

# 2018 ISU Land Value Survey

Dr. Wendong Zhang

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ISU Alumni Center, Ames, Iowa

December 12, 2018

# A Quick Introduction: Dr. Wendong Zhang

- Grown up in a rural county in Shandong Province, China
- Attended college in Shanghai and Hong Kong
- Ph.D. in Ag Econ in 2015 from Ohio State
- 2012 summer intern at USDA-ERS on farm economy and farmland values
- Research and extension interests:

**land value/ownership** <https://www.card.iastate.edu/farmland>  
agriculture and the environment

**ISU China Ag Center (+ CAAS)** <https://www.card.iastate.edu/china>



## My Hometown: Shenxian, Shandong Province





# ISU Land Value Survey – How to Interpret

- It is an opinion survey
- It is an expert opinion survey: respondents - ag professionals
- The first of its sort in the nation started 1941
- The only survey that offers county-level land value estimates since 1950
- It is not designed to value individual parcels
- The percent change is more important than the actual dollar amount, and when comparing across surveys, compare their percent change
- To value individual parcels – consult appraisers or comparable sales

# Number of Respondents and Responses by District and Mode, 2018

	Responses			Respondents		
	Paper	Online	Total	Paper	Online	Total
	PERCENT		Number	PERCENT		Number
<b>Northwest</b>	35	65	103	34	66	80
<b>North Central</b>	43	57	98	41	59	76
<b>Northeast</b>	29	71	103	34	66	85
<b>West Central</b>	33	67	82	36	64	70
<b>Central</b>	35	65	96	36	64	75
<b>East Central</b>	39	61	88	42	58	72
<b>Southwest</b>	39	61	64	44	56	52
<b>South Central</b>	27	73	86	33	67	63
<b>Southeast</b>	33	67	73	25	75	51
<b>STATE</b>	<b>35%</b>	<b>65%</b>	<b>793</b>	<b>36</b>	<b>64</b>	<b>624</b>

# Survey Respondents by Occupation, 2018

	Farm manager	Appraiser	Ag lender	Broker/Realtor	Farmer /Landowner	Government	Other
	PERCENT						
Northwest	14	8	44	18	6	5	5
North Central	12	9	41	19	12	1	5
Northeast	9	10	54	11	5	4	8
West Central	13	15	40	15	3	0	15
Central	14	14	37	18	7	1	10
East Central	10	9	40	19	10	1	10
Southwest	13	10	46	12	10	4	6
South Central	7	10	34	28	11	3	7
Southeast	8	14	43	10	10	0	14
STATE	11	11	42	17	8	2	9

# Experience and Service Area by Occupation

Crop reporting district	Years of experience	Number of counties served	Occupation	Years of experience	Number of Counties Served
Northwest	27	6	Farm manager	23	9
North Central	29	7	Appraiser	25	16
Northeast	21	7	Ag lender	22	4
West Central	21	10	Brokers/Realtor	27	15
Central	27	15	Farmer/Landowner	42	5
East Central	24	6	Government	21	2
Southwest	26	5	Other	26	4
South Central	25	11			
Southeast	25	8			
STATE	25	9	STATE	25	9

# STATEWIDE AVERAGE

\$7,264

Nov 2018



down 0.8%  
down \$62



# HIGH QUALITY LAND

\$8,863

Nov 2018



down 0.7%  
down \$70

# MEDIUM QUALITY LAND

\$6,805

Nov 2018



down 0.7%  
down \$44

# LOW QUALITY LAND

\$4,609

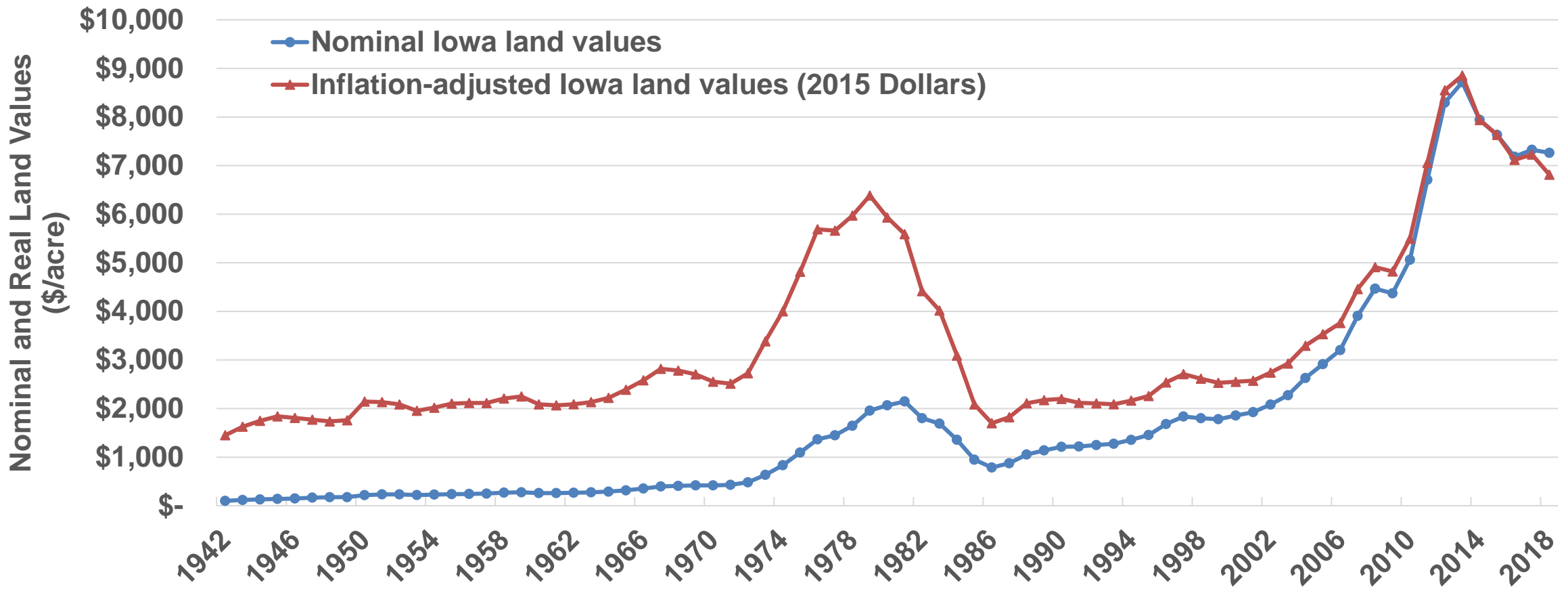
Nov 2018



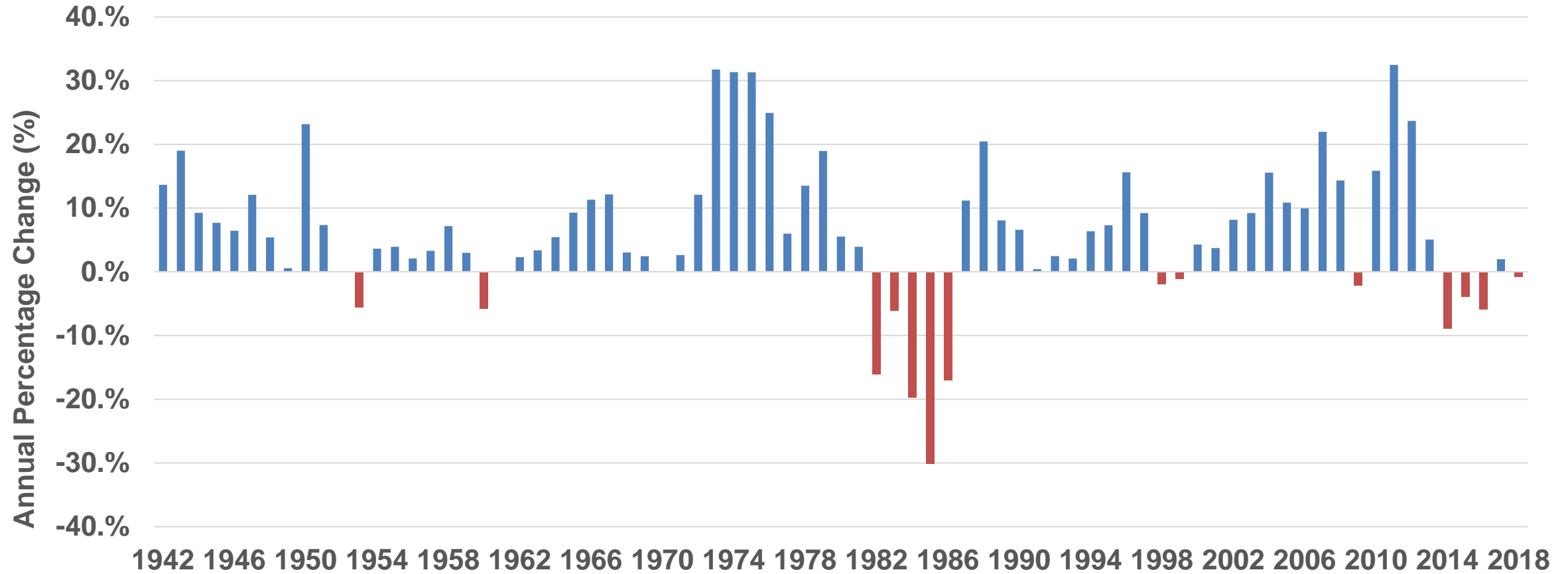
down 1.7%  
down \$80

# AVERAGE VALUES

all farmland 1942–2018



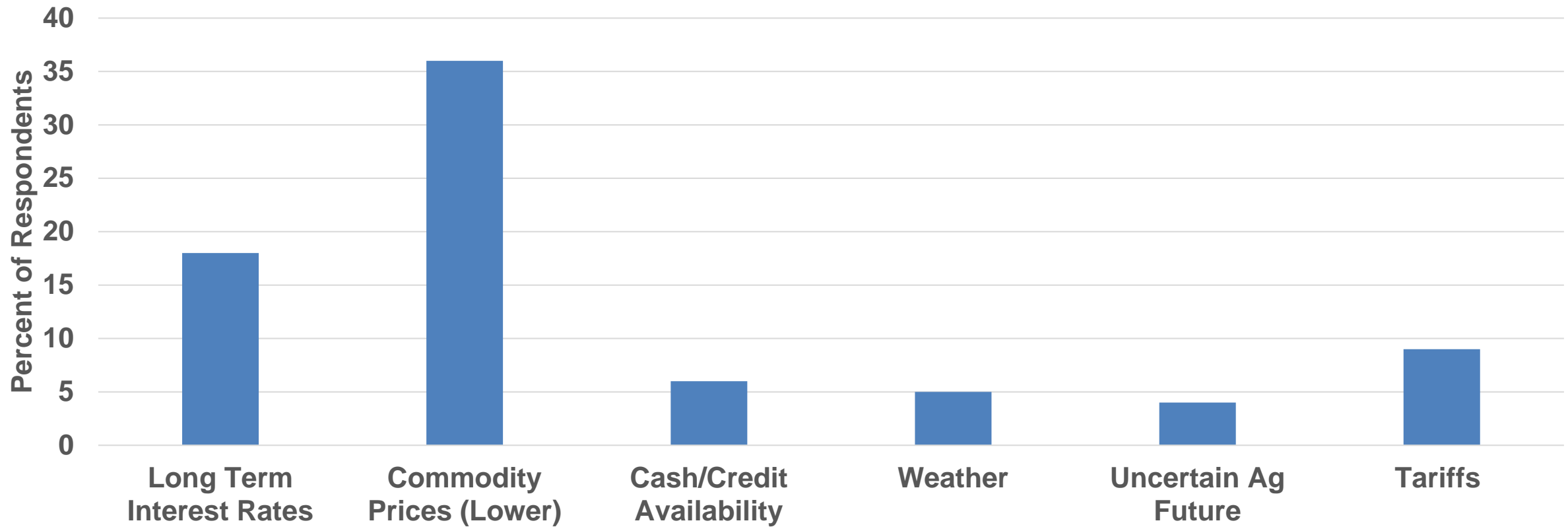
# % Change in Nominal Iowa Farmland Values 1942-2018





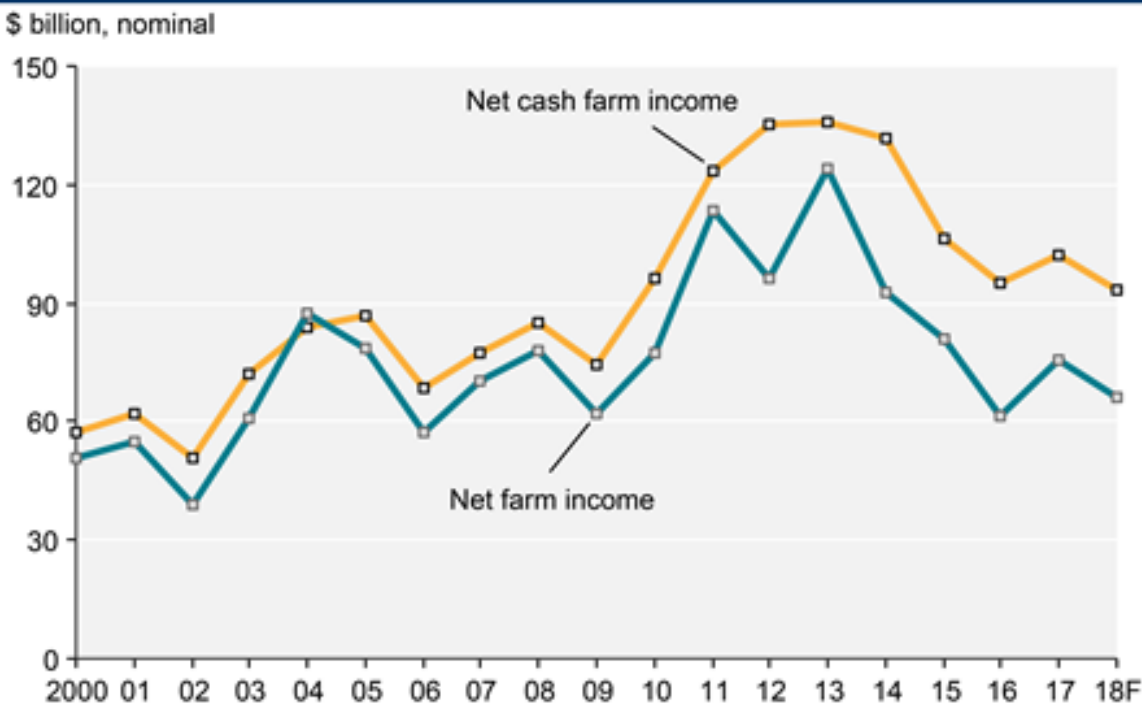
# Major Negative Factors Affecting Iowa Farmland Market, 2018

Negative Factors, 2018 (Percent)



# Lower farm income and higher interest rates put downward pressures on land values

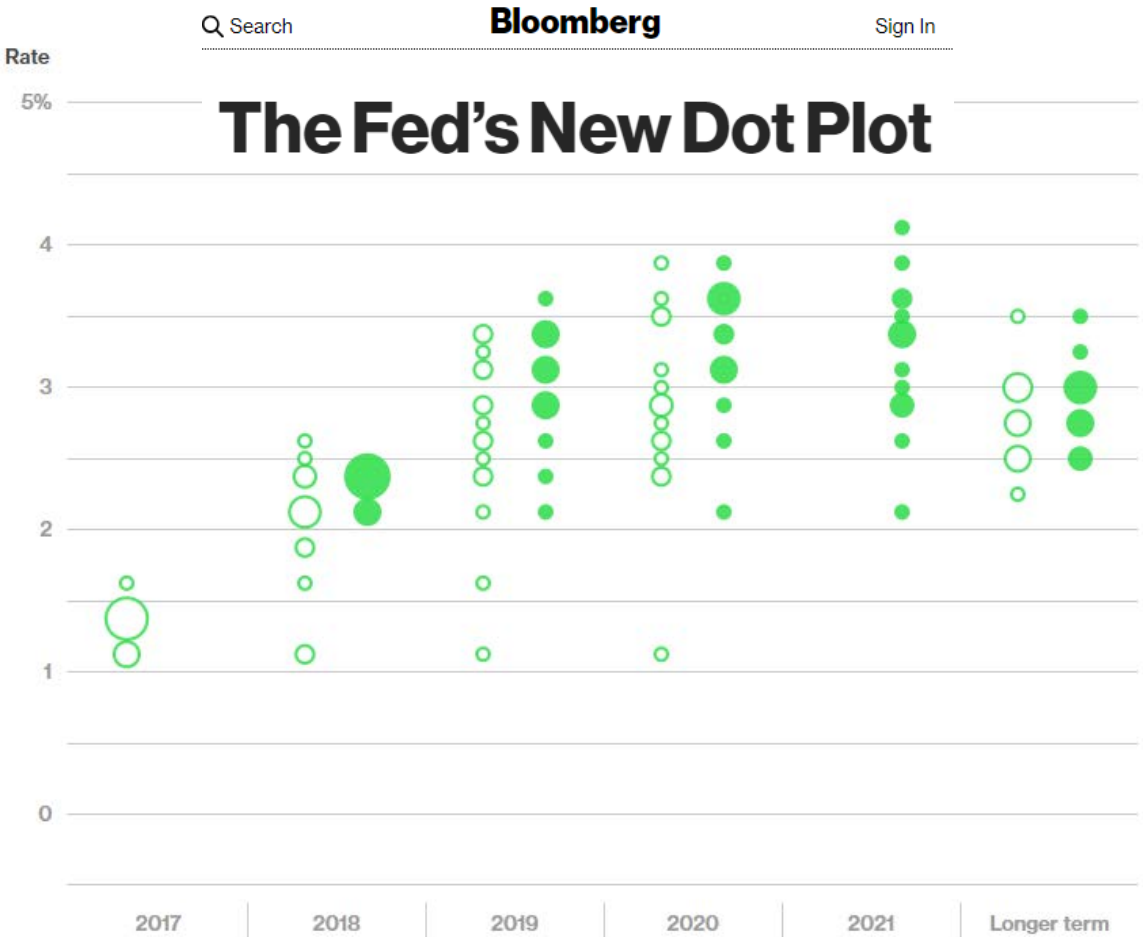
Net farm income and net cash farm income, 2000-18F



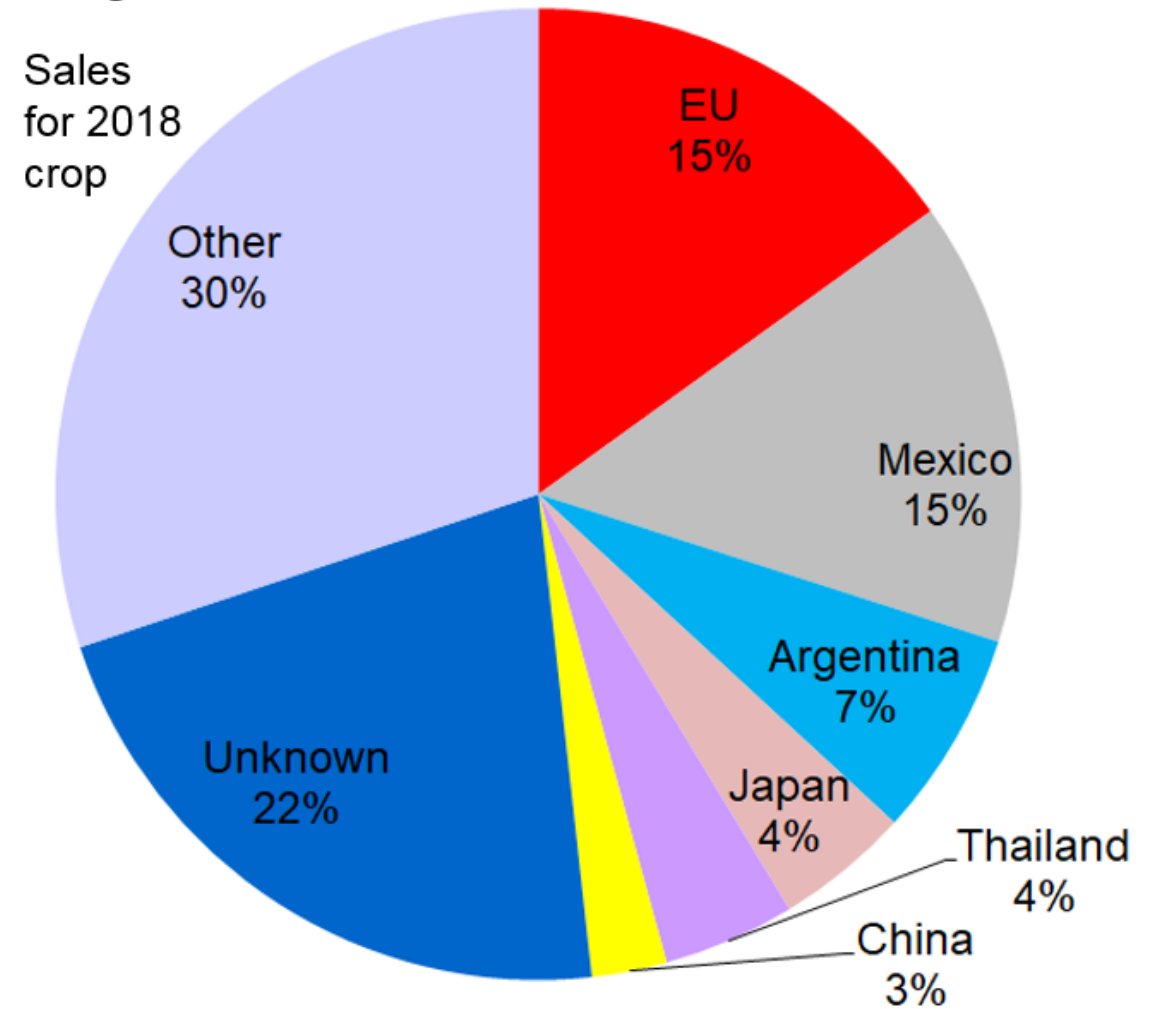
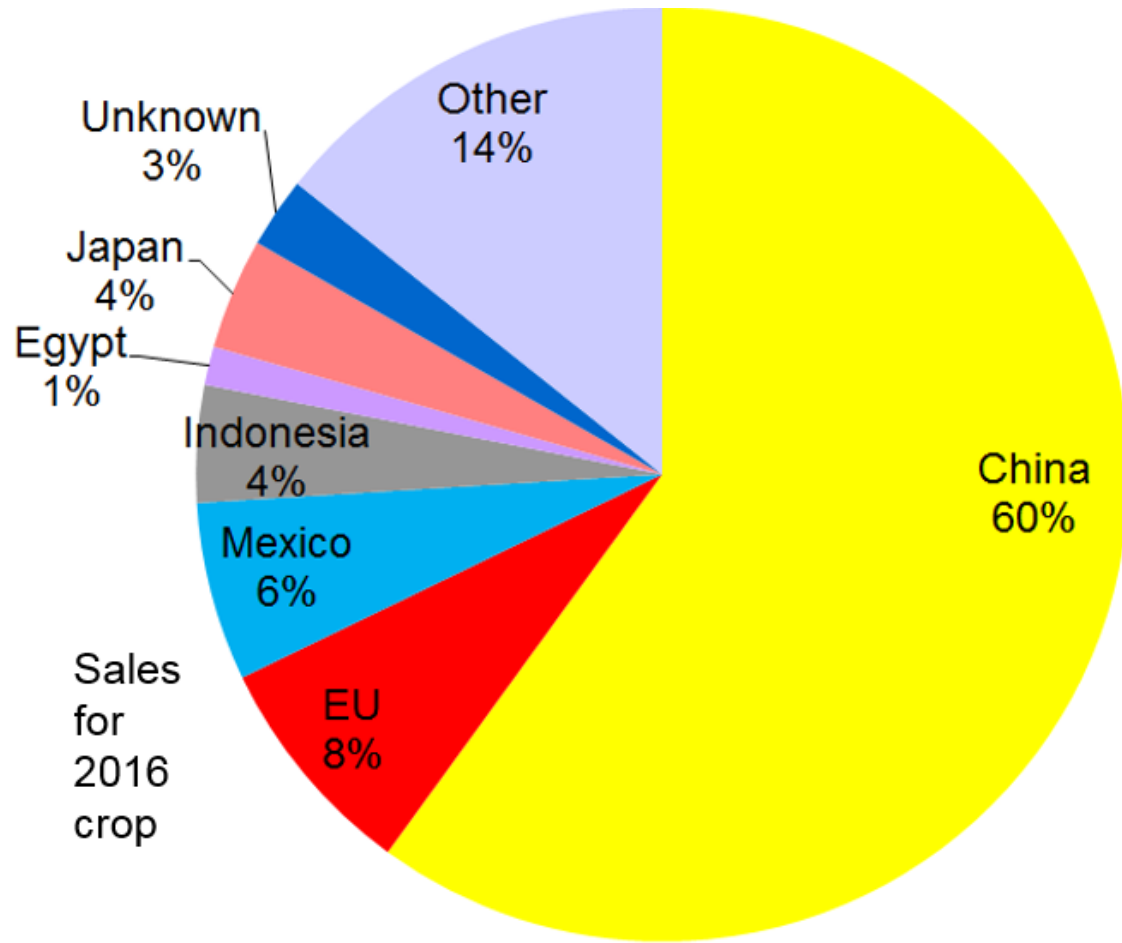
Note: F = forecast.  
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.  
Data as of November 30, 2018.

Compare projections between: Sep 2017 and Sep 2018

4 16 Number of governors voting Older/newer projection Median of projections



# Soybean Export Market Share (2016 vs. 2018)



September 2018  
18-PB 25

## The Impact of the 2018 Trade Disruptions on the Iowa Economy

- Overall losses in **Iowa's Gross State Product** are calculated to be \$1 to \$2 billion (off of a Gross State Product of \$190 billion).
- Overall losses to Iowa's **Soybean** industry of \$159 to \$891 million, with an average revenue loss across all models of \$545 million (Iowa soybeans are a \$5.2 billion industry).
- Overall losses to Iowa's **Corn** industry of \$90 to \$579 million, with an average revenue loss across all models of \$333 million (Iowa corn is an \$8.5 billion industry).
- Overall losses to Iowa's **Pork/Hog** industry of \$558 to \$955 million, with an average revenue loss across all models of \$776 million (the Iowa pork/hog industry is a \$7.1 billion industry).
- A 2% drop in **Ethanol** prices resulting in approximately \$105 million in lost revenues to Iowa ethanol producers.
- Revenue losses in these industries translate into **additional lost labor income** across the state. Labor income declines from the impacts to the corn, soybean, and hog industries range from \$366 to \$484 million without federal offsets and \$245 to \$364 million with federal offsets.
- Iowa **tax revenue losses** (personal income and sales taxes) range from \$111 to \$146 million. Federal offsets would reduce tax losses to \$75 to \$110 million.



 TicToc by Bloomberg   
@tictoc

The U.S.-China trade war is on hold after Trump and Xi agreed not to introduce new tariffs for 90 days

♡ 40 10:22 AM - Dec 2, 2018



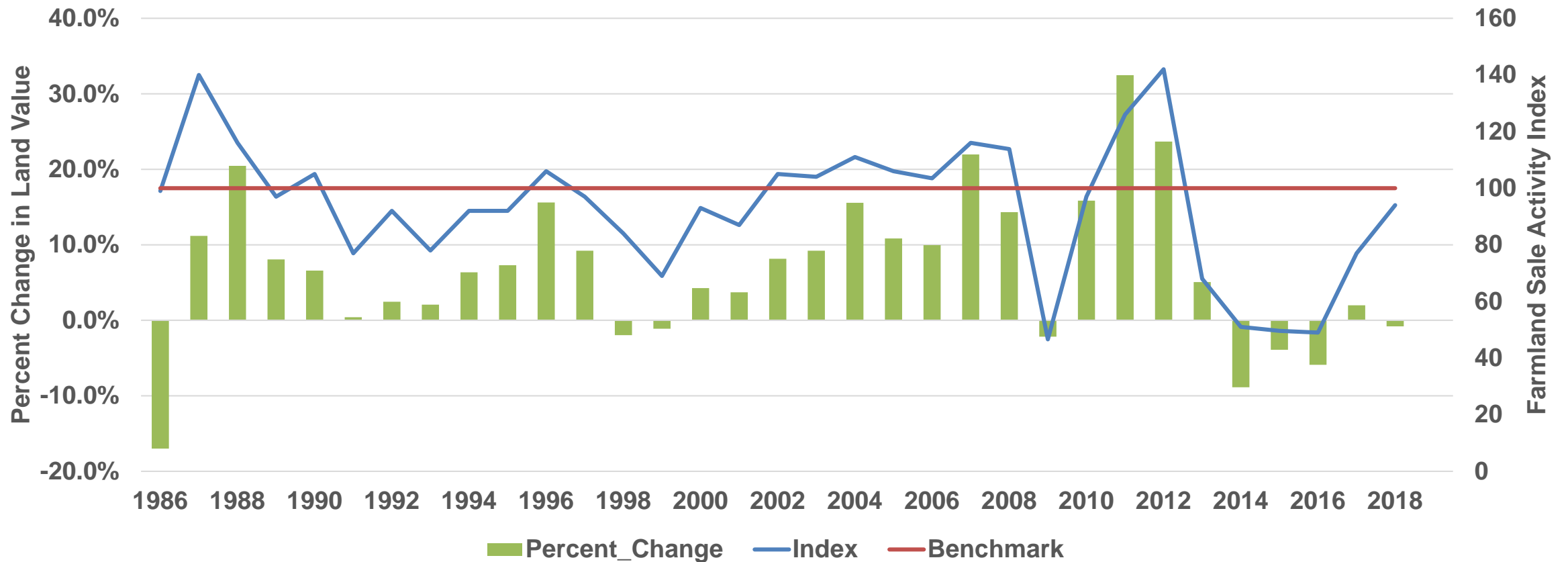
# Major Positive Factors Affecting Iowa Farmland Market, 2018

Positive Factors, 2018 (Percent)

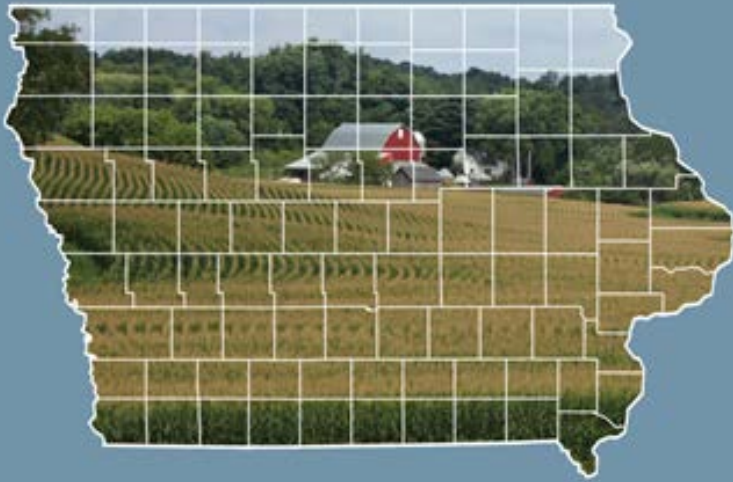




# Limited land supply still a key factor holding up land values



Iowa Farmland Ownership and  
Tenure Survey, 1982-2017:  
**A Thirty-Five Year Perspective**



FM 1883 - August 2018

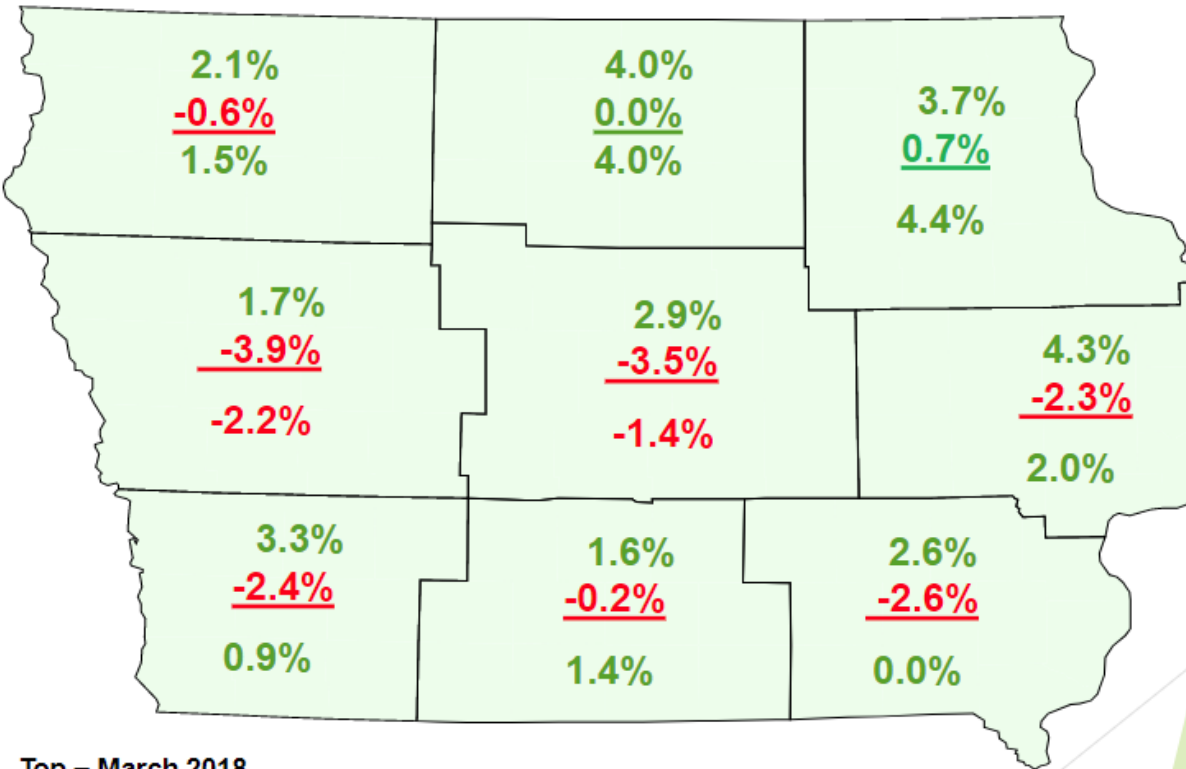
IOWA STATE UNIVERSITY  
Extension and Outreach

- **82% of Iowa land is debt-free**
- 60% of land owned by owners 65+ years old, one-third of land owned by 75+ years old, 13% of land owned by women landowner 80+ years old
- Ownership continues to shift from sole ownership to trusts and corporations
- **53% of Iowa land rented out – mainly cash rent**
- 34% of Iowa land owned by landlords with no farming experience, 23% of land owned by retired farmers who do not currently farm
- **29% of Iowa land owned primarily for family/sentimental reasons**

(\$5 each print copy!)

<https://store.extension.iastate.edu/product/6492>

# ISU Survey Results Echo Other Surveys

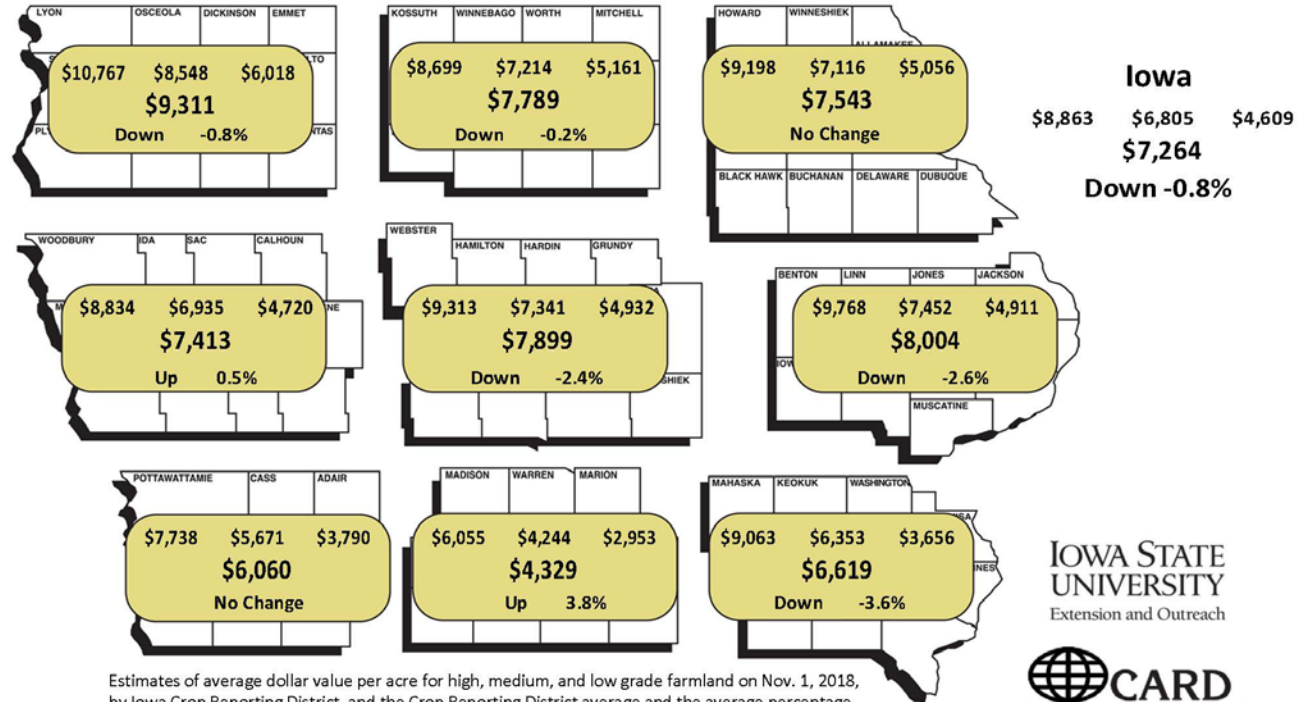


Top – March 2018

Bottom – September 2018

Nine Crop Reporting Districts

## 2018 Iowa Land Values by Crop Reporting District



Estimates of average dollar value per acre for high, medium, and low grade farmland on Nov. 1, 2018, by Iowa Crop Reporting District, and the Crop Reporting District average and the average percentage change from Nov. 1, 2017. The estimates are based on a survey conducted by Iowa State University, Center for Agricultural and Rural Development and Iowa State University Extension and Outreach.

IOWA STATE  
UNIVERSITY  
Extension and Outreach

 **CARD**  
Center for Agricultural  
and Rural Development

REALTORS® Land Institute –  
Iowa Chapter







September 2018 Land Value Survey

 **CARD**  
Center for Agricultural and Rural Development

## Dollars per Acre and Percent Change from 2017



**\$/Acre**

	more than 8,000
	5,701 - 8,000
	3,601 - 5,700
	2,601 - 3,600
	2,600 or less
	NP

**\$/Acre**

- more than 8,000
- 5,701 - 8,000
- 3,801 - 5,700
- 2,801 - 3,800
- 2,600 or less
- NP

**United States**  
4,130  
1.0%

**NC = No Change**  
**NP = Not Published due to insufficient reports**

**USDA - NASS August 2, 2018**

State	2018 Yield (bushels/acre)	% Change
AK	2,920	1.0%
CA	11,740	4.0%
CO	2,930	2.4%
CT	2,600	0.8%
DE	8,300	2.5%
FL	6,810	0.9%
GA	3,420	NC
IA	4,800	NC
ID	2,000	NC
IL	7,450	1.4%
IN	6,700	NC
KS	2,010	2.0%
LA	2,830	3.3%
MA	12,900	-0.8%
MD	6,620	1.4%
ME	7,200	NC
MI	5,150	-1.0%
MN	4,350	-2.2%
MO	4,540	-0.2%
MS	3,710	1.9%
MT	2,000	NC
NE	3,270	-1.8%
NH	2,600	0.8%
NJ	12,900	-0.8%
NM	1,030	1.0%
NY	6,260	4.3%
OH	5,850	1.2%
OK	2,010	2.0%
OR	3,520	3.5%
PA	4,460	-0.4%
RI	2,600	0.8%
SC	3,080	2.7%
SD	2,850	2.2%
TN	3,880	0.8%
TX	2,100	4.5%
UT	1,480	NC
VA	3,990	0.5%
VT	2,600	0.8%
WA	2,920	1.0%
WI	8,100	NC
WY	1,810	4.0%

OS includes CT, MA,  
ME, NH, RI, VT

OS  
7,200  
NC

<b>NJ</b>
12,900
-0.8%
<b>DE</b>
8,300
2.5%
<b>MD</b>
6,620
1.4%

NC = No Change  
NP = Not Published due  
to insufficient reports



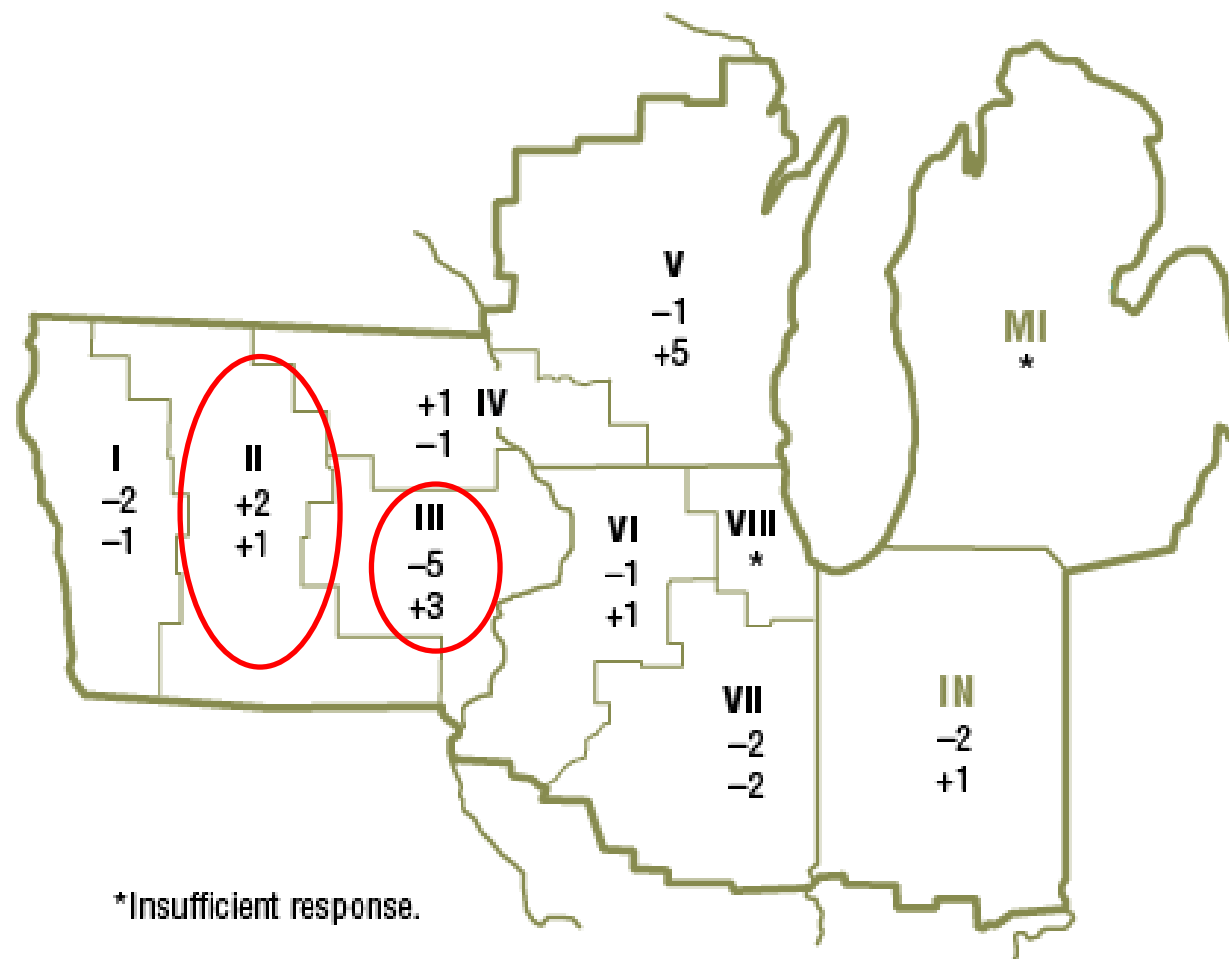
# ISU Survey Results Echo Other Surveys

## Percent change in dollar value of “good” farmland

*Top:* July 1, 2018 to October 1, 2018

*Bottom:* October 1, 2017 to October 1, 2018

	July 1, 2018 to October 1, 2018	October 1, 2017 to October 1, 2018
Illinois	-1	-1
Indiana	-2	+1
Iowa	-1	+1
Michigan	*	*
Wisconsin	-1	+4
Seventh District	-1	+1



\*Insufficient response.



# Indiana and Illinois both show recent declines

		% Change		
		6/17-6/18	6/17-12/17	12/17-6/18
		%	%	%
Indiana	Top	1.6%	1.7%	-0.1%
	Average	2.1%	2.5%	-0.4%
	Poor	2.4%	3.1%	-0.7%
	Transition <sup>2</sup>	19.1%	15.1%	3.5%
	Recreation <sup>3</sup>	-4.9%	-4.4%	-0.5%

## 2018 Illinois Land Values

Table 1. Estimates of Land Price, Beginning & Ending of 2017

Productivity	Date		Percent Change
	Jan. 1, 2017	Dec. 31, 2017 \$ per acre	
Excellent	11,000	10,600	-4%
Good	9,600	9,100	-5%
Average	7,900	7,600	-4%
Fair	5,900	5,800	-2%

**2018 INDIANA FARMLAND VALUES  
UP, DOWN, & SIDEWAYS**

# Land Values by District and Quality, Nov 2018

District	Average Value	% Change	High Quality	% Change	Medium Quality	% Change	Low Quality	% Change
Northwest	\$9,311	-0.8%	\$10,767	-0.6%	\$8,548	-0.1%	\$6,018	-3.2%
North Central	\$7,789	-0.2%	\$8,699	-0.4%	\$7,214	-0.1%	\$5,161	-2.0%
Northeast	\$7,543	0.0%	\$9,198	0.5%	\$7,116	-1.7%	\$5,056	1.8%
West Central	\$7,413	0.5%	\$8,834	-0.5%	\$6,935	1.6%	\$4,720	0.8%
Central	\$7,899	-2.4%	\$9,313	-2.7%	\$7,341	-1.1%	\$4,932	-1.2%
East Central	\$8,004	-2.6%	\$9,768	-1.3%	\$7,452	-2.9%	\$4,911	-7.4%
Southwest	\$6,060	0.0%	\$7,738	2.2%	\$5,671	-1.5%	\$3,790	-3.7%
South Central	\$4,329	3.8%	\$6,055	2.5%	\$4,244	4.0%	\$2,953	4.6%
Southeast	\$6,619	-3.6%	\$9,063	-4.3%	\$6,353	-3.0%	\$3,656	-3.0%
Iowa Avg.	\$7,264	-0.8%	\$8,863	-0.8%	\$6,805	-0.7%	\$4,609	-1.7%

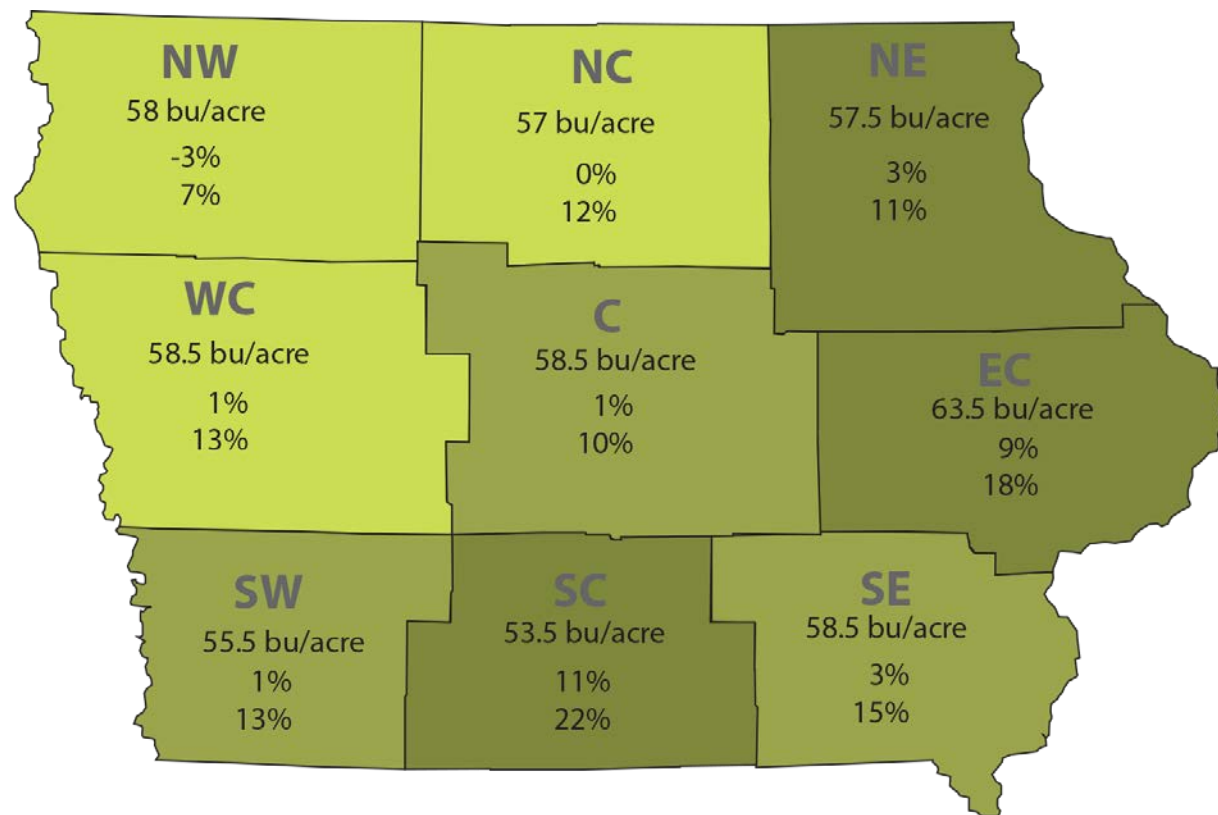
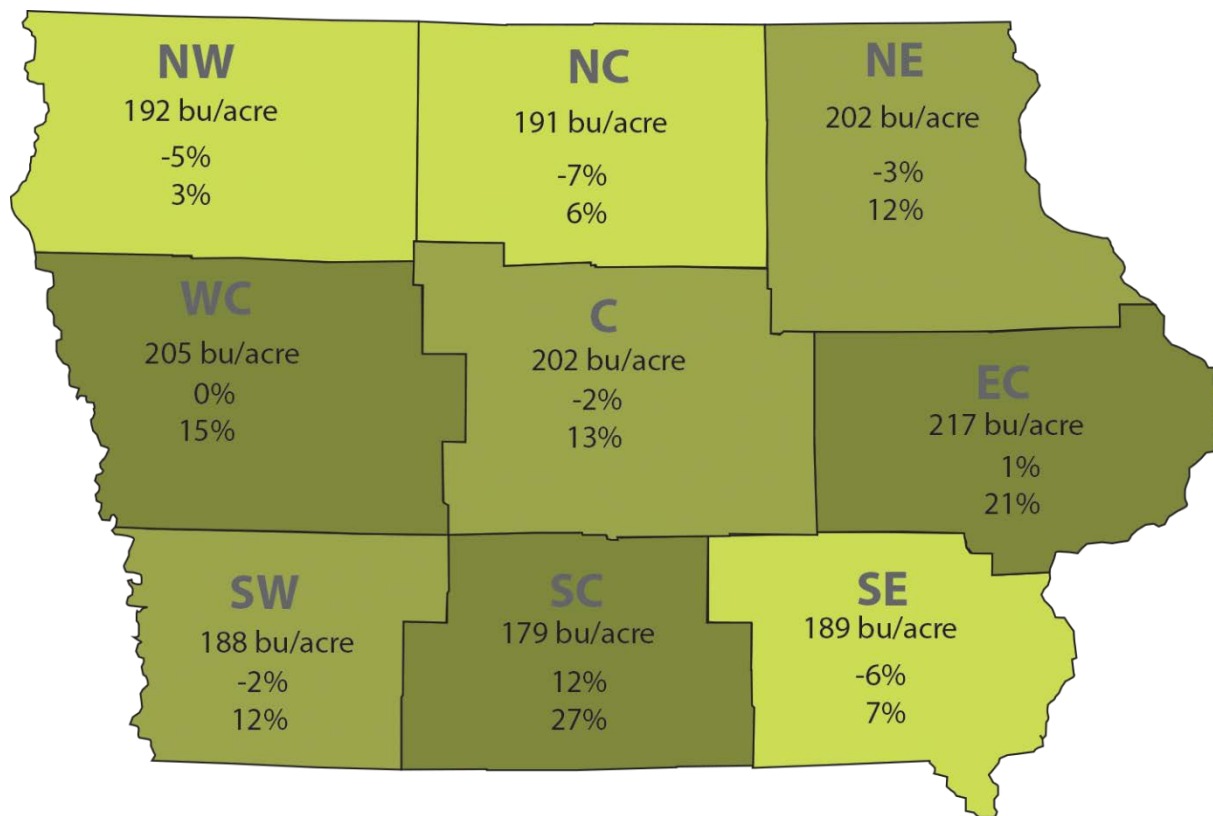
# Local Land Supply and Demand Explain Variations in Land Market

$$\text{Land Value} = \frac{\text{localized net income}}{\text{universal interest rate}}$$

# Livestock and Crop Inventory by Crop Reporting District

District	Livestock Inventory - 2012				Acres 2012		Harvested Acres 2017	
	Chickens, Layers	Hogs	Milk Cows	Cattle	Pasture	Timber	Corn	Soybean
Northwest	30%	26%	29%	22%	7%	2%	15%	16%
North Central	64%	16%	4%	6%	4%	4%	14%	13%
Northeast	1%	12%	51%	16%	11%	23%	12%	8%
West Central	0%	13%	1%	13%	10%	7%	15%	16%
Central	3%	13%	1%	7%	8%	8%	15%	14%
East Central	1%	5%	10%	11%	11%	14%	11%	10%
Southwest	0%	2%	0%	9%	12%	5%	8%	10%
South Central	0%	2%	1%	9%	25%	19%	4%	6%
Southeast	1%	11%	3%	6%	12%	19%	7%	8%
Iowa Total	52.2 million	20.4 million	0.17 million	3.8 million	2.5 million	1.2 million	12.9 million	10.0 million

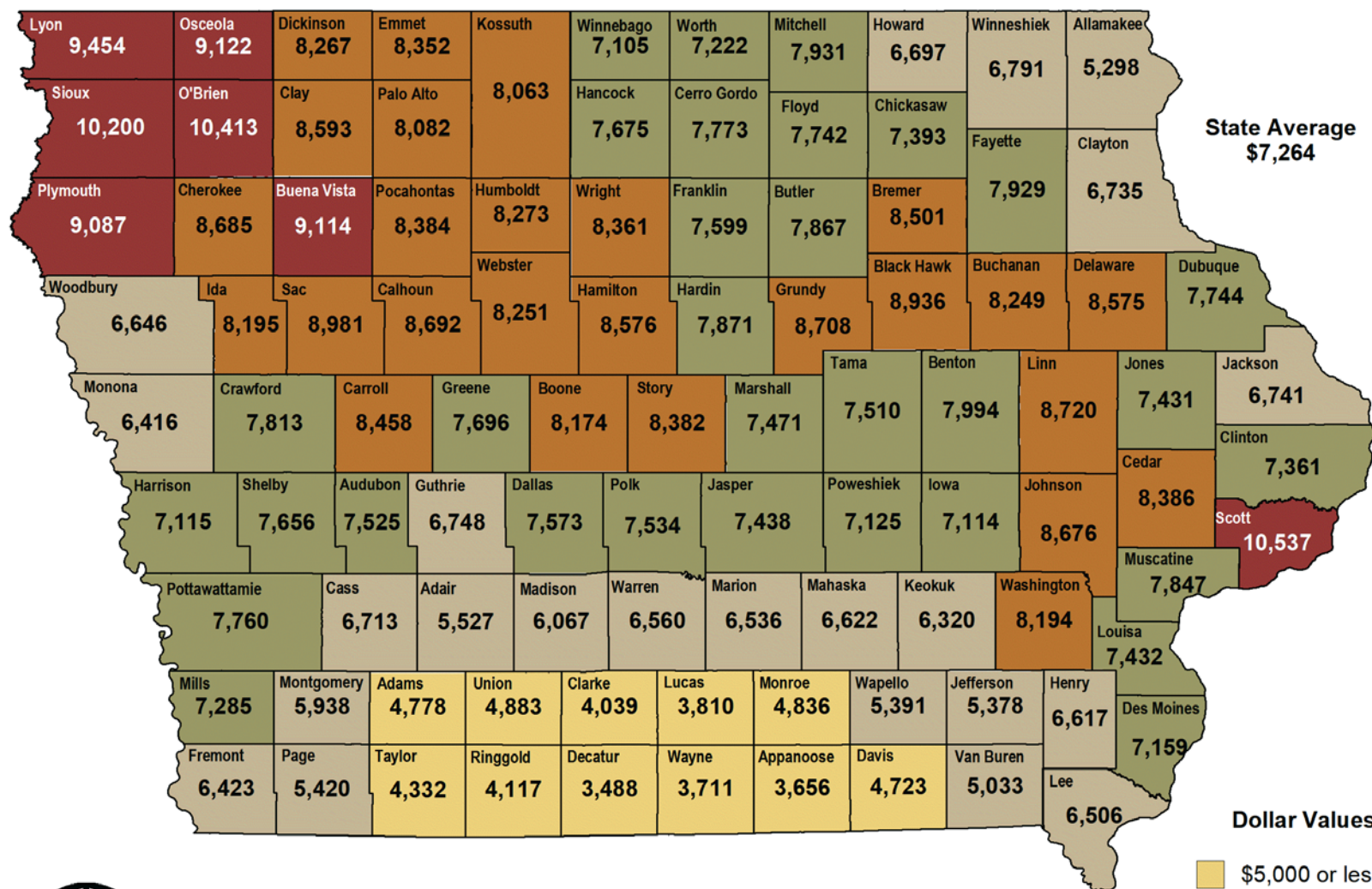
# Strong crop yields, especially for SC Iowa



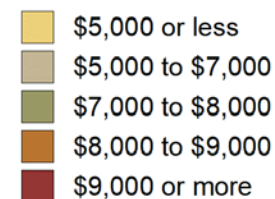


# Land Values by County, 2018

## 2018 Iowa Land Values

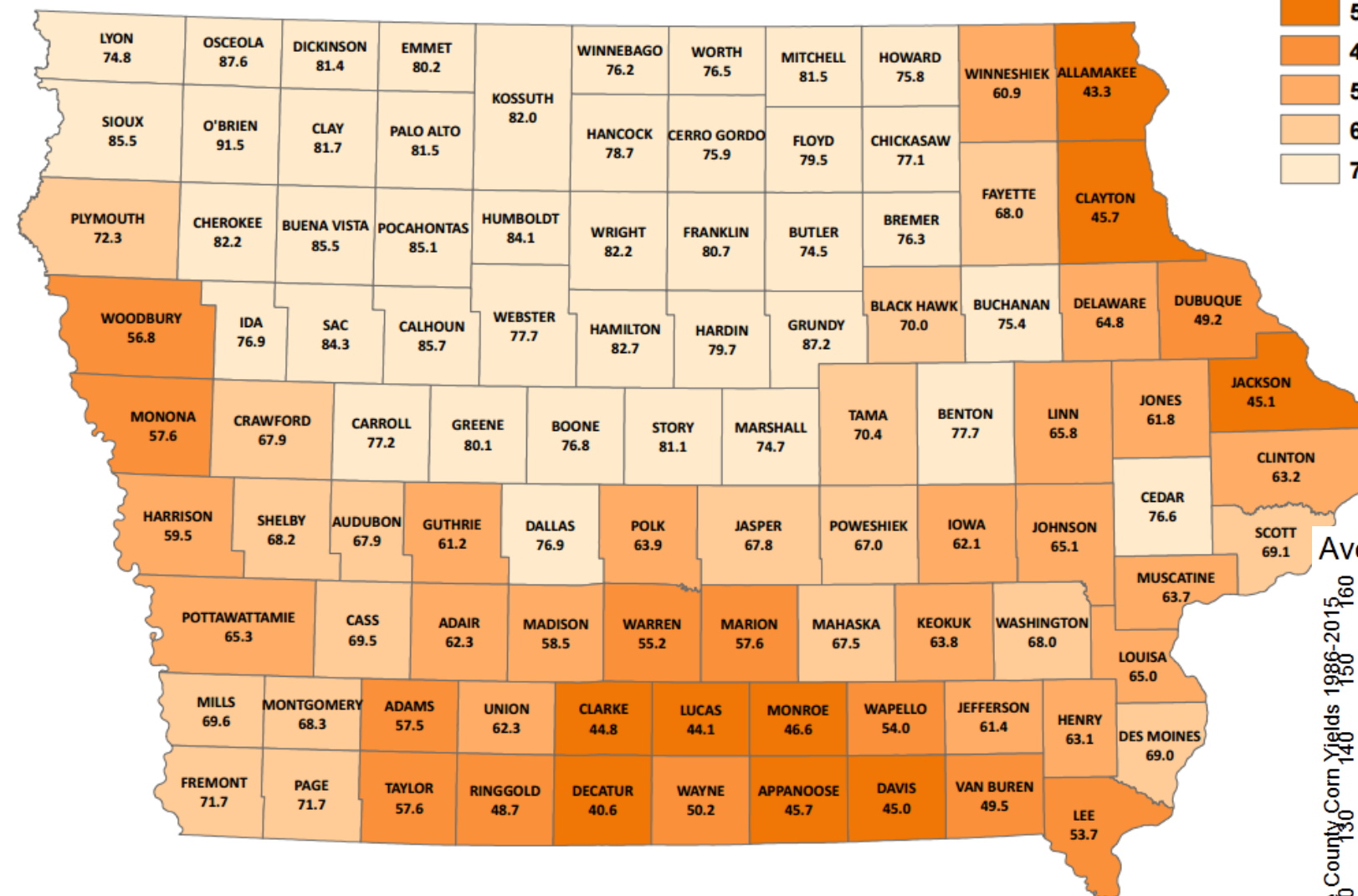
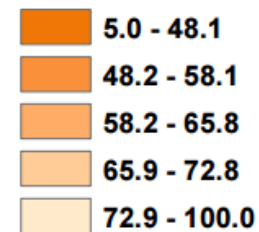


**Dollar Values**

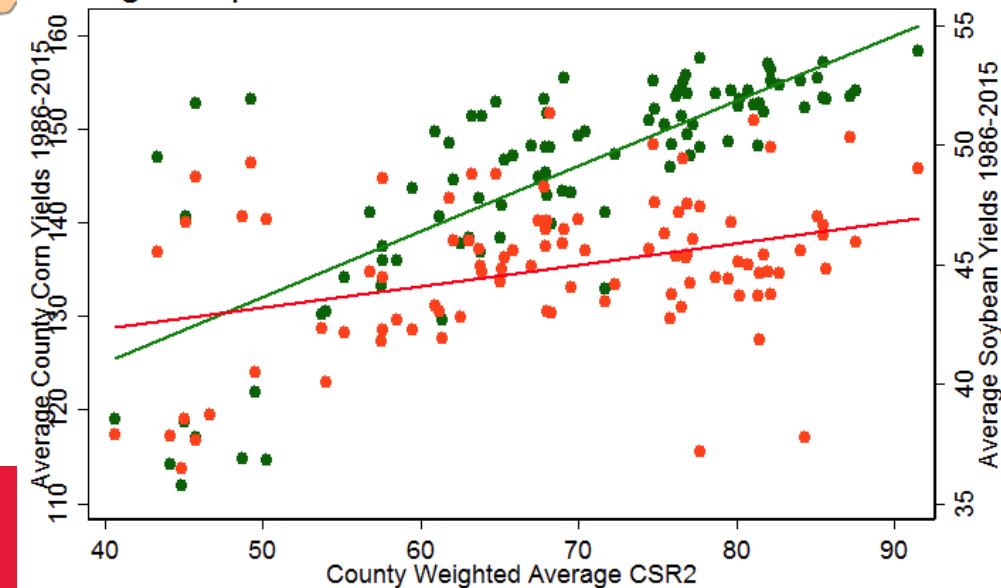


# CSR2 – Corn Suitability Rating

## Weighted Mean CSR2

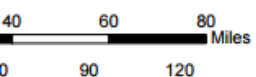


Average Crop Yields 1986-2015 vs. CSR2 for Iowa Counties



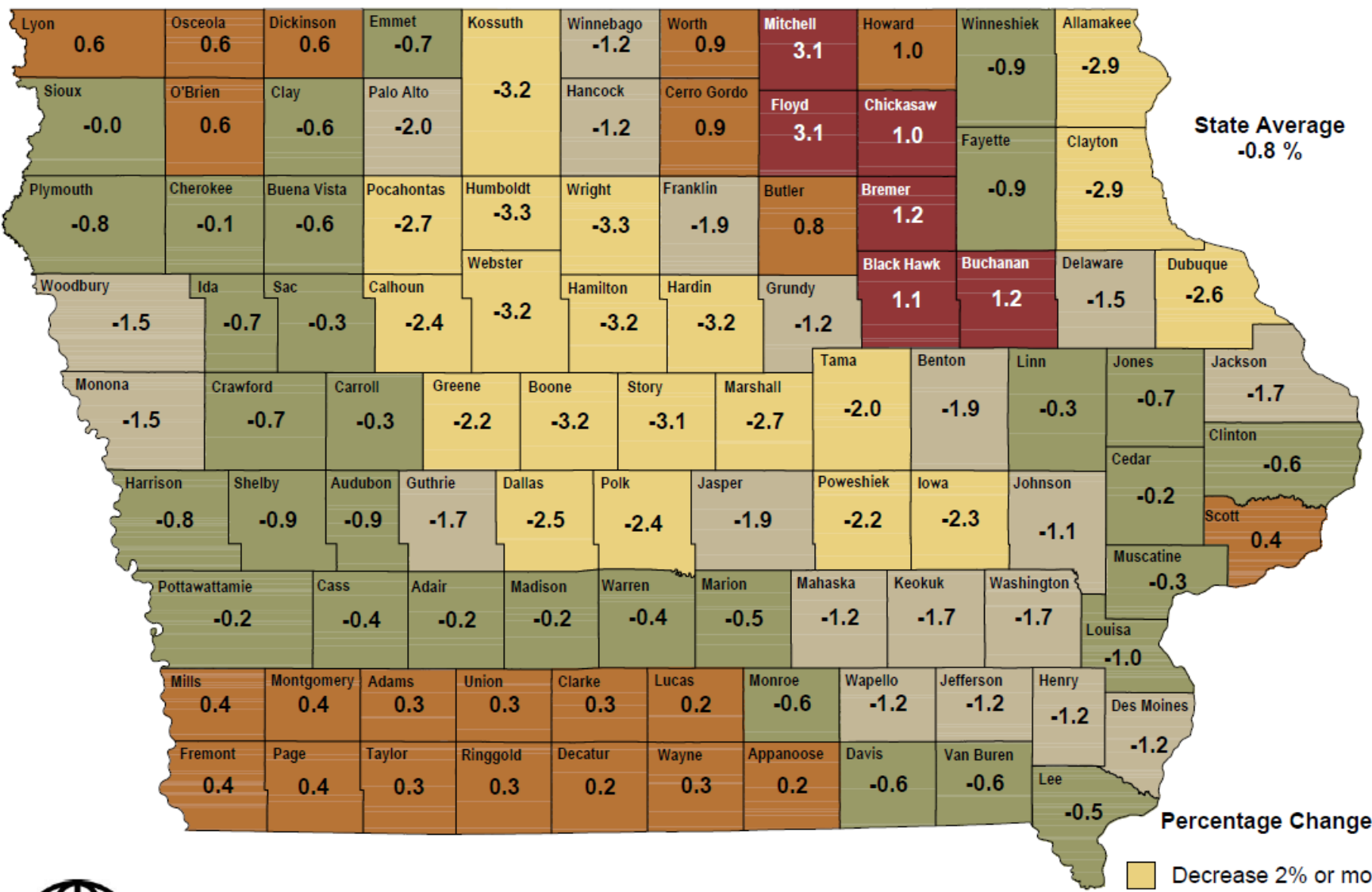
Corn:  $\text{Avg\_corn\_yield} = 97.19 + 0.70 \text{ CSR2}$  ( $R^2 = 59.6\%$ )

Soybean:  $\text{Avg\_soy\_yield} = 38.71 + 0.09 \text{ CSR2}$  ( $R^2 = 12.9\%$ )



# Percentage Change in Iowa Land Values 2017 to 2018

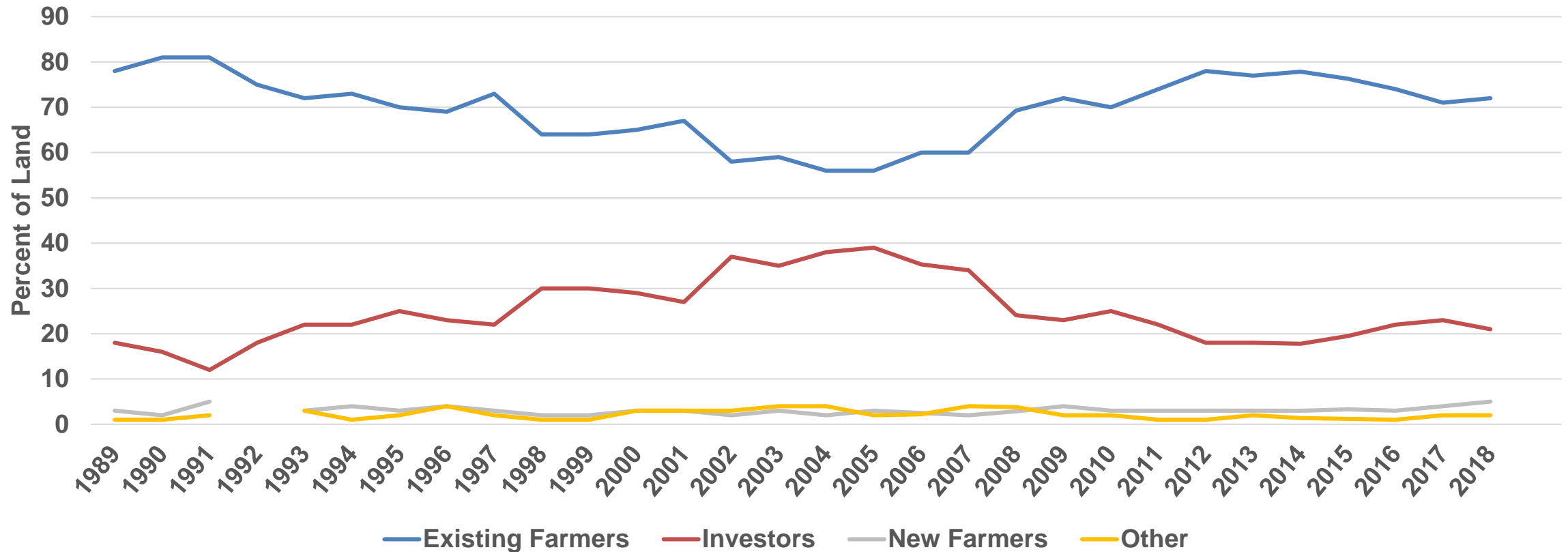
Percent  
Changes in  
Land  
Values  
from Nov  
2017



- Percentage Change
- Decrease 2% or more
  - Decrease 1 to 2%
  - Decrease less than 1%
  - Increase less than 1%
  - Increase 1% or more



# Iowa Farmland Purchases by Buyer Types 1989-2018



# Iowa Farmland Purchases by Seller Types, 2018

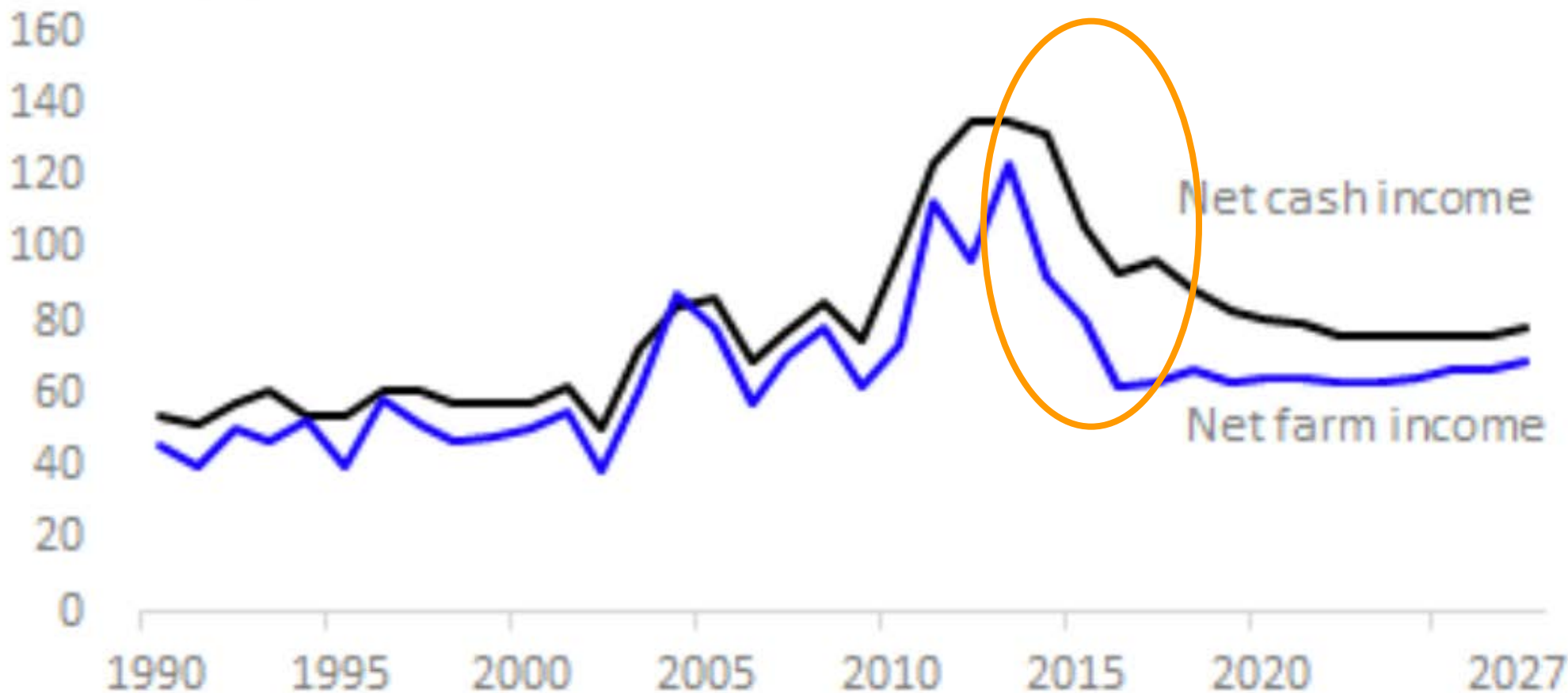
	Active Farmers	Retired Farmers	Estate Sales	Investors	Other
	PERCENT				
Northwest	11	15	64	8	2
North Central	12	15	60	11	2
Northeast	15	28	45	9	3
West Central	11	25	56	5	3
Central	13	19	59	8	2
East Central	15	25	50	7	3
Southwest	13	21	48	16	2
South Central	20	25	34	19	2
Southeast	14	28	51	5	2
STATE	15	23	52	8	2



# US Farm Income 1990- 2027

## U.S. farm income indicators

Billion dollars



# One and Five Year Cash Crop Price Predictions

	Cash Corn Prices		Cash Soybean Prices	
	A Year Later	Five Years Later	A Year Later	Five Years Later
Northwest	\$3.44	\$4.00	\$8.36	\$9.55
North Central	\$3.49	\$4.11	\$8.58	\$9.94
Northeast	\$3.46	\$4.16	\$8.57	\$9.92
West Central	\$3.44	\$4.00	\$8.36	\$9.55
Central	\$3.45	\$4.05	\$8.55	\$9.90
East Central	\$3.61	\$4.11	\$8.79	\$10.04
Southwest	\$3.55	\$4.05	\$8.44	\$9.64
South Central	\$3.64	\$4.17	\$8.29	\$9.65
Southeast	\$3.47	\$4.25	\$8.43	\$9.79
STATE	\$3.51	\$4.10	\$8.50	\$9.79

2017 Predictions

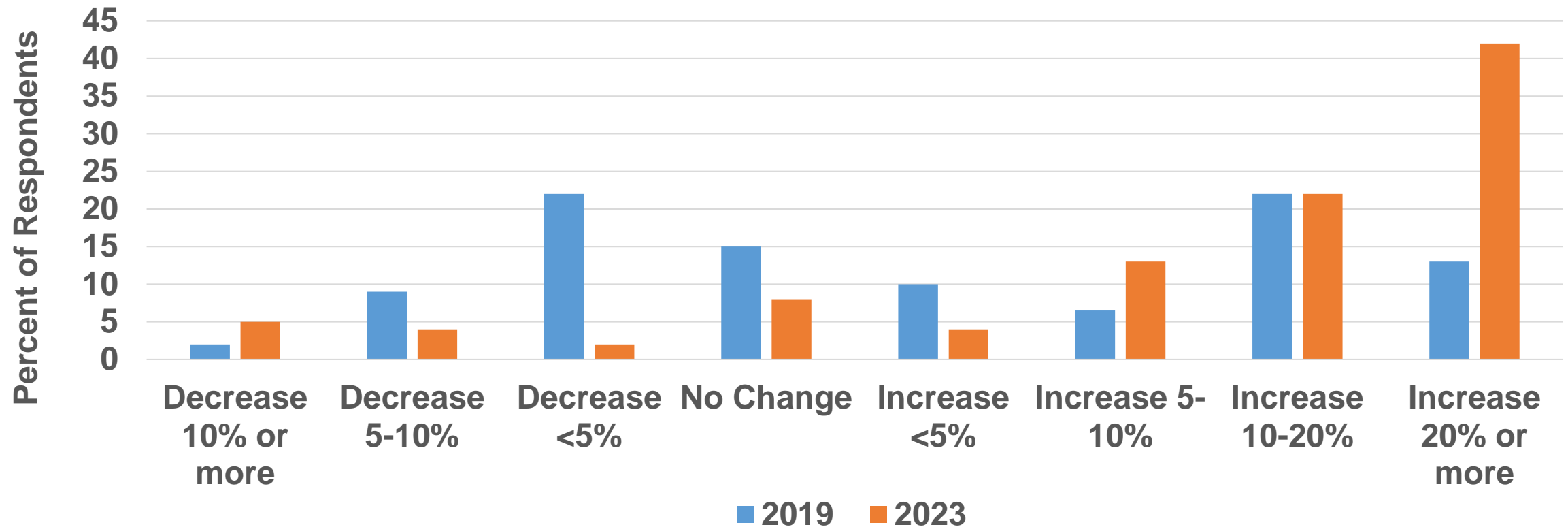
\$3.32

\$3.98

\$9.21

\$10.25

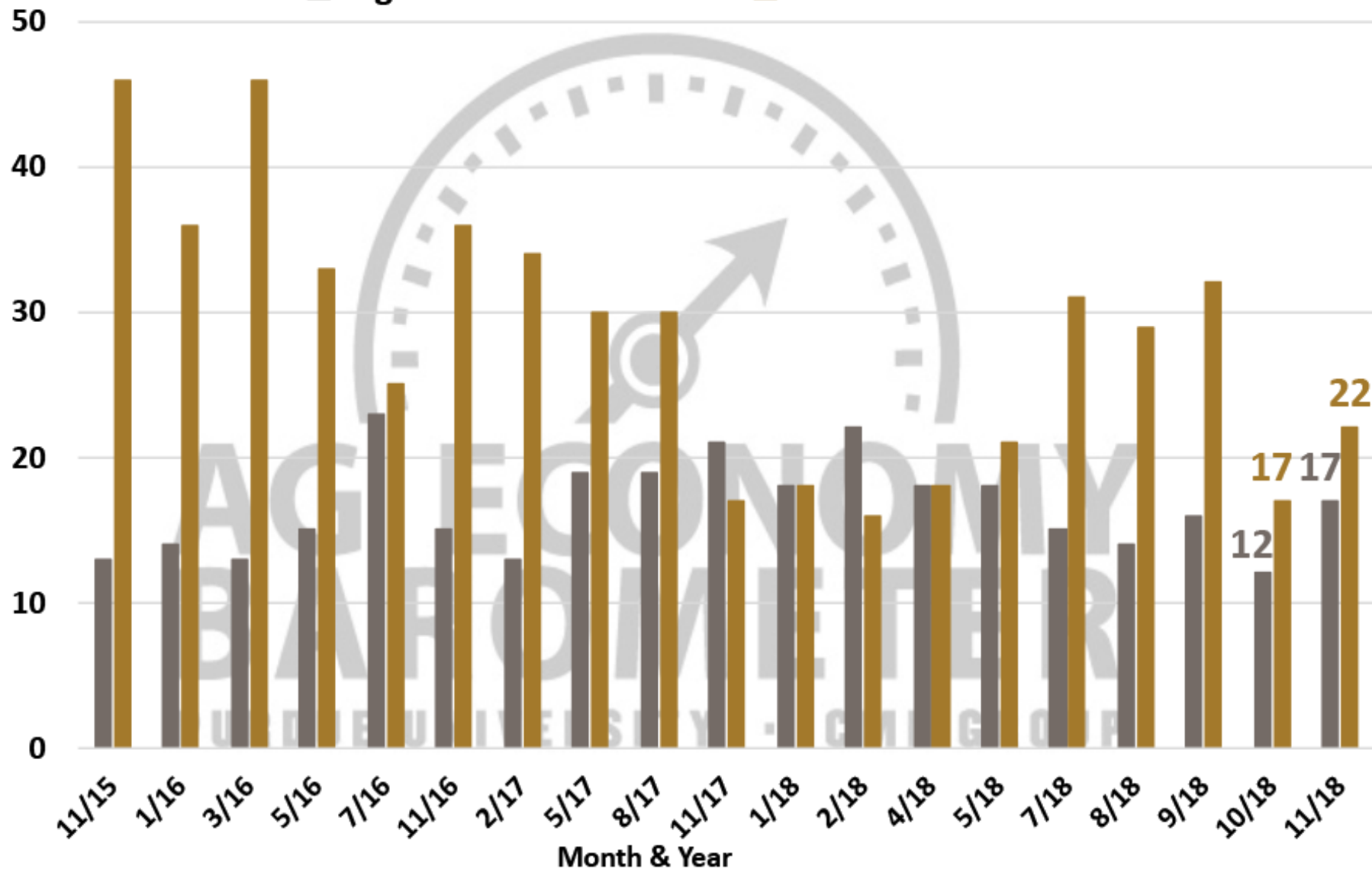
# Land value predictions one & five years from now



# Farmland Price Expectations, 12 Months Ahead

% of respondents

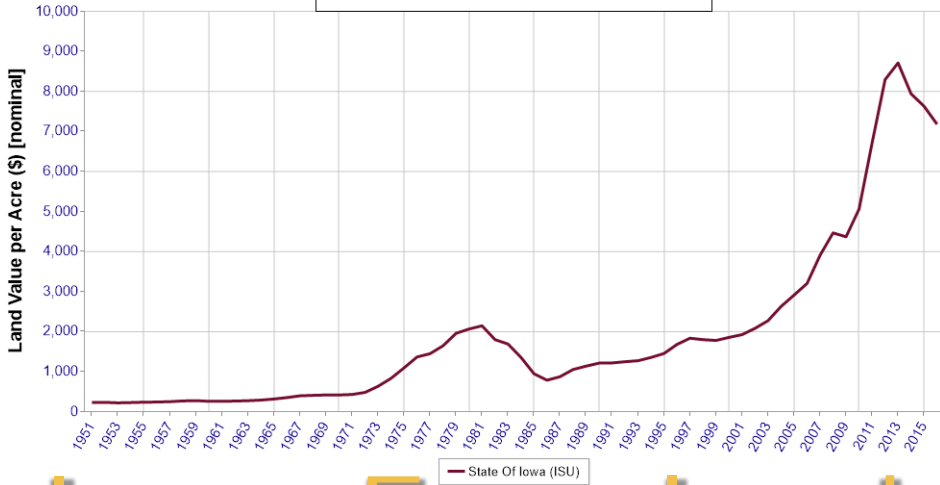
■ Higher Farmland Prices ■ Lower Farmland Prices



Source: Purdue Center for Commercial Agriculture, Producer Survey, November 2018

[purdue.edu/agbarometer](http://purdue.edu/agbarometer)

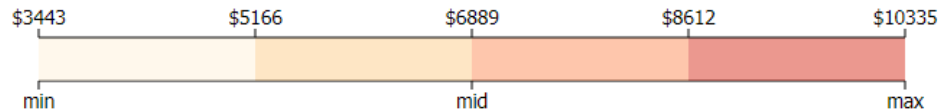
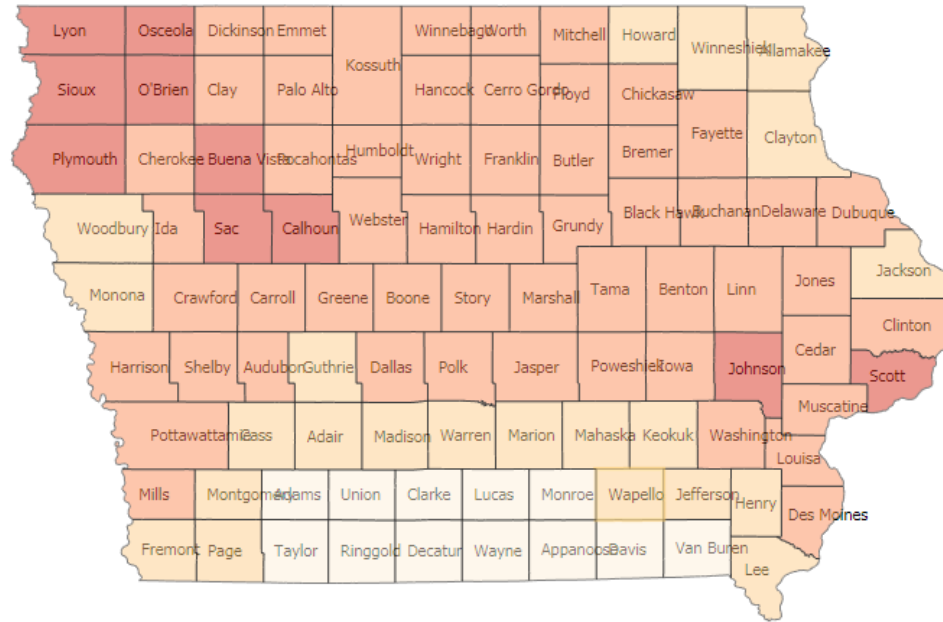
<https://www.card.iastate.edu/farmland>



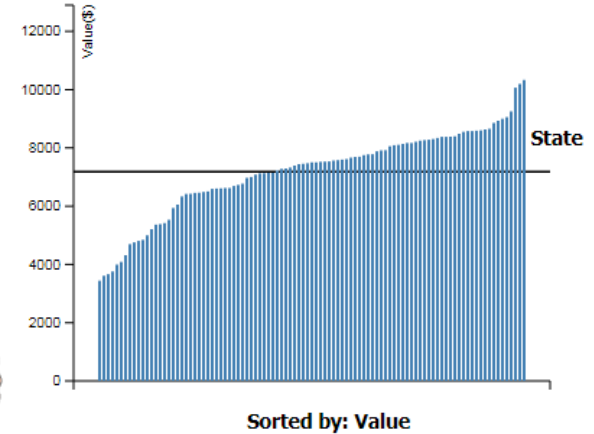
# Iowa Farmland Value Portal



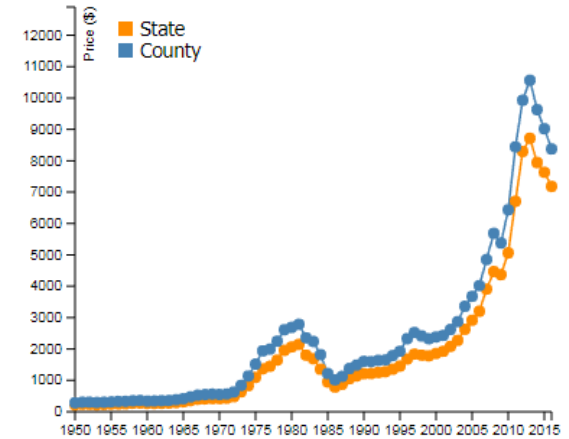
#ISUlandvalue



Iowa County Land Value in 2016

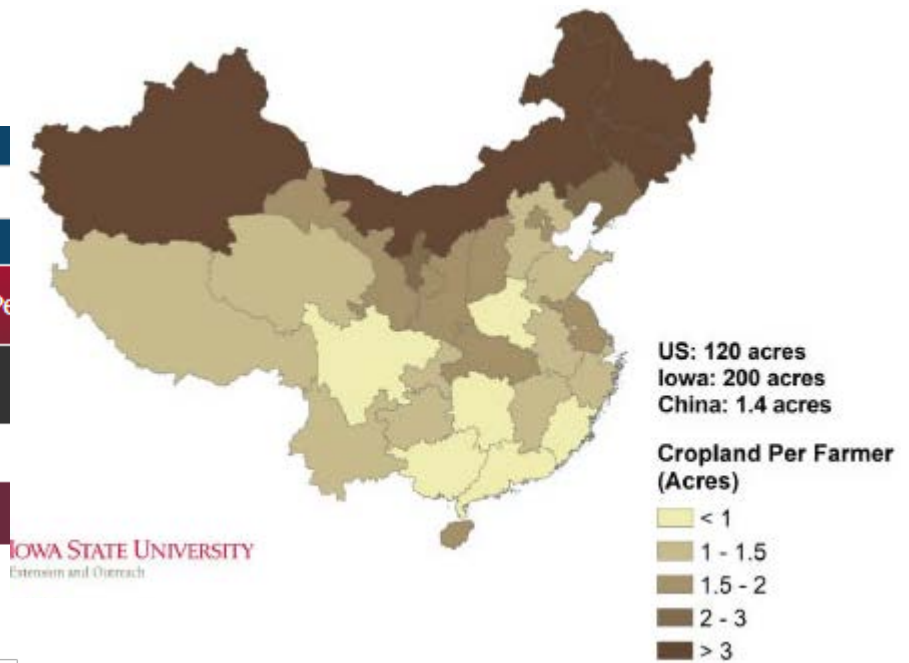
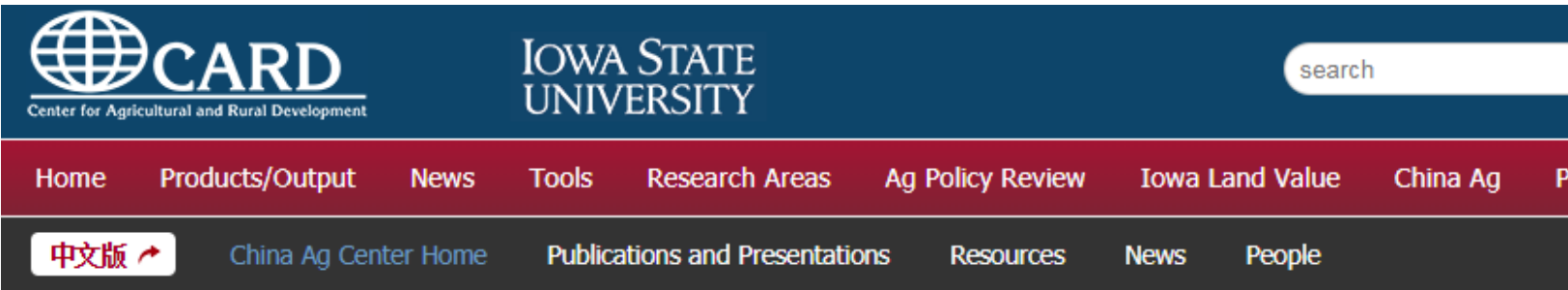


Land Value Trend in County: Story





<https://www.card.iastate.edu/china>



## Center for China-US Agricultural Economics and Policy

Minghao Li, Wendong Zhang, Dermot Hayes, Riley Arthur, Yantao Yang, and Xiudong Wang. 2017. ["China's New Nationwide E10 Ethanol Mandate and Its Global Implications."](#) *Agricultural Policy Review*. Center for Agricultural and Rural Development, Iowa State University.

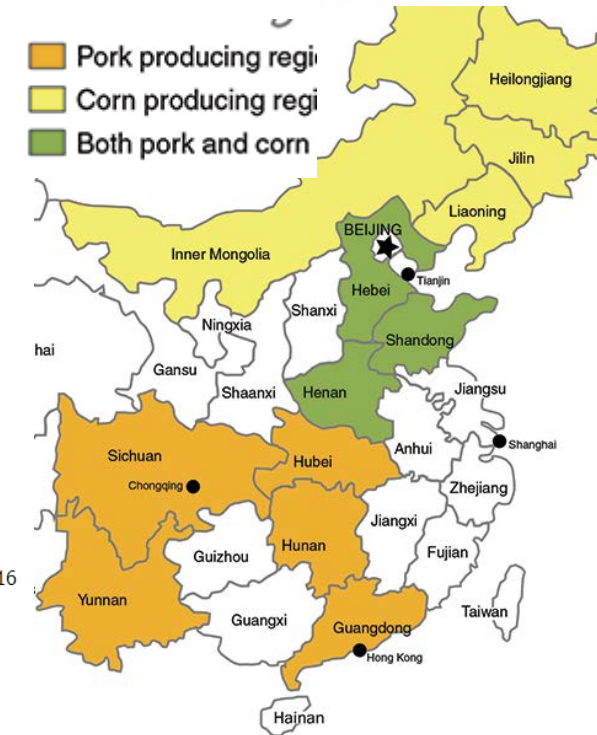
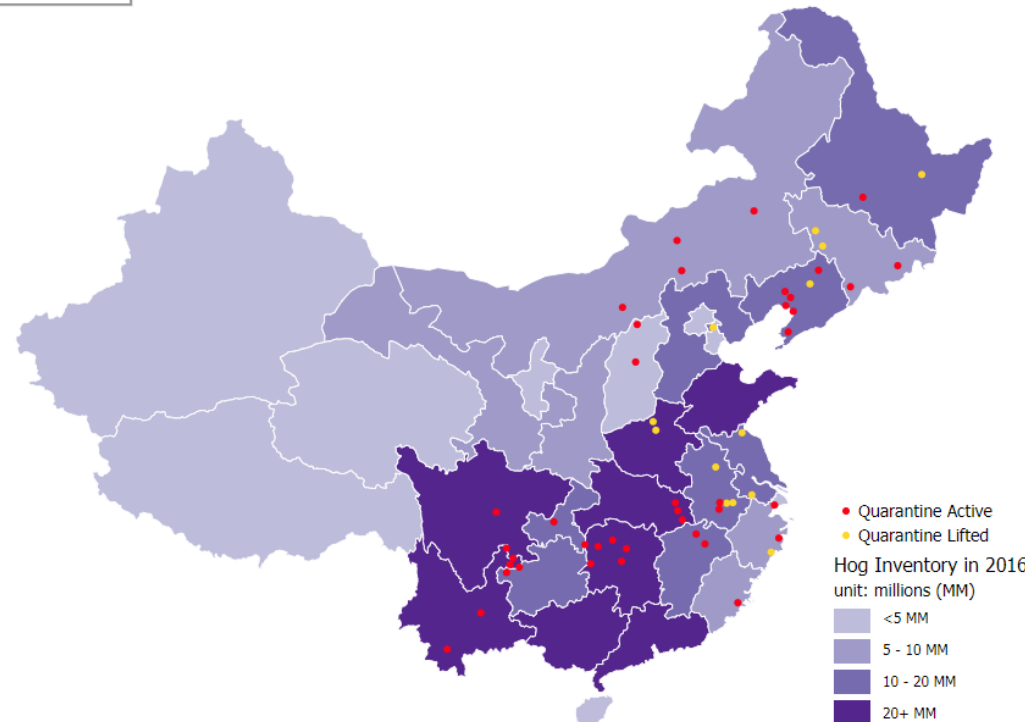
Minghao Li, Wendong Zhang, Dermot J. Hayes. 2018. ["China's Agricultural Import Potential."](#) *CARD Policy Brief*. Center for Agricultural and Rural Development, Iowa State University.

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### African Swine Flu Cases in China (Mainland)

Show All Cases    Animation: ☐ on ☒ off    Map Base Data:



# Thank You!

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