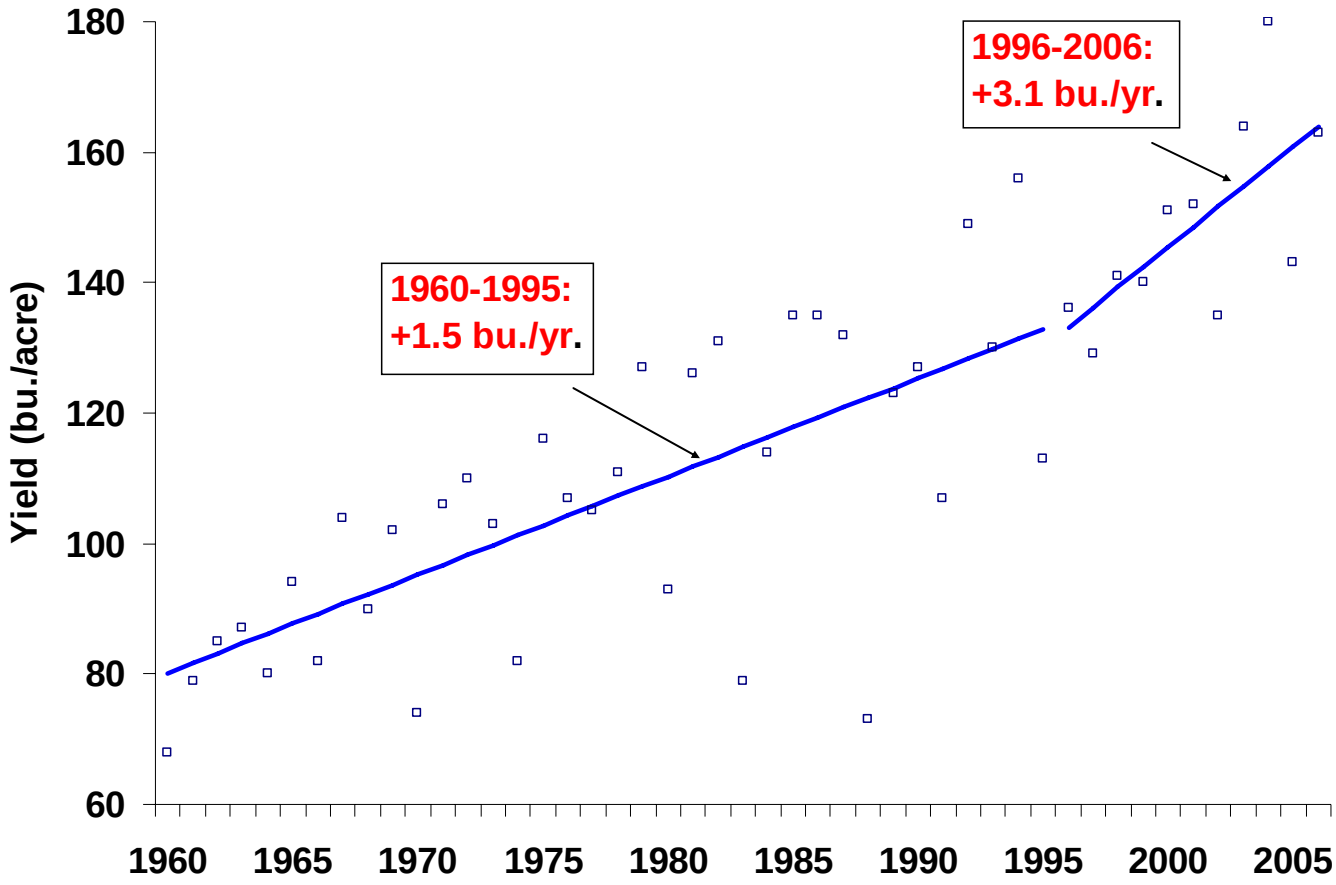
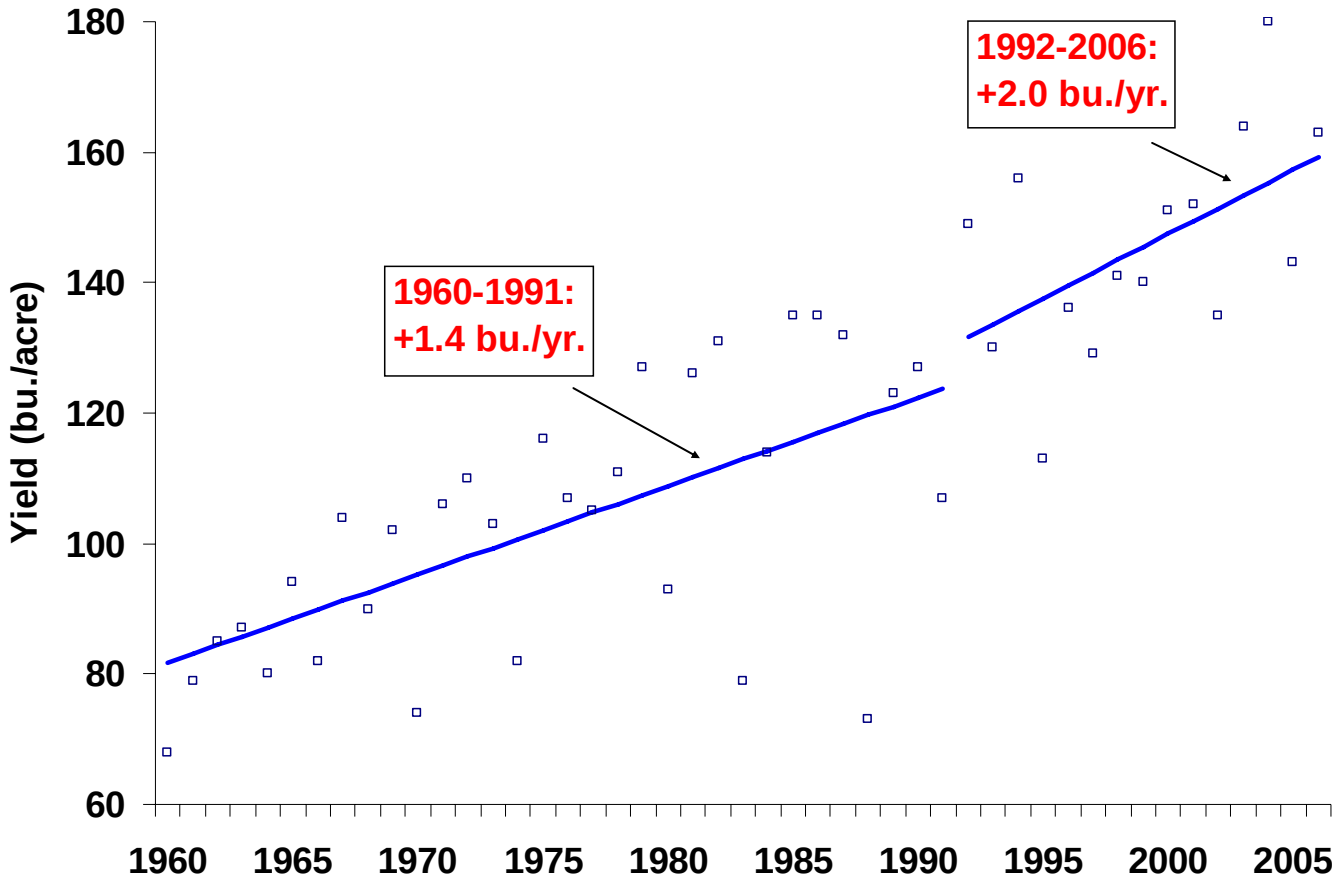
Illinois Corn Yields, 1960-2006



Illinois Corn Yields, 1960-2006



Regression Models of Corn Yield

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- **Yield**: State Average for Illinois, Indiana, Iowa
- **Technology**: Linear Time Trend
- **Precipitation**: Sep-Apr, May, June, July, August
- **Temperature**: May, June, July, August
- **Weather Data**: Monthly Average
- **Time Period**: 1960-2006

Regression Models of Corn Yield

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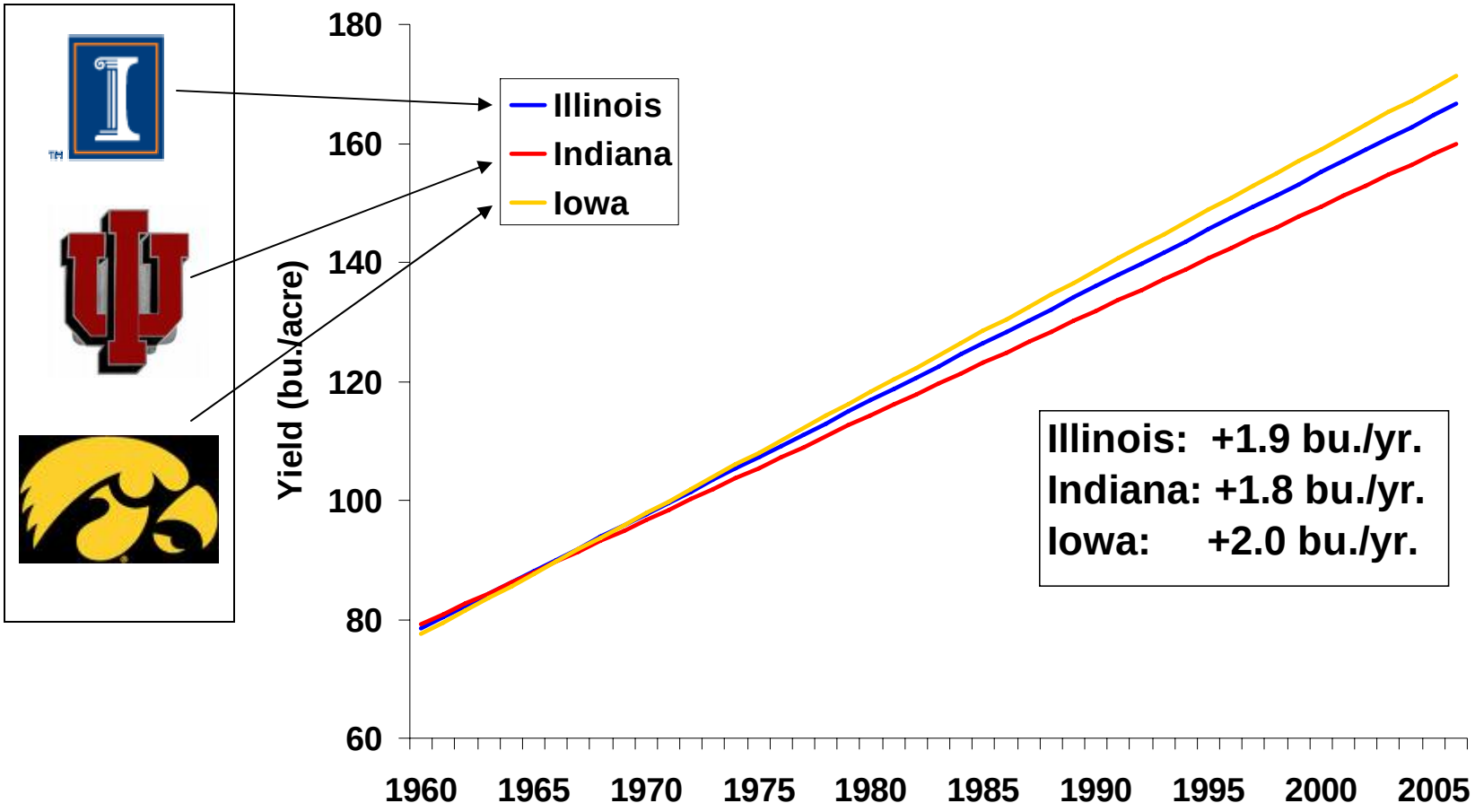
- Yield: State Average for Illinois, Indiana, Iowa
- Technology: Linear Time Trend
- Precipitation: Sep-Apr, May, June, July, August
- Temperature: May, June, July, August
- Model Fit over 1960-2006:
  - Illinois – 95%
  - Indiana – 94%
  - Iowa – 94%

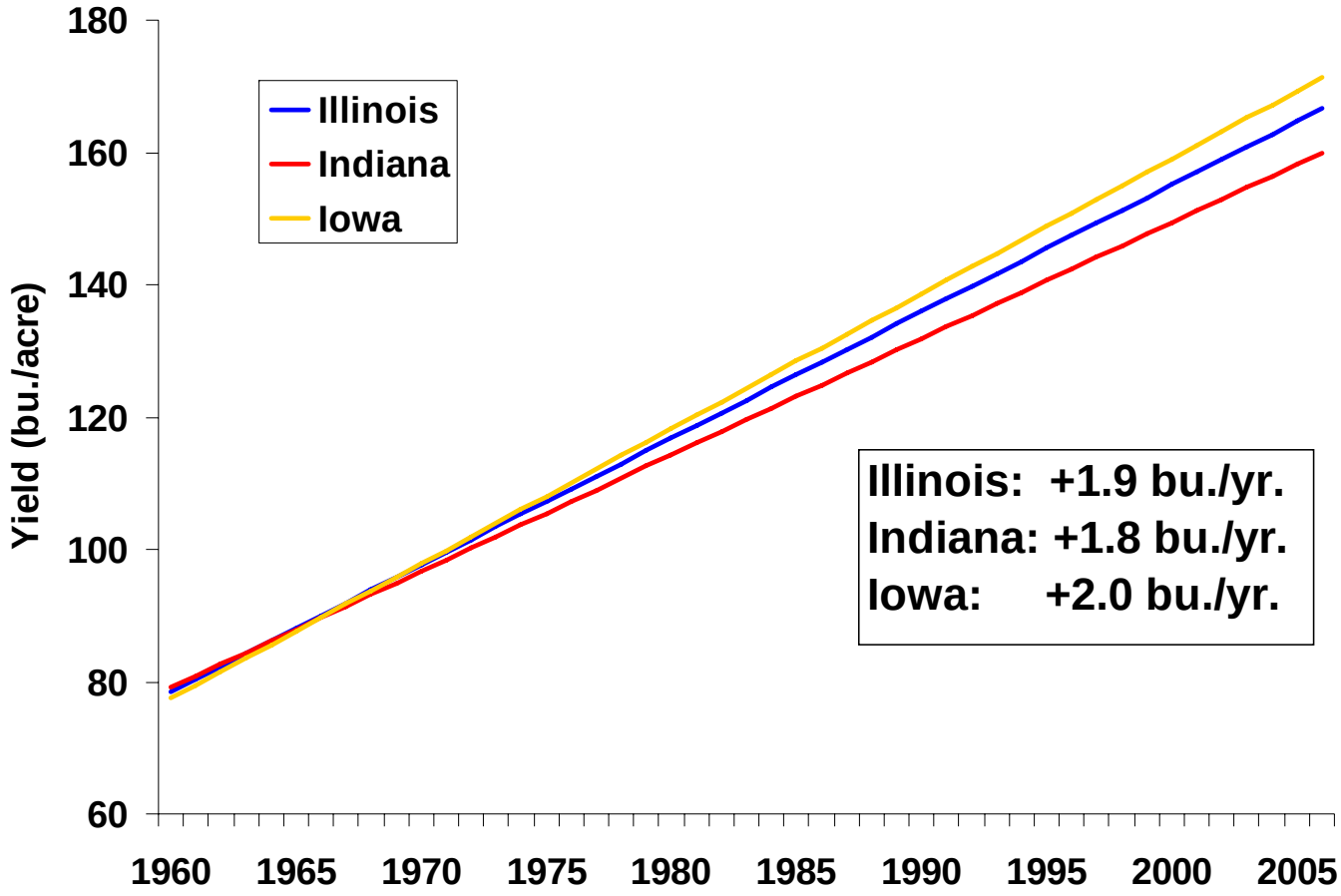
Effects of Technology, 1960-2006

(assuming average weather)

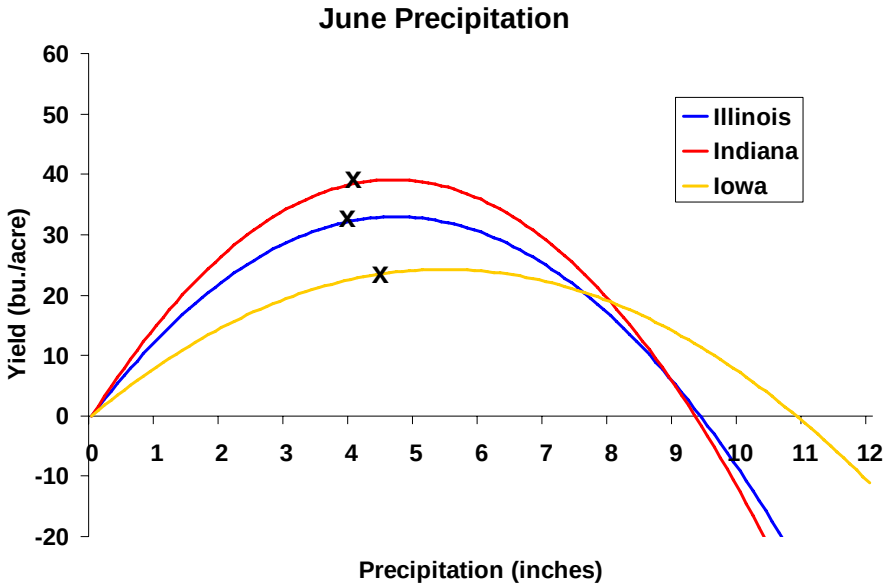


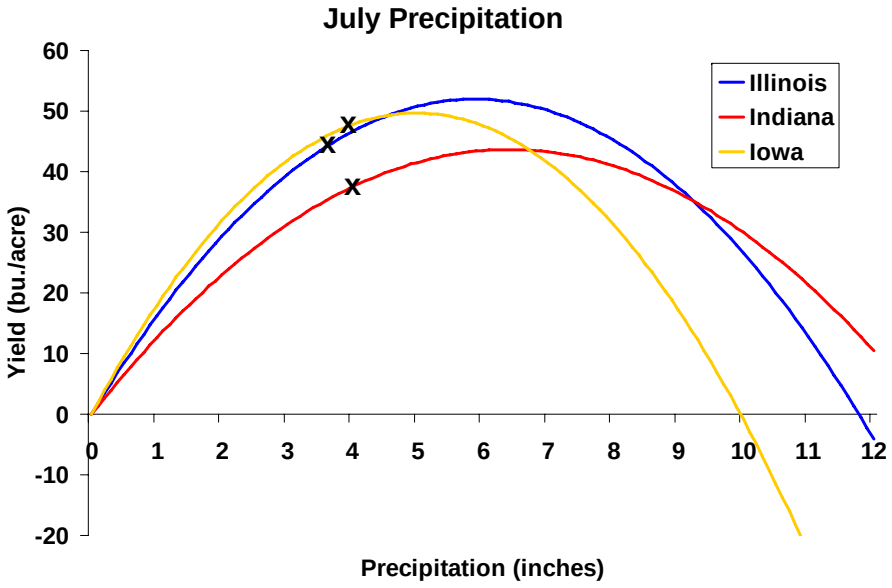
Effects of Technology, 1960-2006

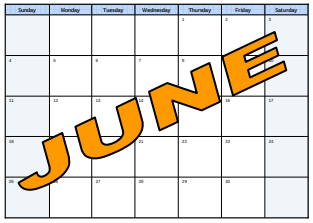
(assuming average weather)

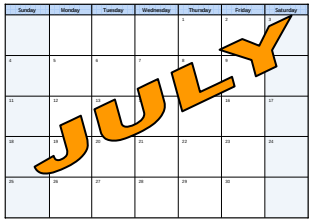


Effects of Precipitation, 1960-2006

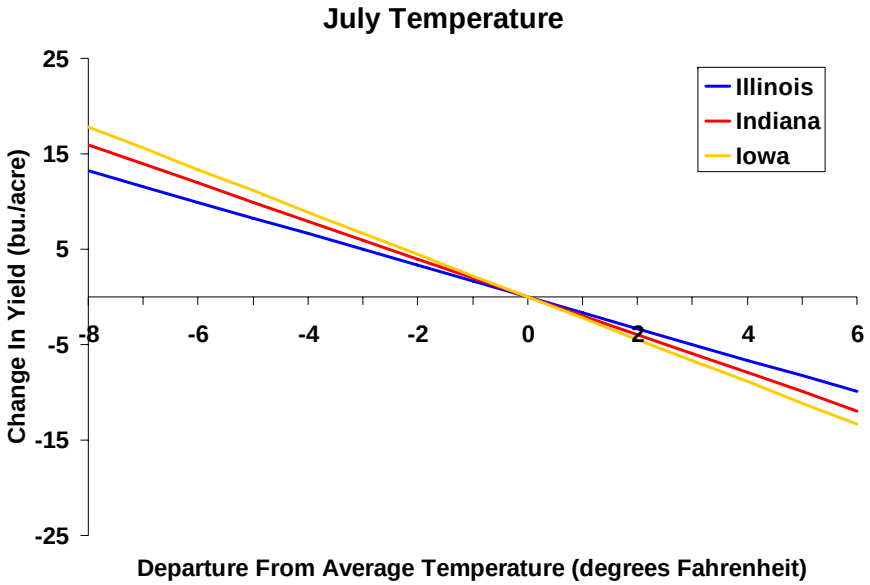


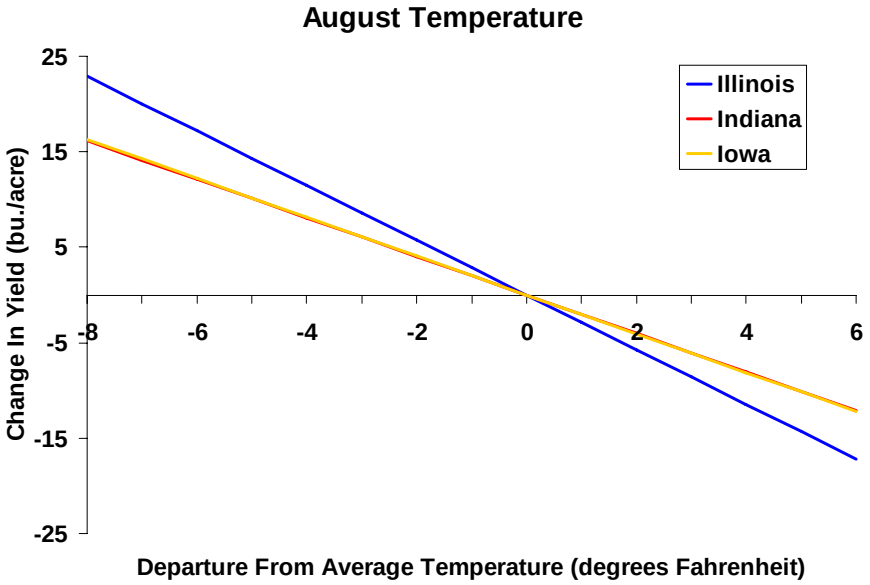


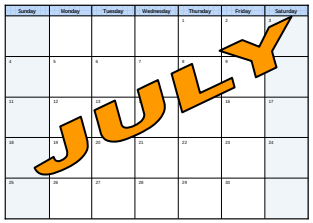


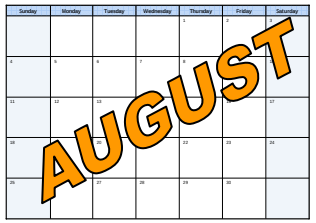


Effects of Temperature, 1960-2006

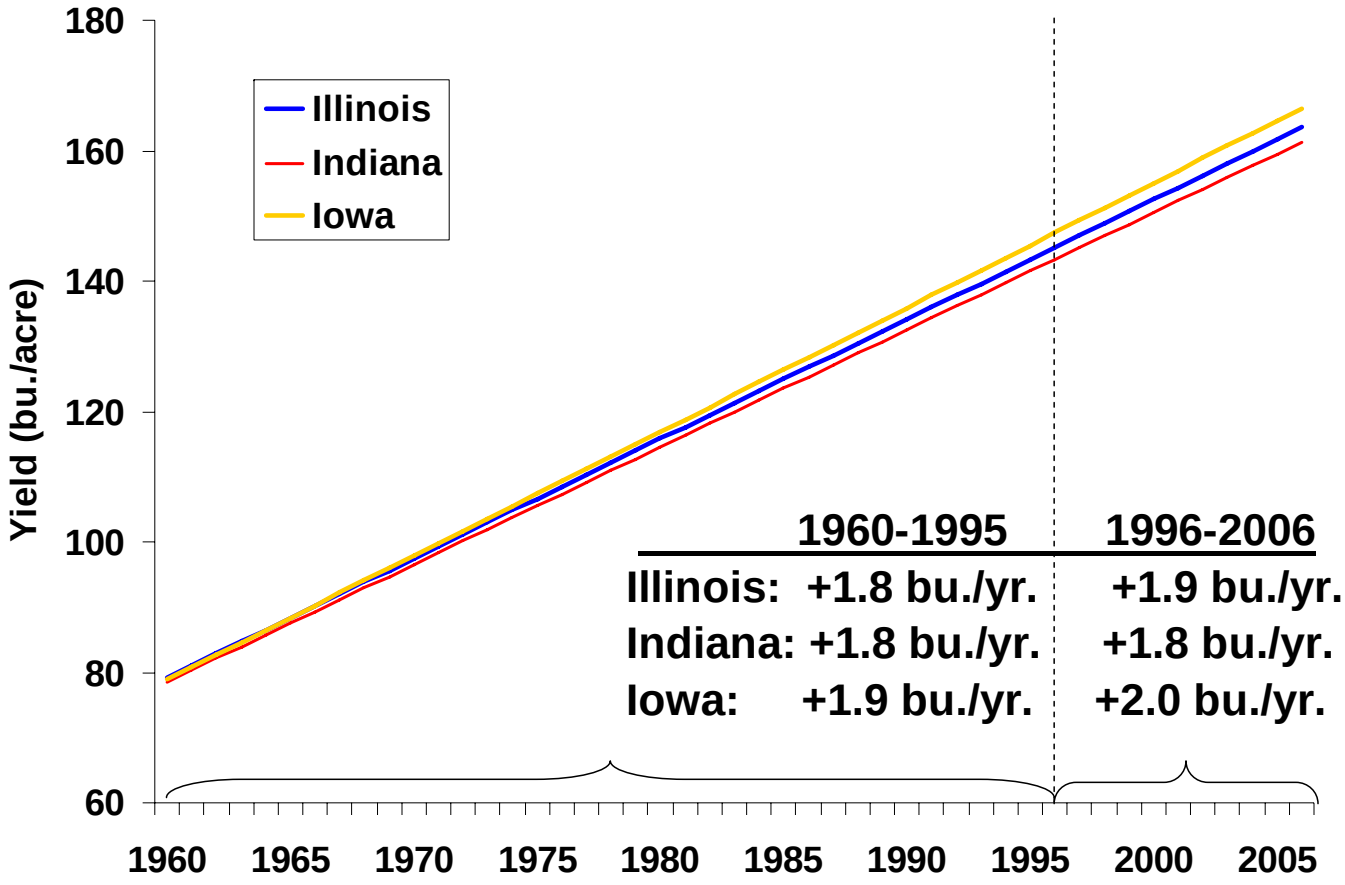








Are Trend Yields Increasing Faster at the State Level?



New Seed Technology

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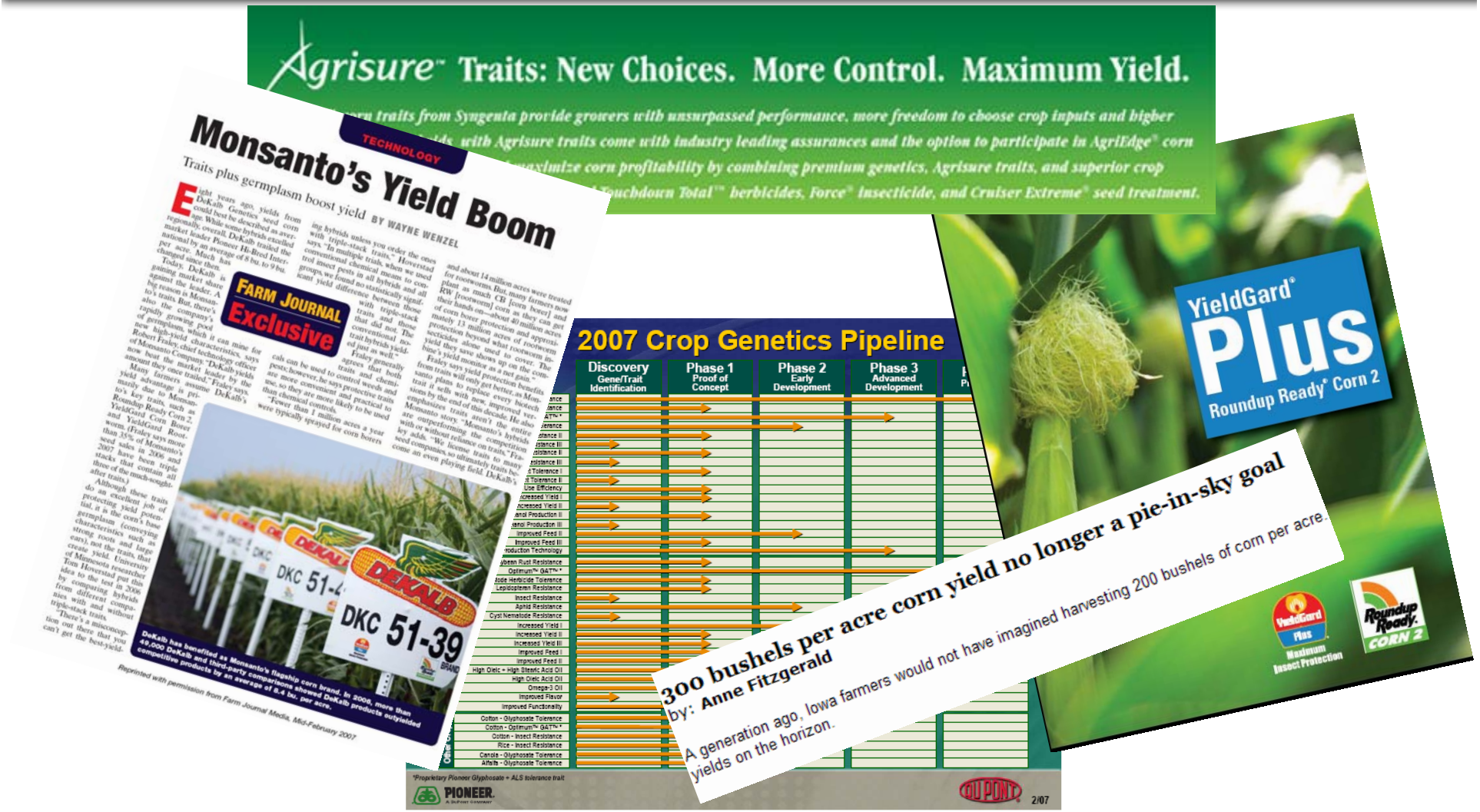

Key Illinois Weather Variables, 1960-2006

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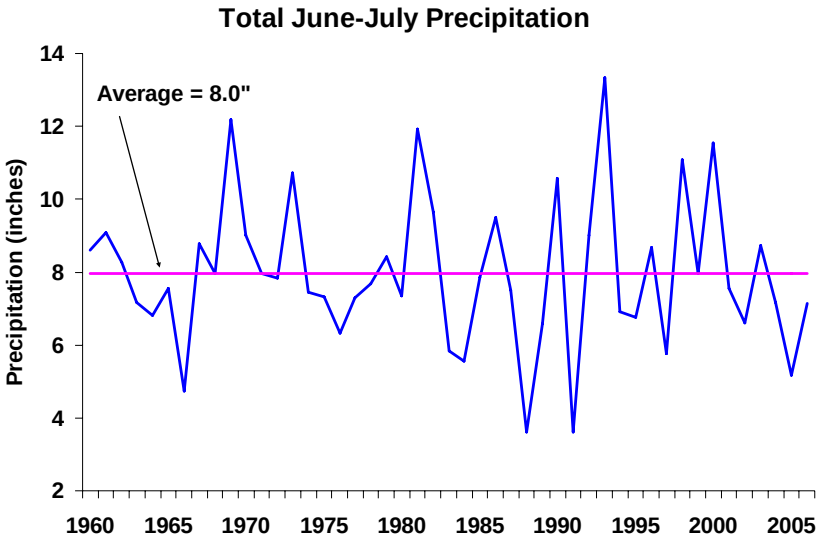

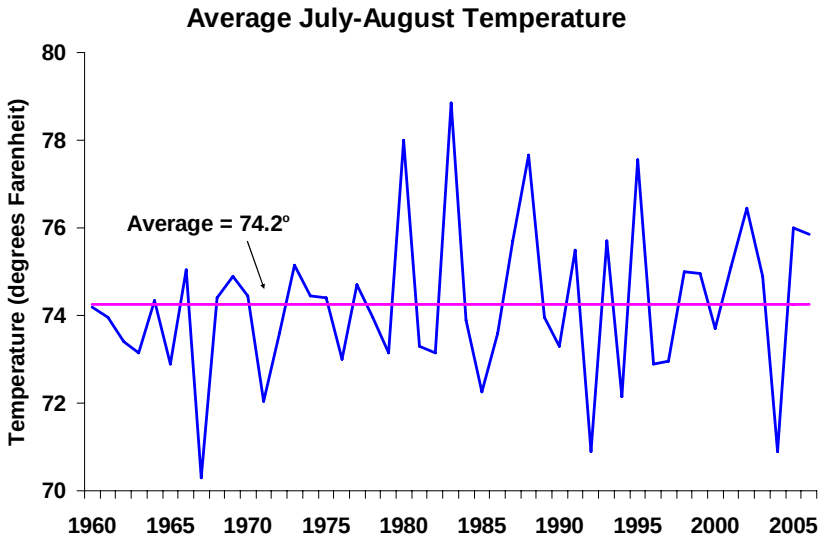

Key Indiana Weather Variables, 1960-2006

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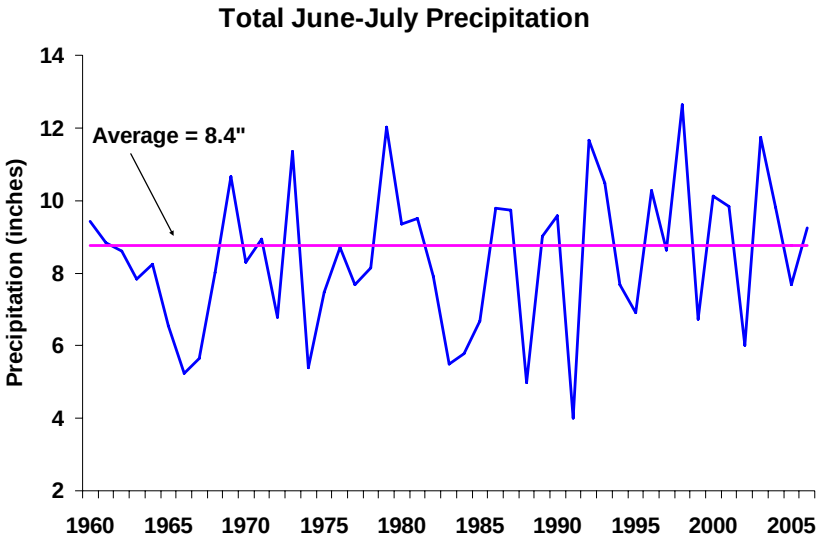
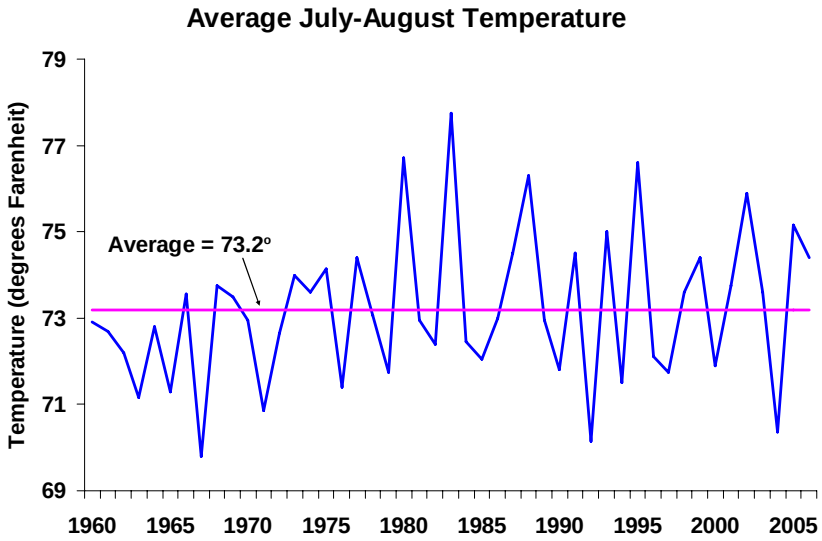
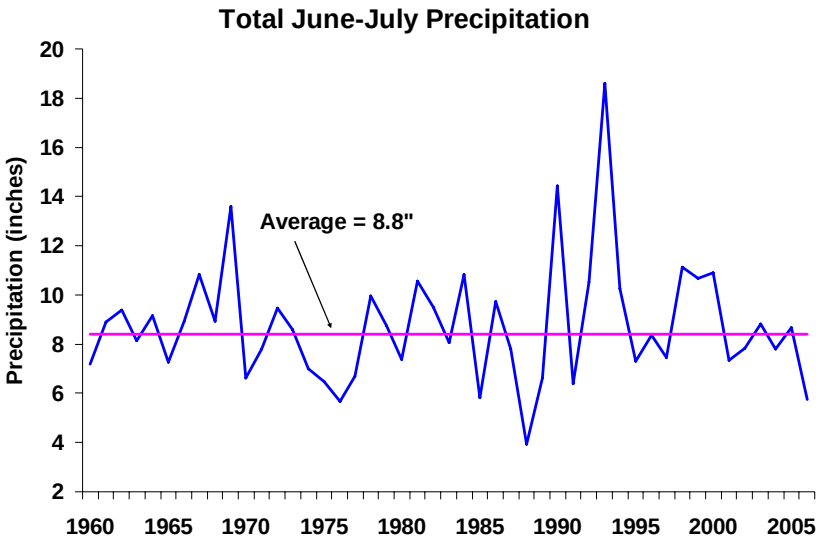
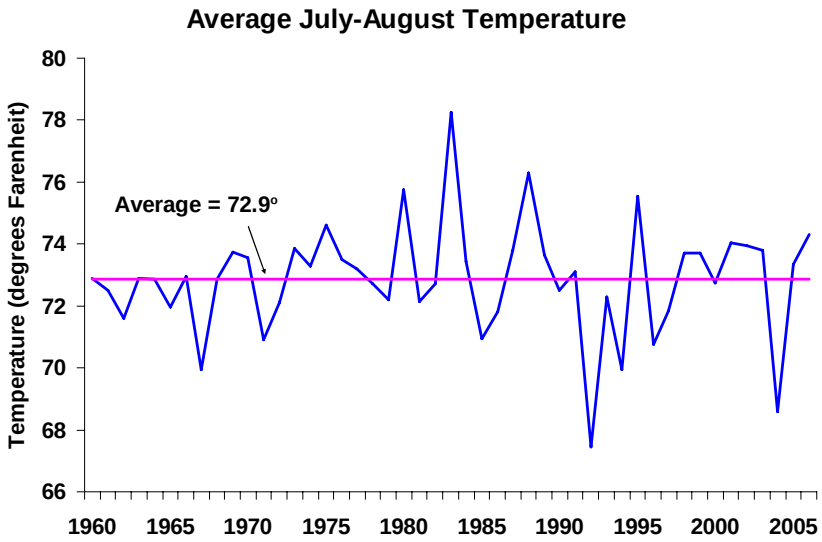




Key Iowa Weather Variables, 1960-2006





Have We Been Here Before?

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The United States had so little variability in weather and grain production in the past two decades (until 1974) that an attitude of complacency had developed. There was frequent reference in the early 1970's to the fact that technology had advanced to such a level that weather was no longer a significant factor in grain production.

—L. Thompson, Iowa State, 1975

Alternative Trend Yield Projections to 2030 for Illinois

Corn Yields

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