

# Farmland Values – Will the Boom Turn Bust?

Top Producer Seminar

January 30, 2013

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# Agenda

- Is it a bubble?
- How much higher will they go? Are they too high already?
- What could change things?
- What are the concerns/risks?

# Is it a Bubble?

- Economists – almost certainly not
- Is this reassuring?
  - Not very
  - We have a very difficult time identifying irrationality (disconnect from fundamentals) ex ante
- Are there troubling signs in the marketplace?
  - Yes a few

# Putting it in Perspective

- Agriculture's history includes periods of remarkable boom and bust
- Agriculture is capital intensive
  - Large increases in profitability make fixed assets priced in less profitable times look cheap
  - MAJOR capital restructuring underway

## Key Questions:

- Will these times last or will we retreat to previous levels?
- Are farmland values in a speculative bubble or responding normally to economic conditions?

# Types of Shocks which Alter Farming Profitability

- Demand driven: Expansion of demand which calls for more output at all price levels
  - For example, biofuels and income growth and food demand in emerging markets
  - Persistent demand growth can substantially increase land values and capital investment
- Supply induced: Supply contraction where less is available at all price levels
  - Short-term weather shocks do not typically impact fixed asset values
  - Inability of supply to keep up with normal demand expansion. If true could lead asset value increases

Current situation is complicated by interaction of both impacts **and** extremely low interest rates which make future income more valuable

# So How Big are the Recent Increases in Farmland Values?

# In Real Terms, Today's Farmland Value Increases are on Par with those of the 70's

Region	Nominal Change Annualized Growth Rate	Real Change and Annualized Growth Rate
<u>Iowa</u>	-----Percent -----	
<b>1971-1981</b>	399	122
	17.4	8.3
<b>2001-2011</b>	248	176
	13.3	10.7
<u>Illinois</u>		
<b>1971-1981</b>	343	97
	16.1	7.0
<b>2001-2011</b>	149	97
	9.6	7.0
<u>Indiana</u>		
<b>1971-1981</b>	381	114
	17.0	7.9
<b>2001-2011</b>	104	62
	7.4	4.9

<sup>a</sup> Iowa farmland values from the Iowa State Farmland Survey (Duffy). Indiana, Illinois, and U.S. Values from National Agricultural Statistics Service. Real values calculated using the CPI index.

# Dramatic Price Increases Set Against Backdrop of:

- Numerous spectacular price increases and declines in the broader economy
  - Housing, tech stocks
- Will farmland follow suit?



# Bubbles

.... you get a bubble when a very high percentage of the population buys into some originally sound premise.... that (the premise) becomes distorted as time passes and people forget the original sound premise and start focusing solely on the price action....

Excerpt from Warren Buffett's interview with the Financial Crisis Inquiry Commission

# How Does This Apply to the Farmland Situation?

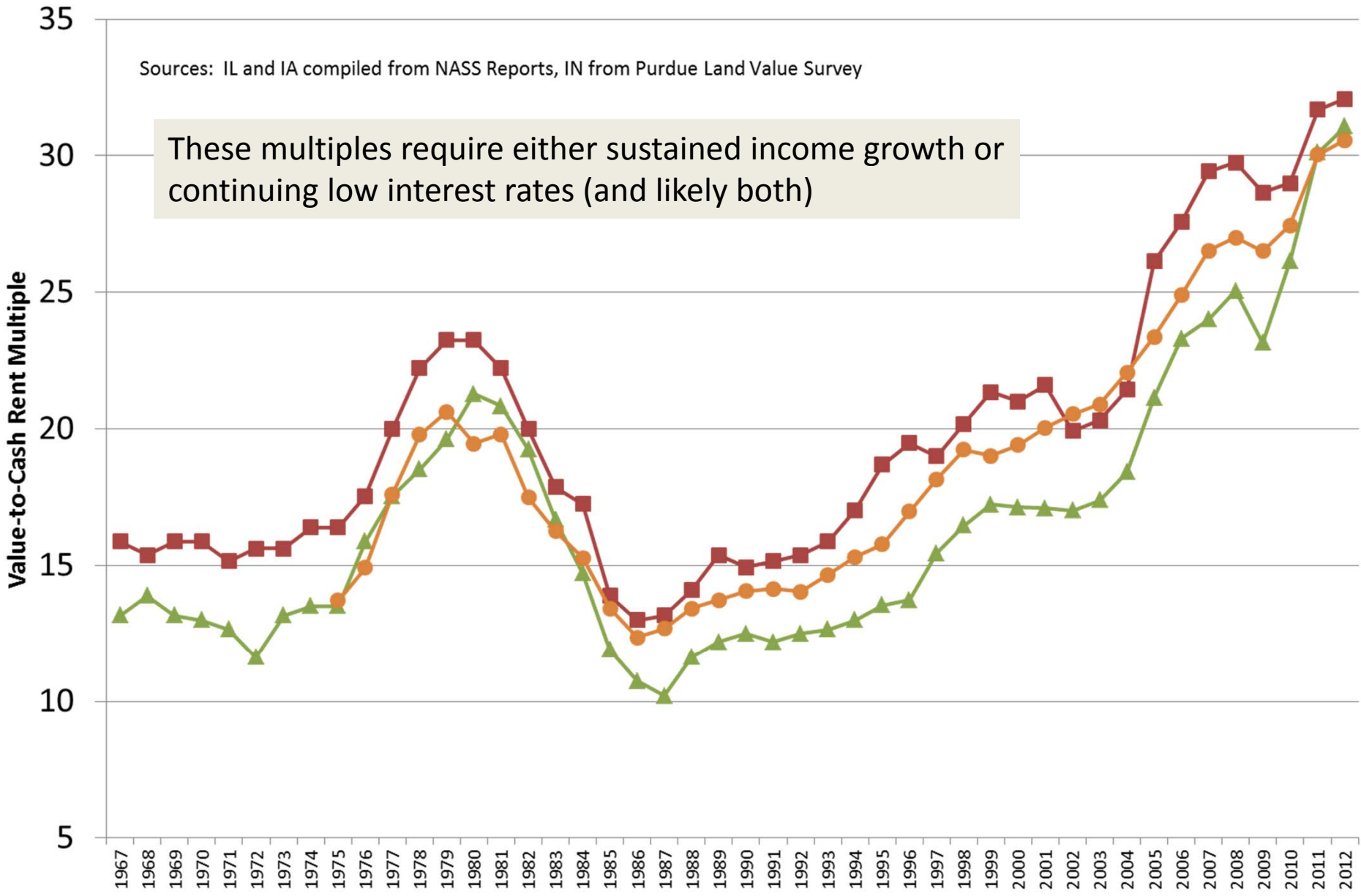
- Fundamentals have undergone dramatic changes
    - Increased demand
    - Reduced interest rates
    - Supply shocks
- Are market participants evaluating these factors when pricing farmland?

# Value-to-Cash Rent Multiple for IA, IL, IN Cropland, 1967-2012

■ IL ▲ IA ● IN

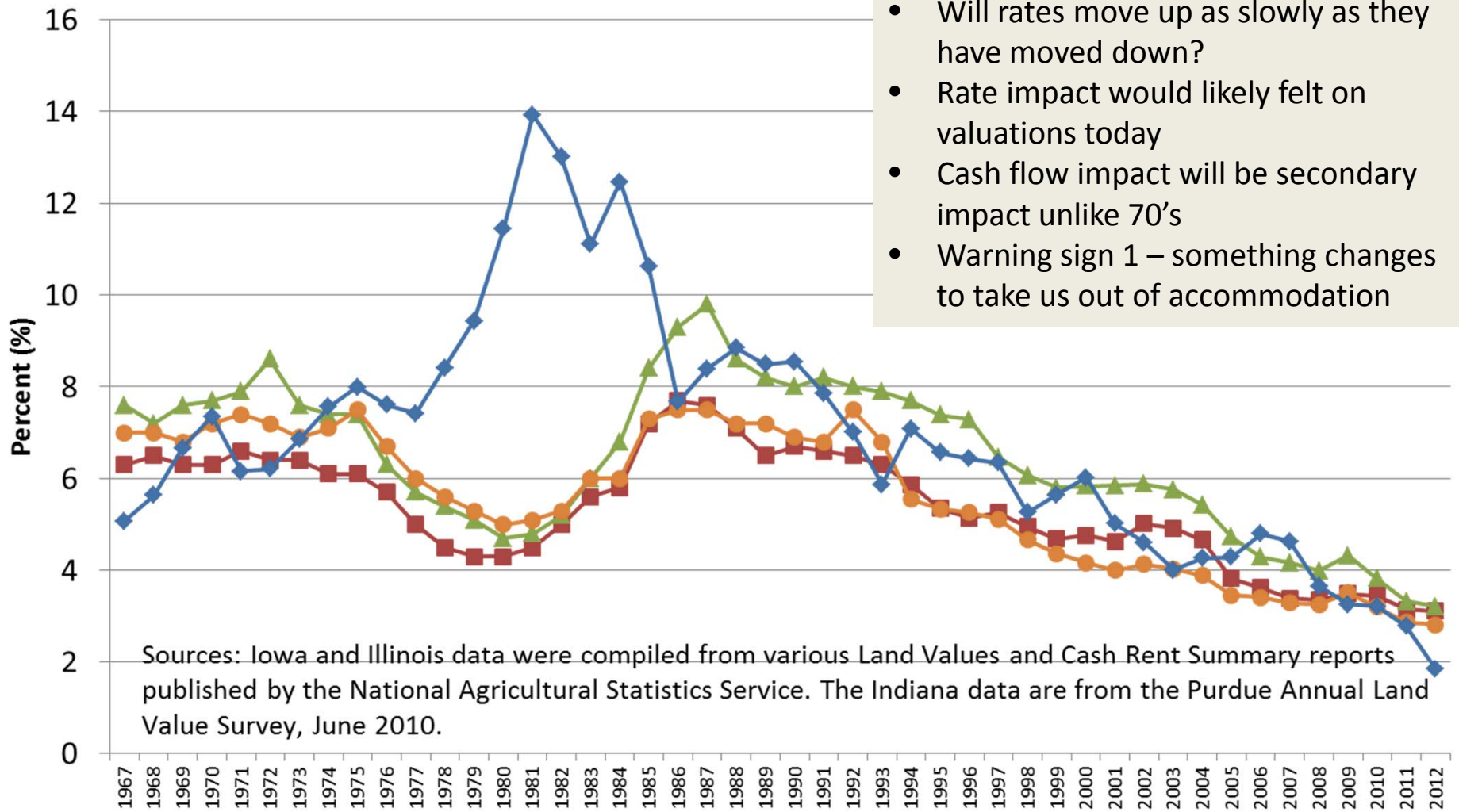
Sources: IL and IA compiled from NASS Reports, IN from Purdue Land Value Survey

These multiples require either sustained income growth or continuing low interest rates (and likely both)



## Farmland Capitalization Rates and Interest Rates on 10 Year US Treasury Bonds, 1967-2012

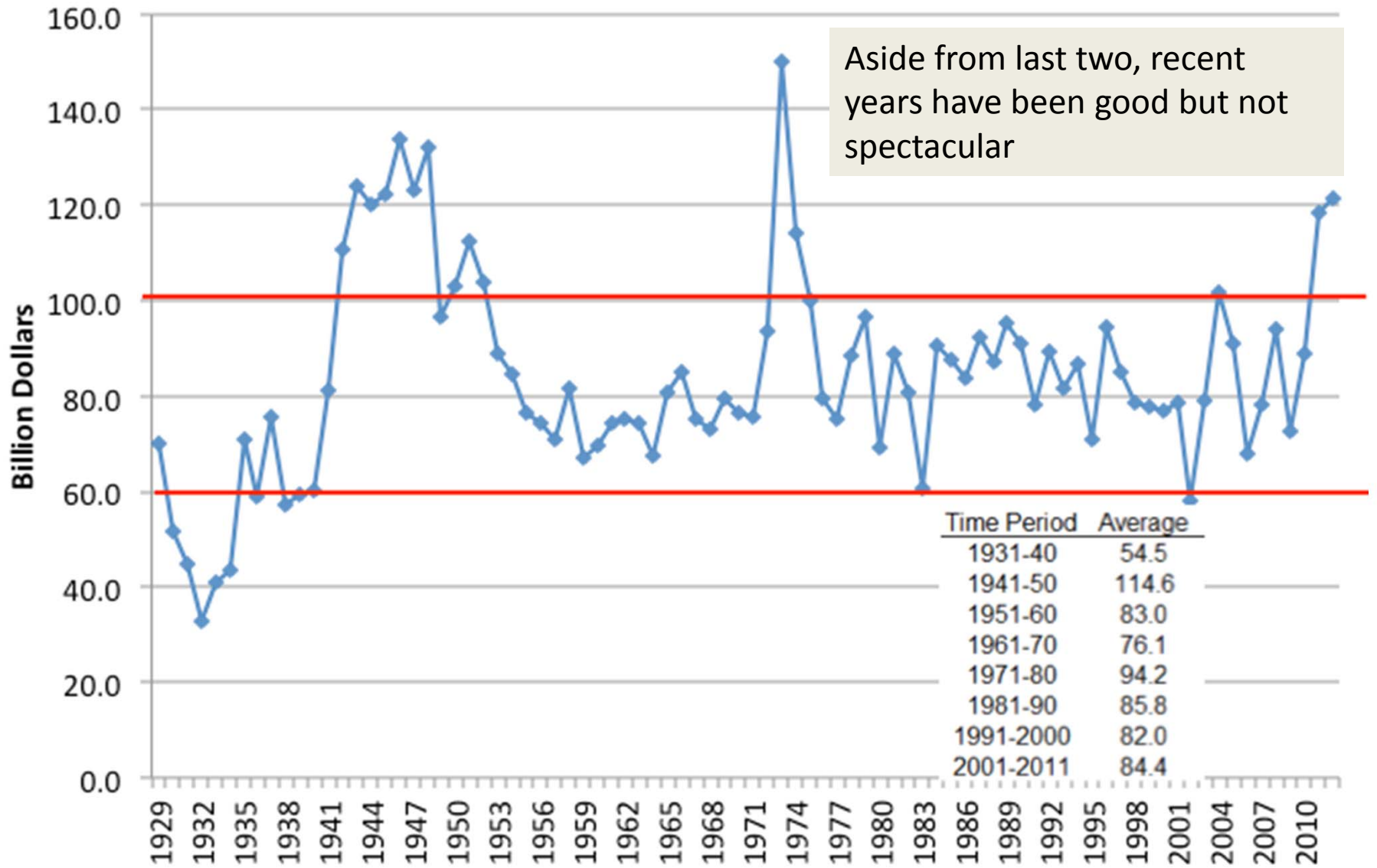
■ IL   
 ▲ IA   
 ● IN   
 ◆ 10Y T-Bond



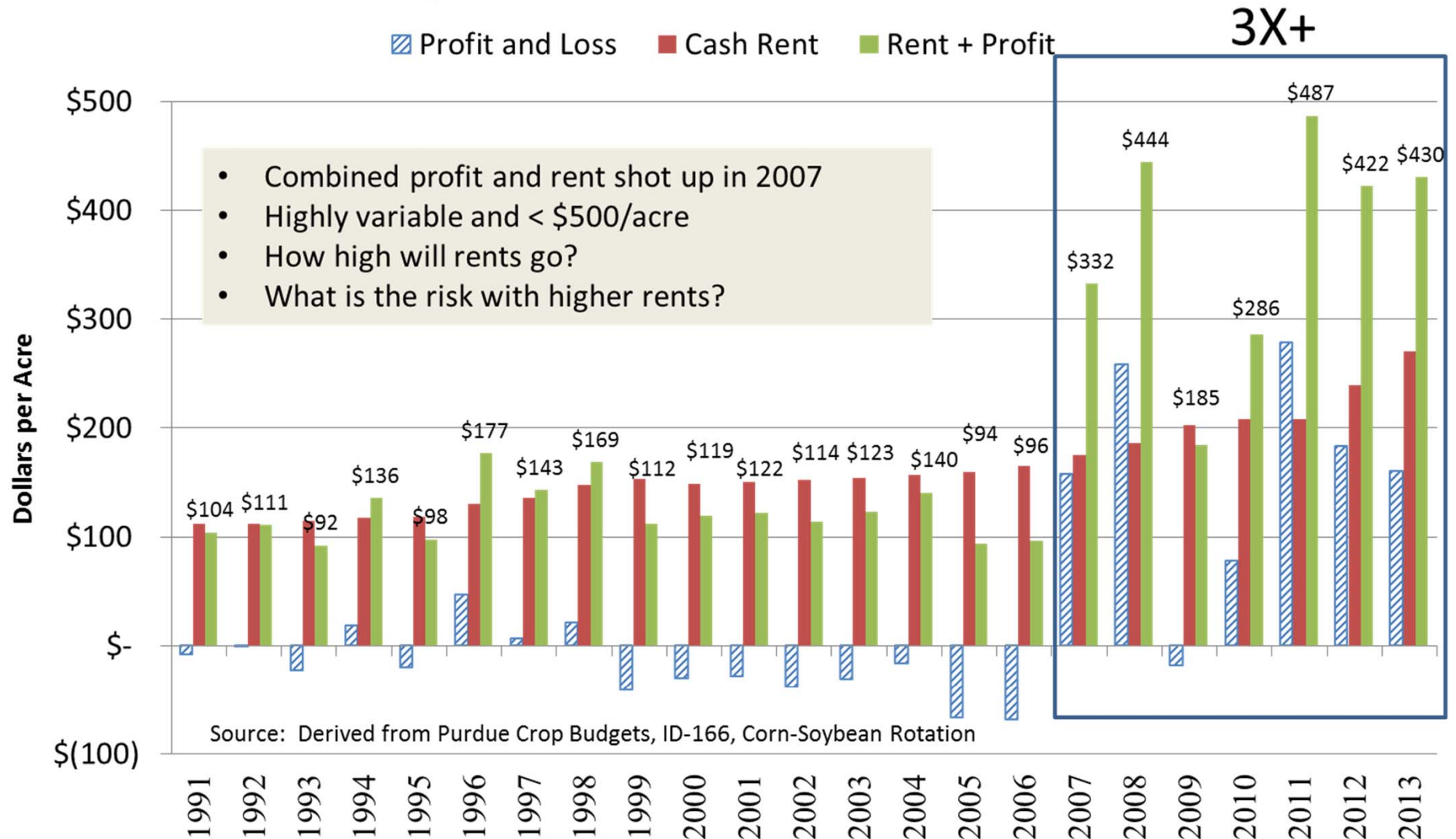
- Will rates move up as slowly as they have moved down?
- Rate impact would likely be felt on valuations today
- Cash flow impact will be secondary impact unlike 70's
- Warning sign 1 – something changes to take us out of accommodation

Sources: Iowa and Illinois data were compiled from various Land Values and Cash Rent Summary reports published by the National Agricultural Statistics Service. The Indiana data are from the Purdue Annual Land Value Survey, June 2010.

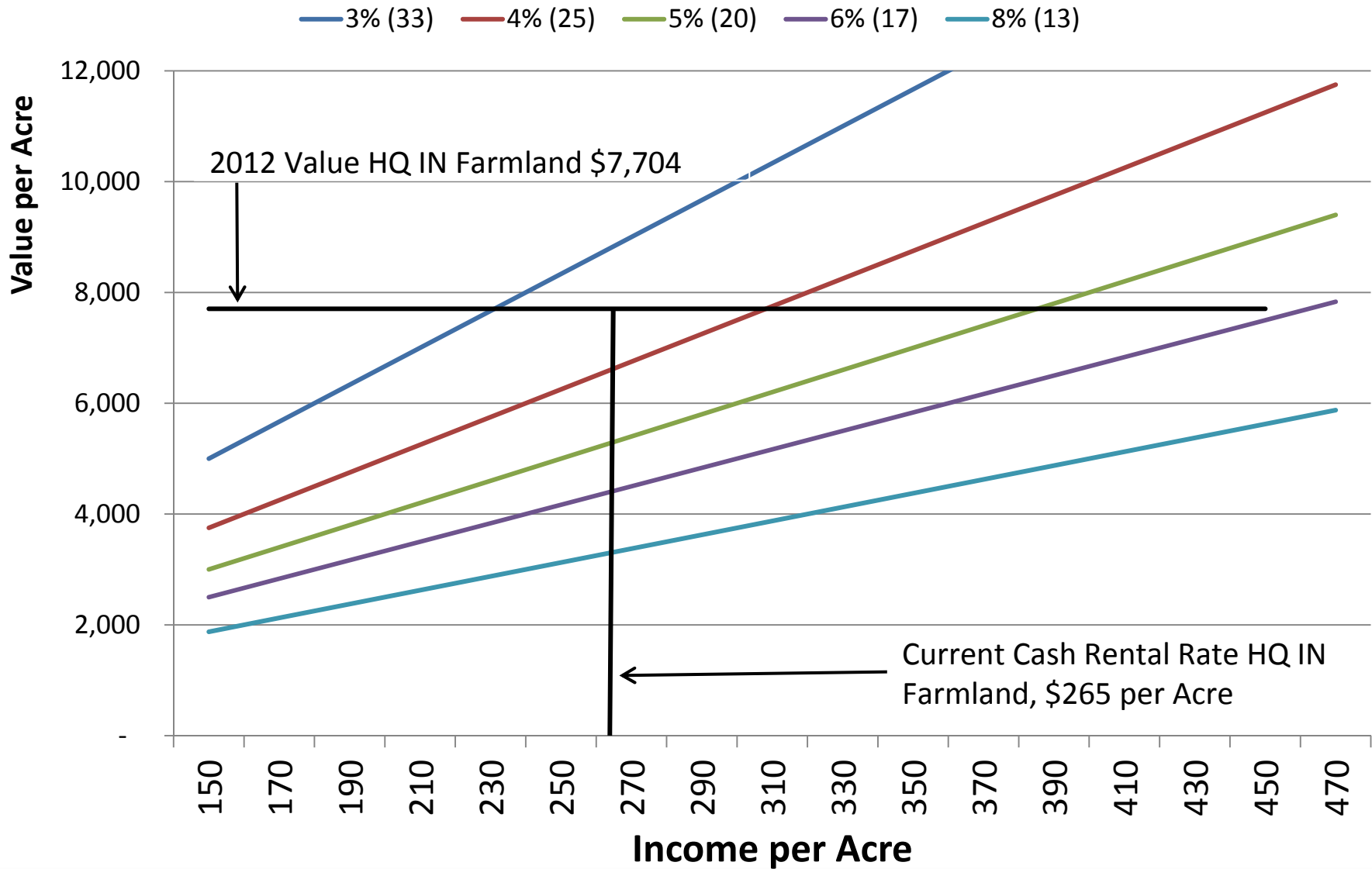
## 2. Returns to Farm Operators plus Interest and Rent, 1929-2012 (2005 USD)



# Budgeted Profit/Loss and Cash Rent for High Quality Indiana Farmland, 1991-2013



## Land Values Under Alternative Capitalization Rates (Multiples) and Income Levels

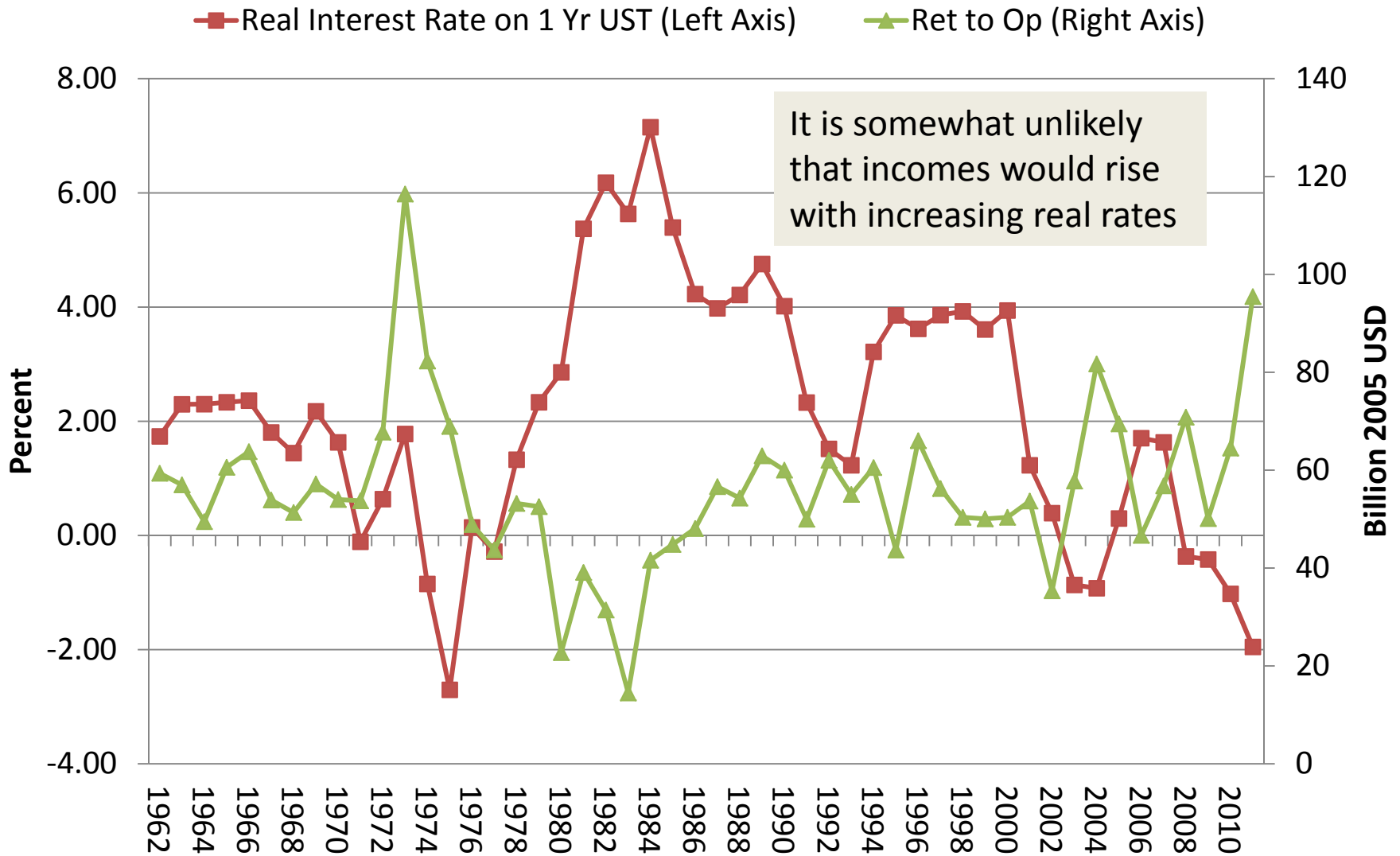


# Cap Rate Risk

- Monetary policy change = cap rate ↑
- Economic recovery = cap rate ↑
- Inflation = cap rate ↑
- Increased volatility/risk = cap rate ↑
- Slowing income growth in ag = cap rate ↑



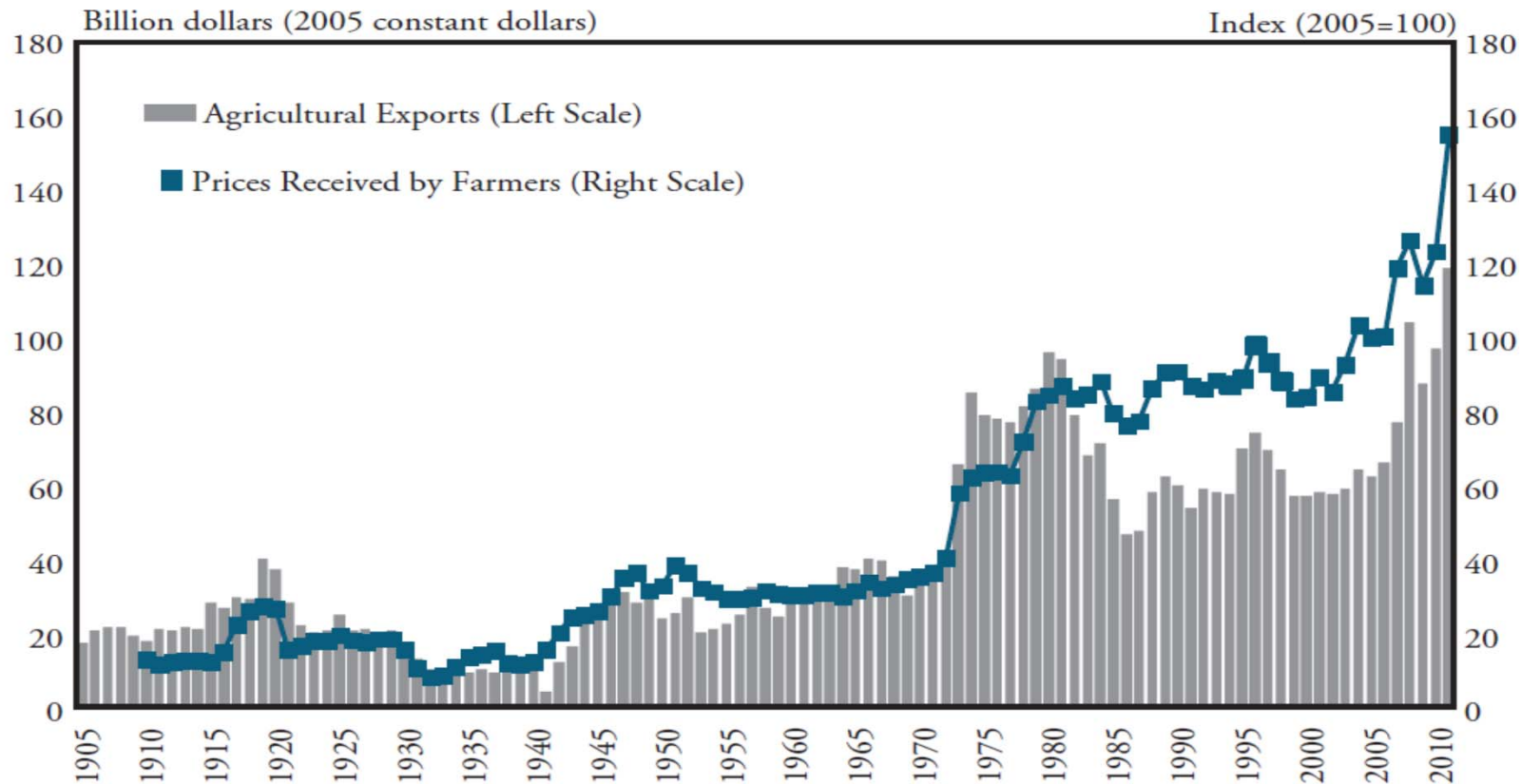
## Relationship Between Real Interest Rate and Returns to Operators, 1962-2011



# Exports Play a Key Role In Price Increases

Chart 1

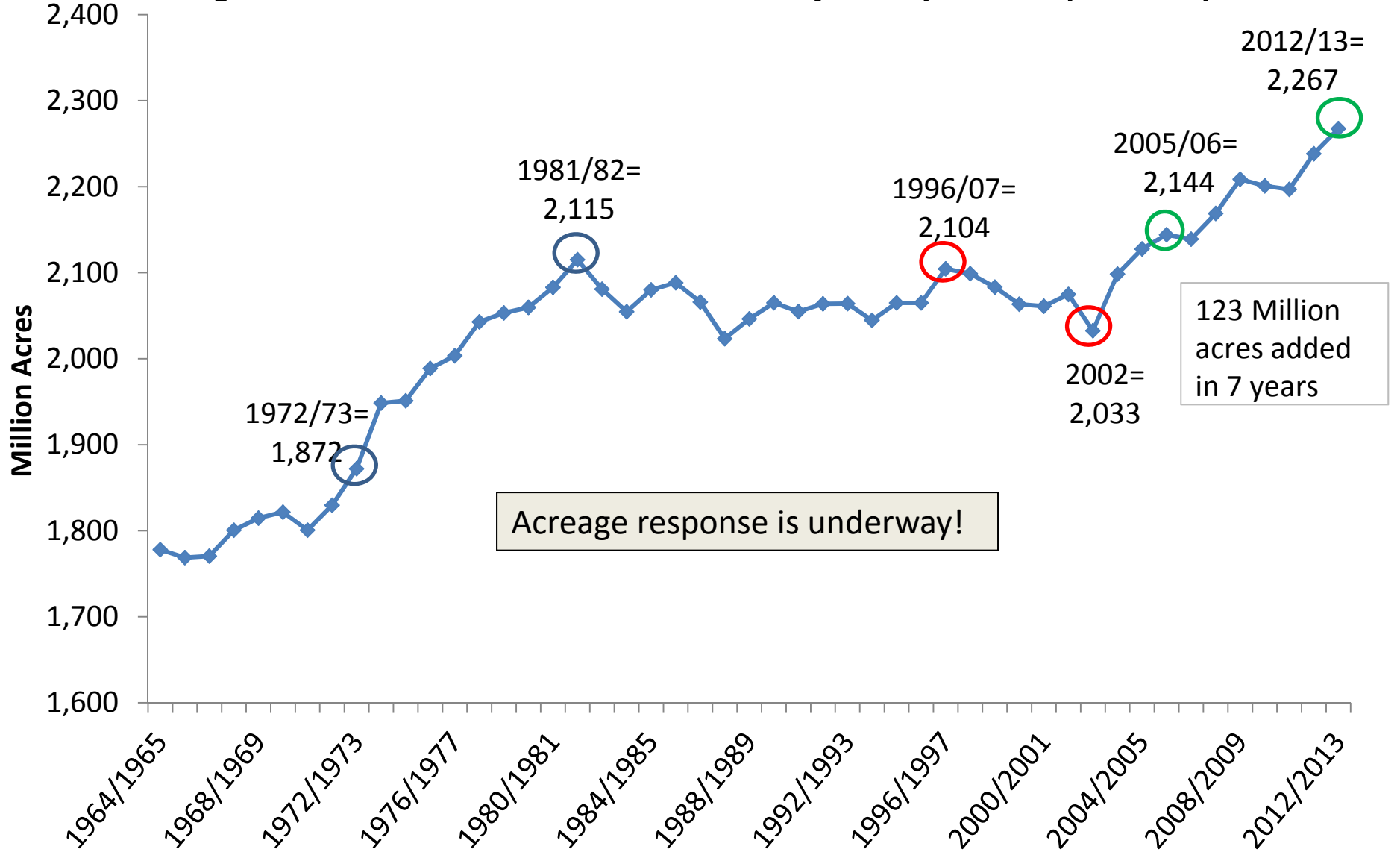
## U.S. AGRICULTURAL EXPORTS AND INDEX OF PRICES RECEIVED BY U.S. FARMERS



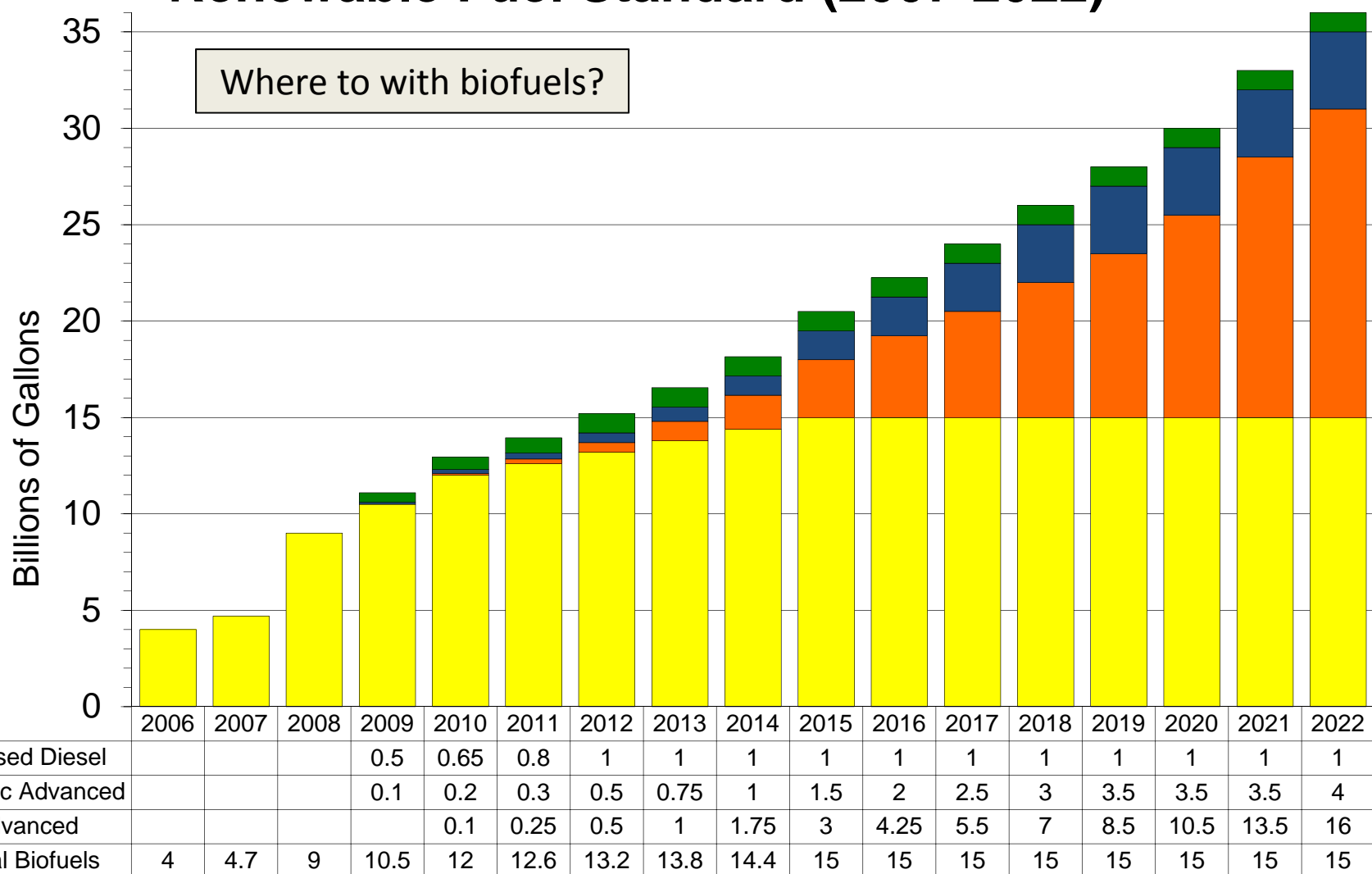
Note: Calculations based on U.S. Census Bureau and USDA data deflated with CPI from the Federal Reserve Bank of Minneapolis.

SOURCE: Henderson, J., B.A. Gloy, and M.D. Boehlje. "Agriculture's Boom-Bust Cycles: Is This Time Different." *The Economic Review*, Kansas City Federal Reserve Bank, 96:4(2011): 83-101.

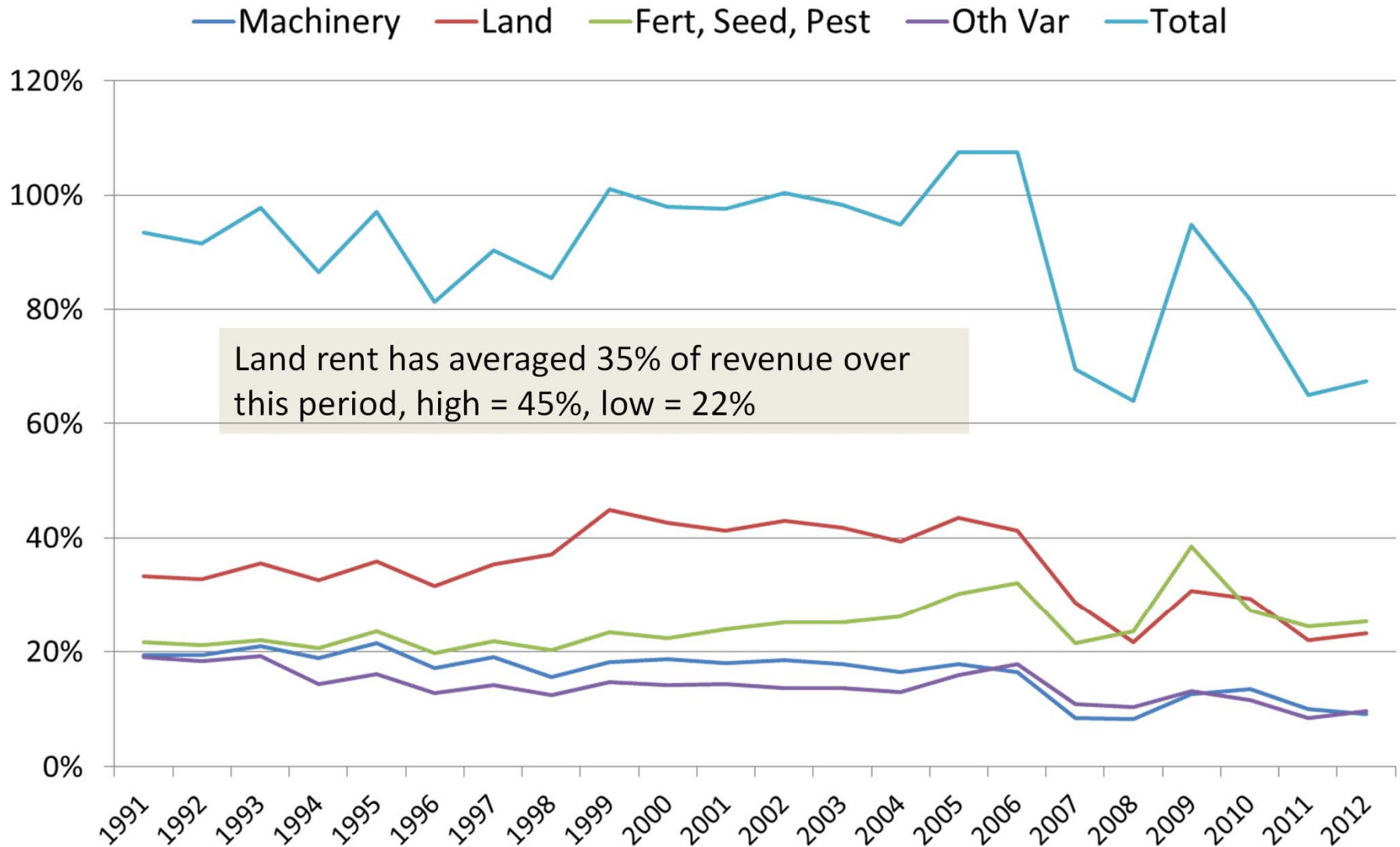
**Figure 6: World Harvested ACRES 13 Major Crops Total: (Millions)**



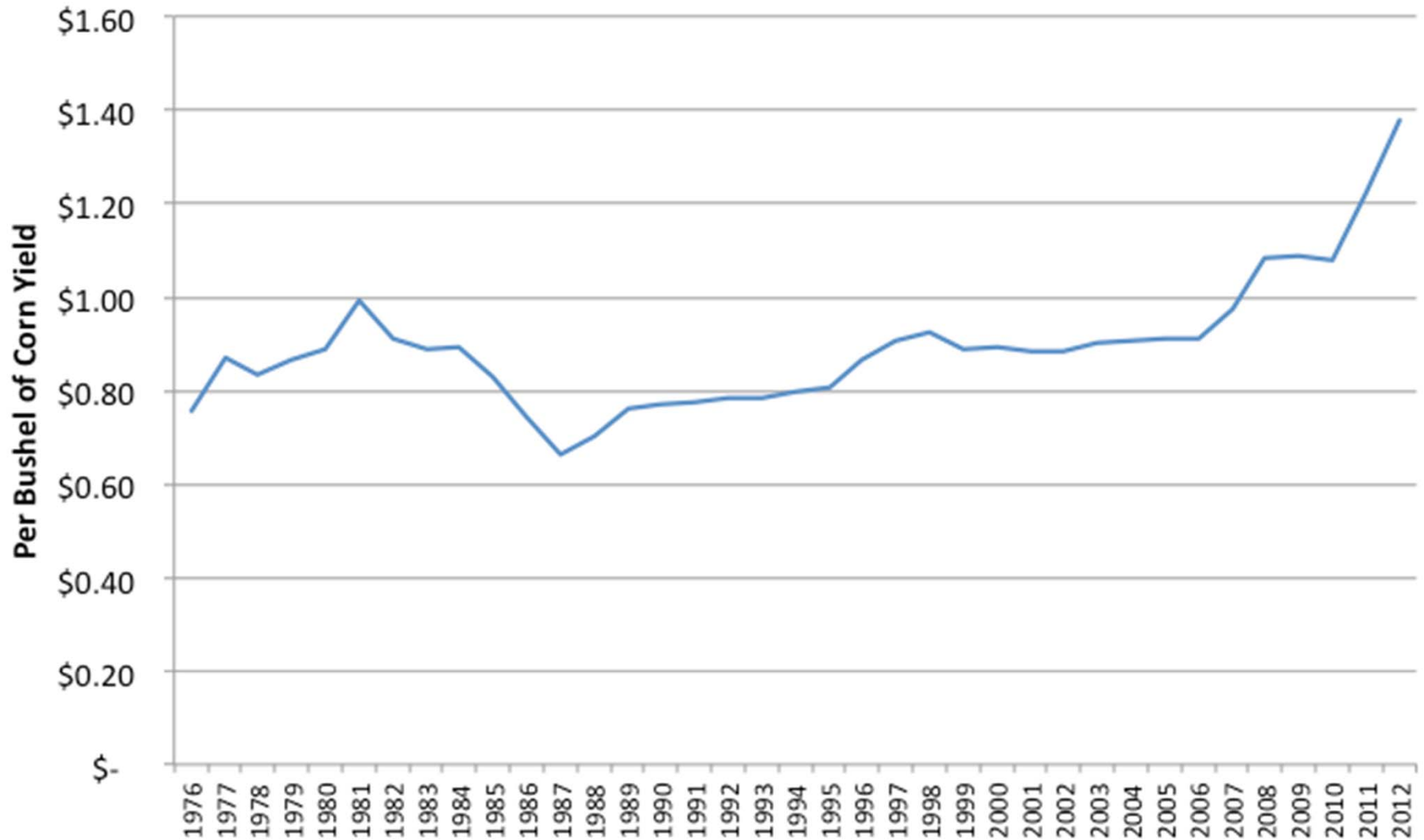
# Renewable Fuel Standard (2007-2022)



## Percent of Revenue to Various Inputs, HQ IN Farmland, 1991-2011



## Cash Rent per Bushel of Corn Yield, High Quality IN Farmland, 1976-2012



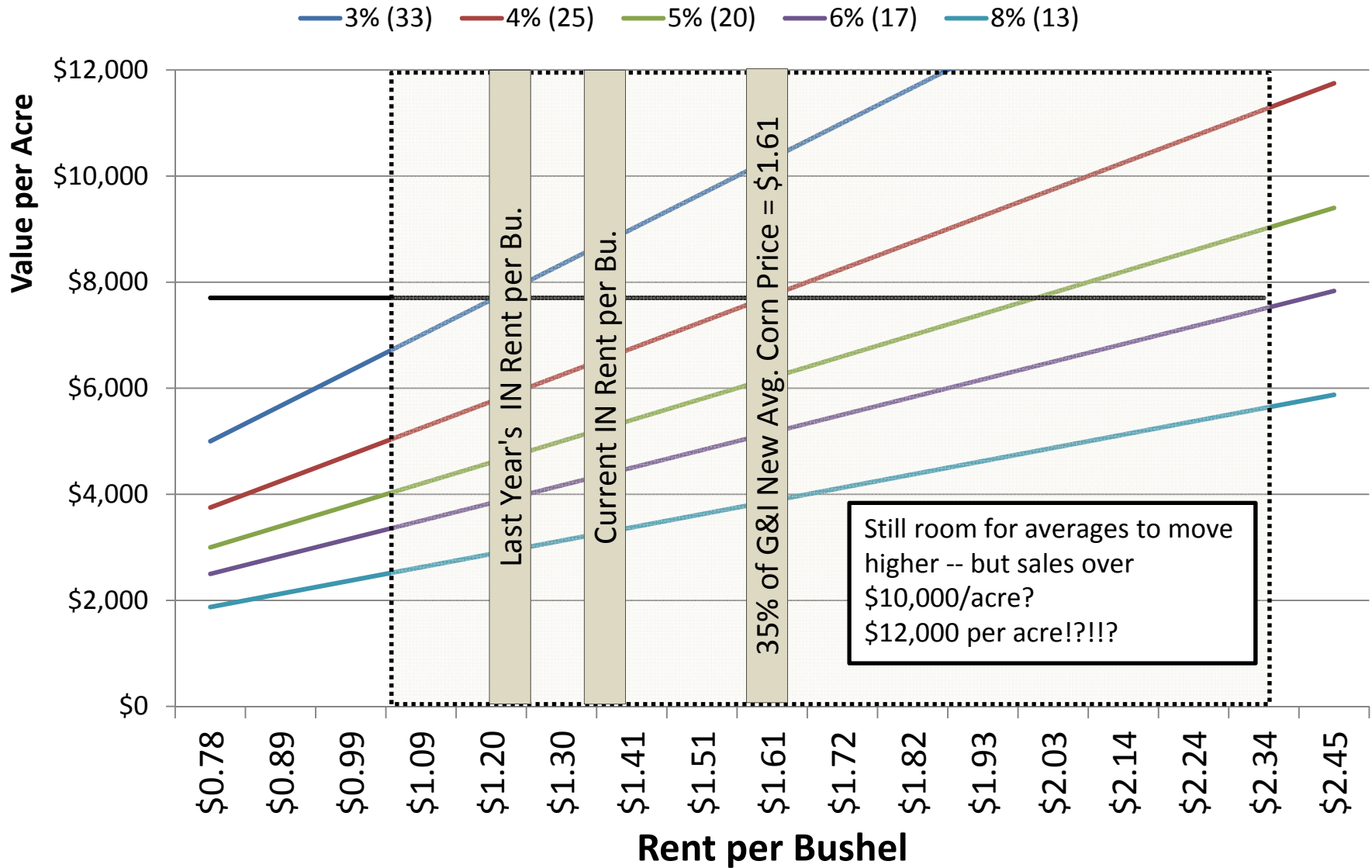
# So What About Corn Prices?

- Darrel Good and Scott Irwin forecast the new plateau prices as follows:

	Corn	Soybeans	Wheat
Post Dec 2006 Monthly Price	-----\$'s per Bushel-----		
Average	4.60	11.50	5.80
High	6.70	19.10	10.15
Low	3.00	8.20	3.30

SOURCE: Good, D. and S. Irwin. "The New Era of Corn, Soybean, and Wheat Prices." Marketing and Outlook Briefs, MOBR 08-04, September 2, 2008 Dept. of Agr. Cons. Econ, University of Illinois.

# Land Values Under Alternative Capitalization Rates (Multiples) and Rent per Bushel, HQ IN Farmland



Box captures I&G's price range if land receives 35% of gross revenue  
 Current yield = 192bpa, current rent = \$265/acre

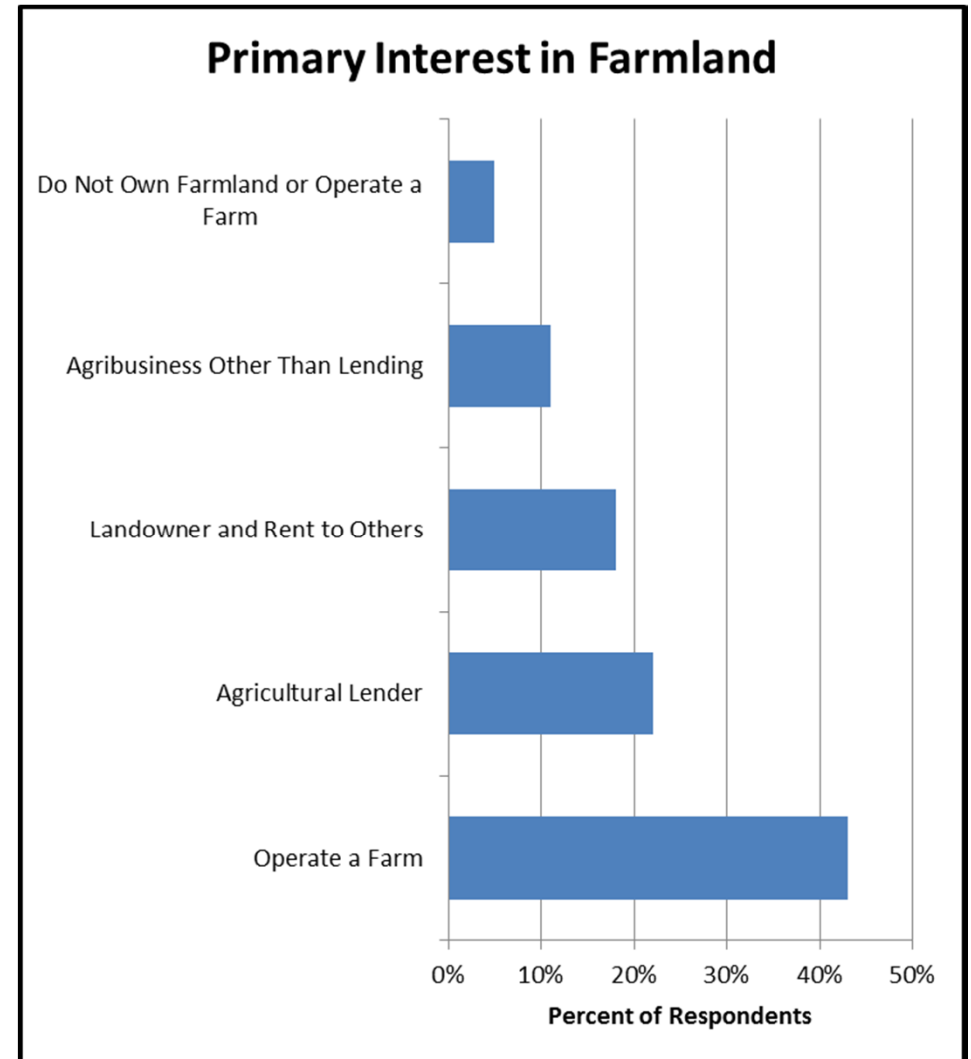


# What Do Landowners Think?

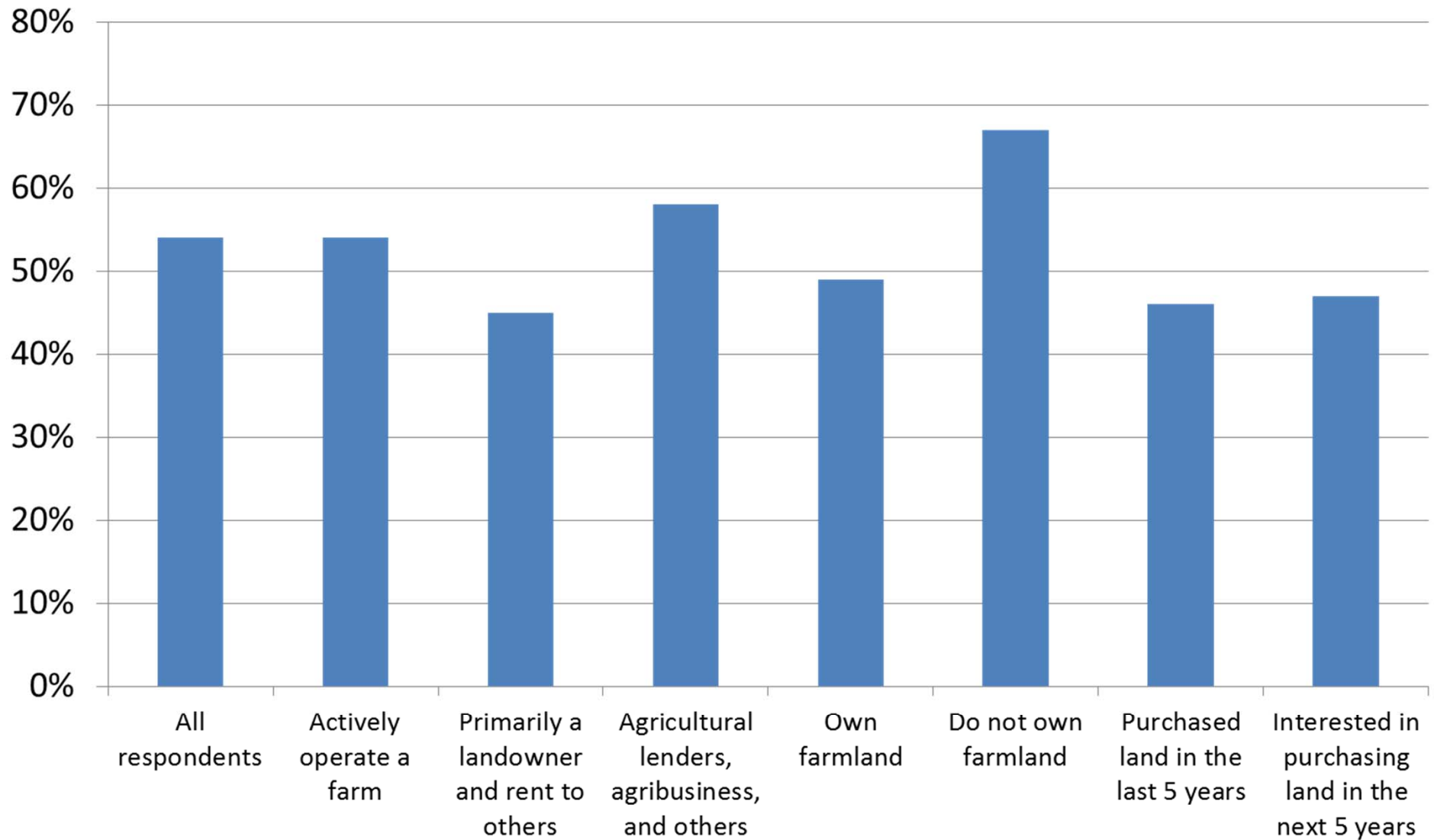
- Current values are dependent upon continuation of low interest rates and high farm returns over variable costs
- Conducted an internet survey in Spring 2012
  - What do farmland investors think about future
    - Farmland prices
    - Cash rents
    - Crop prices

# The Respondents

- Individuals in CCA database with interest in farmland and farming
- 246 complete responses (28%)
- 73% owned farmland
- 74% want to purchase more farmland in the next 5 years
- Median acres
  - owned = 500
  - rented from others = 1,200
  - rented to others = 240

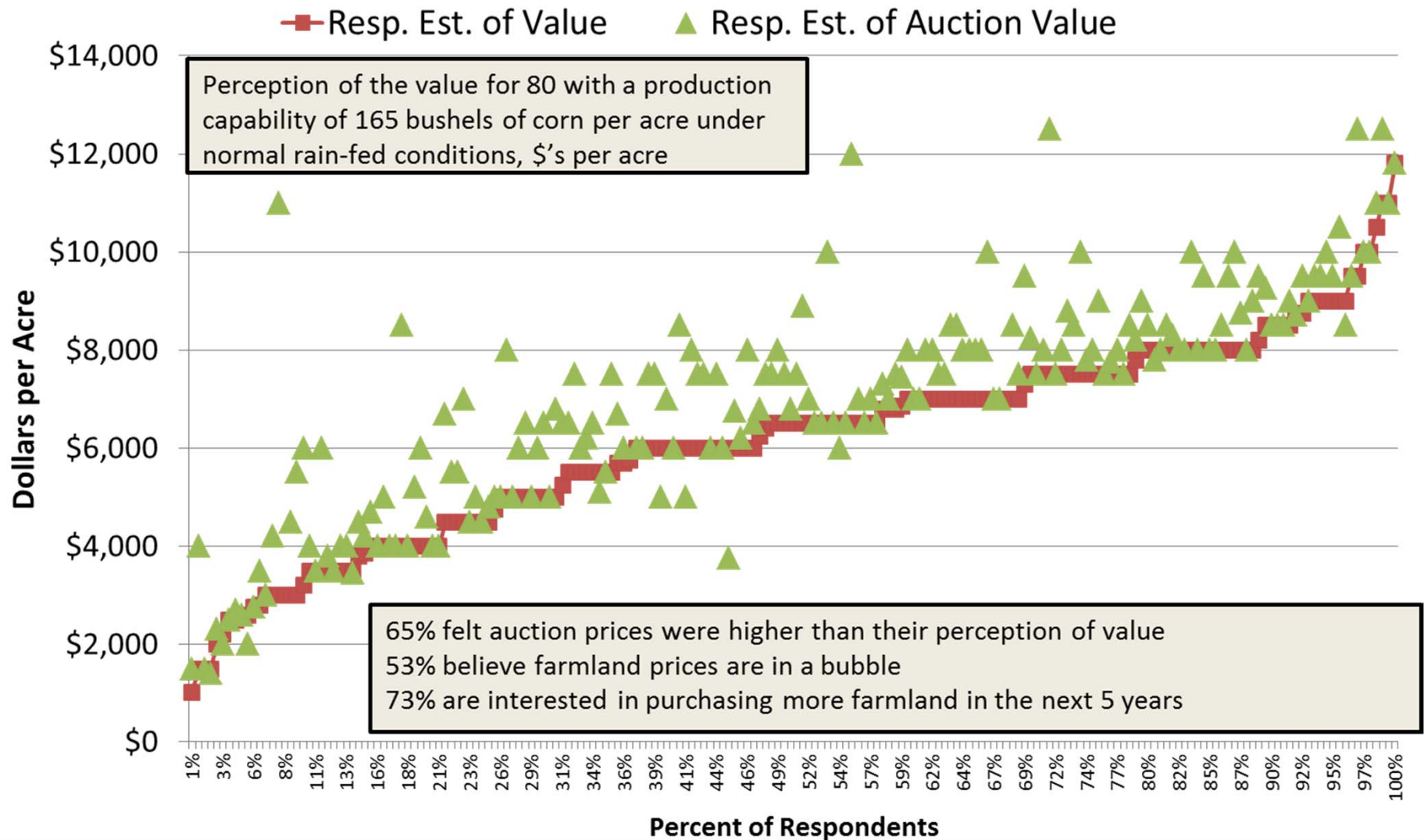


# Percent that Believe Prices are in a Bubble



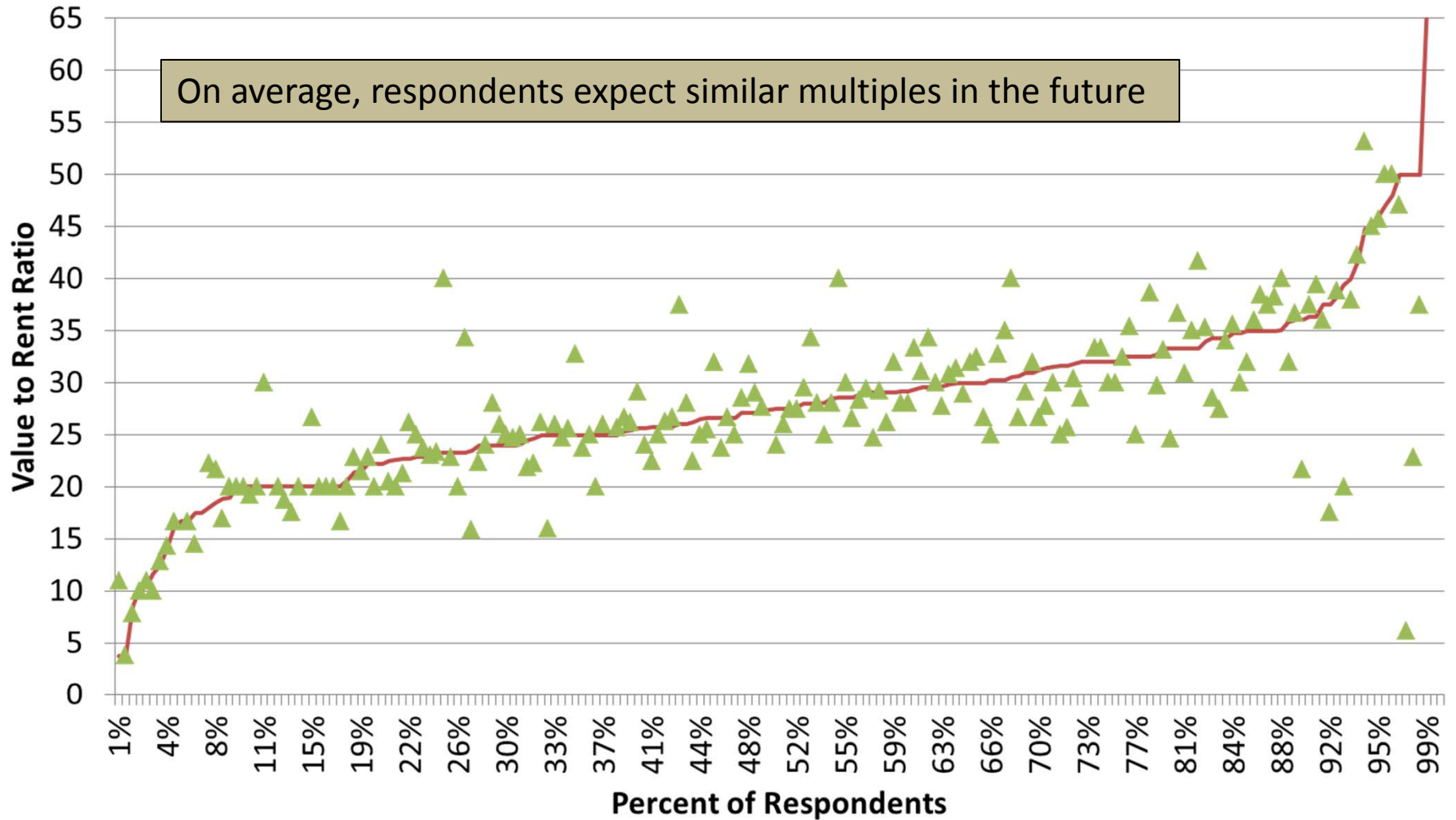
Respondents asked to consider:  
80 Acres of Farmland with a  
production capability of 165  
bushels of corn per acre under  
normal rain-fed conditions

# Estimates of Farmland Value and Price at Auction, 196 Respondents, Spring 2012

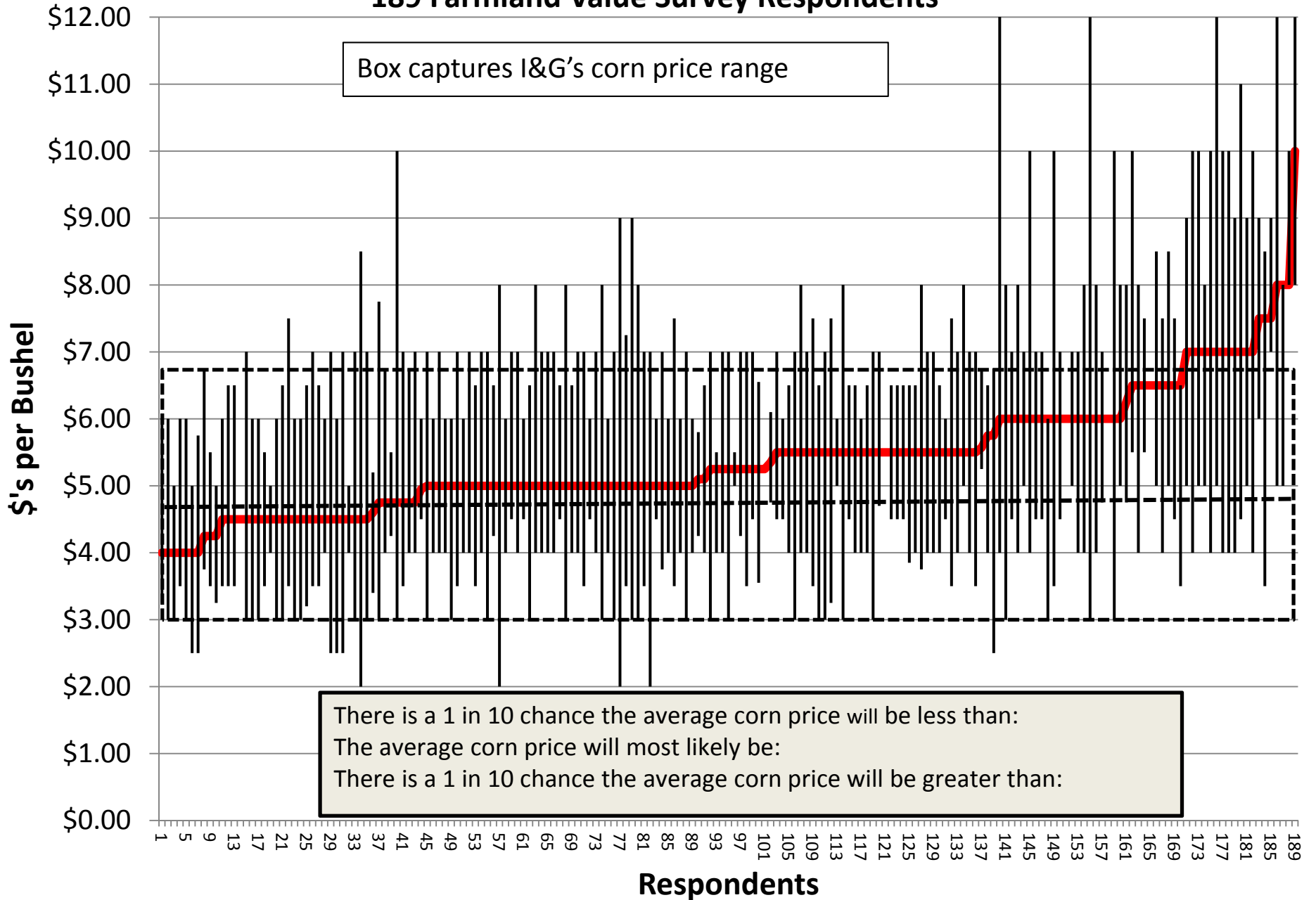


# Current and Implied Cash Rent Multiples

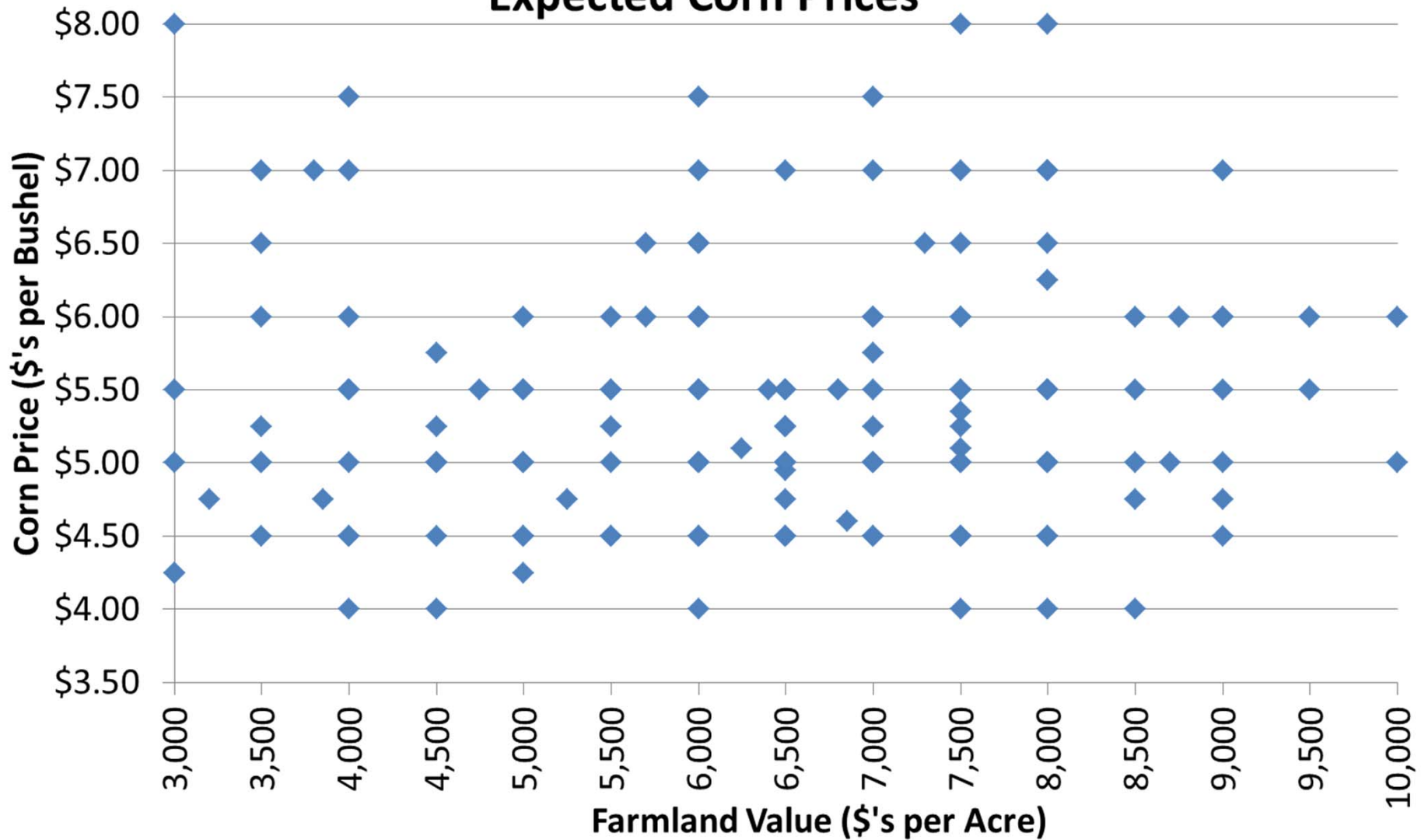
— Value-to-Rent Today      ▲ Implied Value-to-Rent in 5 Years



# Distribution of Expected Average Cash Corn Prices Over the Next 5 Years, 189 Farmland Value Survey Respondents



## Relationship Between Current Farmland Values and Expected Corn Prices

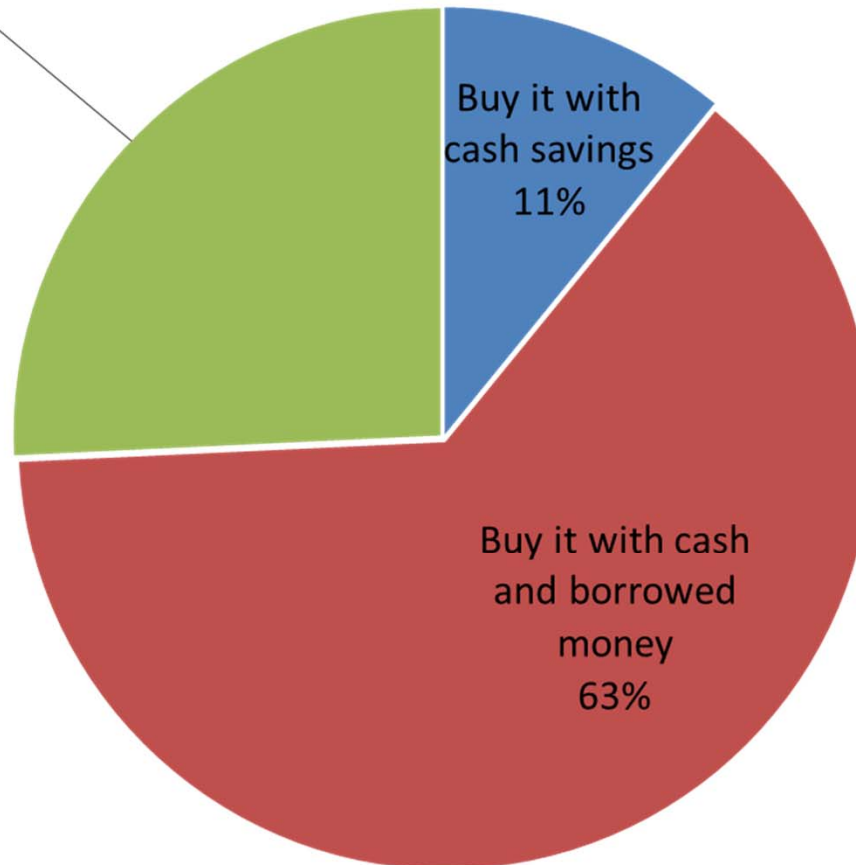


Almost no systematic relationship between perception of land value and expected corn prices



## How Respondents would Finance Additional 80 Acre Farmland Purchase

Buy with borrowed money and pledge additional farmland as collateral  
26%



Most would use some debt to fund additional purchases

# Summary

- Price increases are on par with most dramatic seen in the last 50 years
- Prices clearly reflect view that returns over variable costs stay high and rates stay low
- It is unlikely that farmland fits the classic economic definition of a bubble, but this does not rule out the possibility that prices could fall substantially
- Negative demand shock would create significant pressure on land prices

# Summary

Investors:

- Show cautious optimism about farmland investments
- Have some concern that market in a bubble
- Appear to be comfortable with multiples approaching 30 -- expect them to be maintained
- Expect corn prices to exceed \$5.00/bu on average
- Despite some warning signs investors appear to be rationally evaluating fundamentals
- Those with very optimistic views may push prices higher but there is obvious concern on part of others

# Final Thoughts

- The credit cycle will start to heat up – there will be significant pressure to finance rising land values
  - Many farmers have spectacular equity positions
  - Many new entrants and expansions will take place
- Land market should start to level off – if rates/fundamentals change watch the market closely

# Final Thoughts

- Tremendous volatility in the ag marketplace
- For crop farmers it has been all favorable
  - How good are you at managing risk? (It has been easy so far)
  - How exposed are you to other's risk management activities? Volatility creates winners and losers
  - How are you managing costs?
  - What about non-land capital investment?
  - When need for operating capital comes it will be substantial and much larger than before the boom

# Final Thoughts

- Times in row-crop are very good
  - It is conceivable they could get better
  - It is also conceivable they could be worse
  - It is very difficult to predict what takes us out of this cycle, but credit can magnify the outcome either way
- How favorable is the current risk/return tradeoff for farmland?