Iowa and US Farmland Market: An Introduction

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Ag Credit School, June 4, 2019

A Quick Introduction: Dr. Wendong Zhang

- Grown up in a rural county in NE 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:

ISU Land Value Survey, 2017 Land Ownership Survey
www.card.iastate.edu/farmland

agriculture and the environment

ISU China Ag center www.card.iastate.edu/china

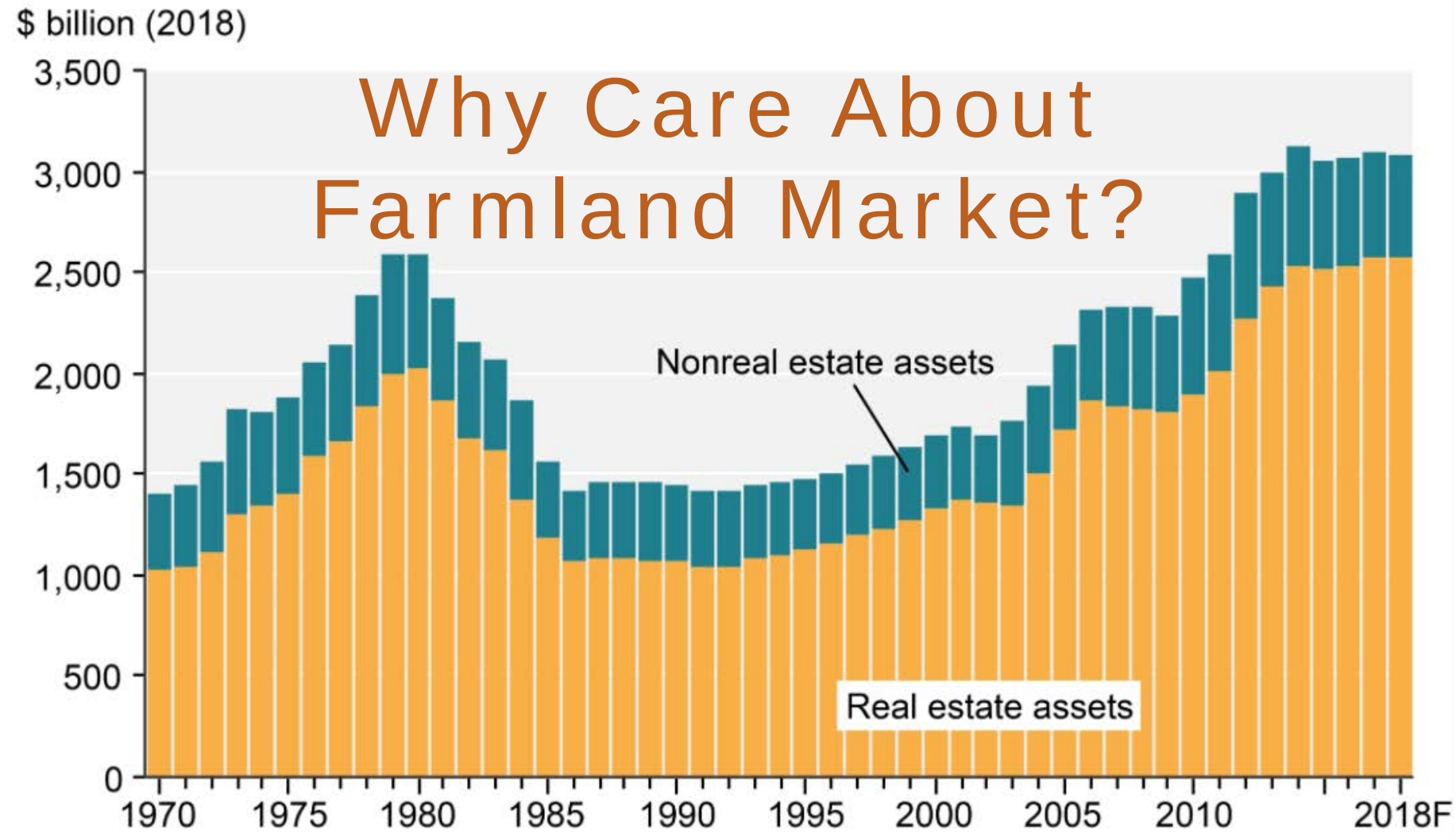
China's Provinces

My Hometown

Ag Land Use Change: Location Matters!

Greenhouse – plastic film - Shandong Province

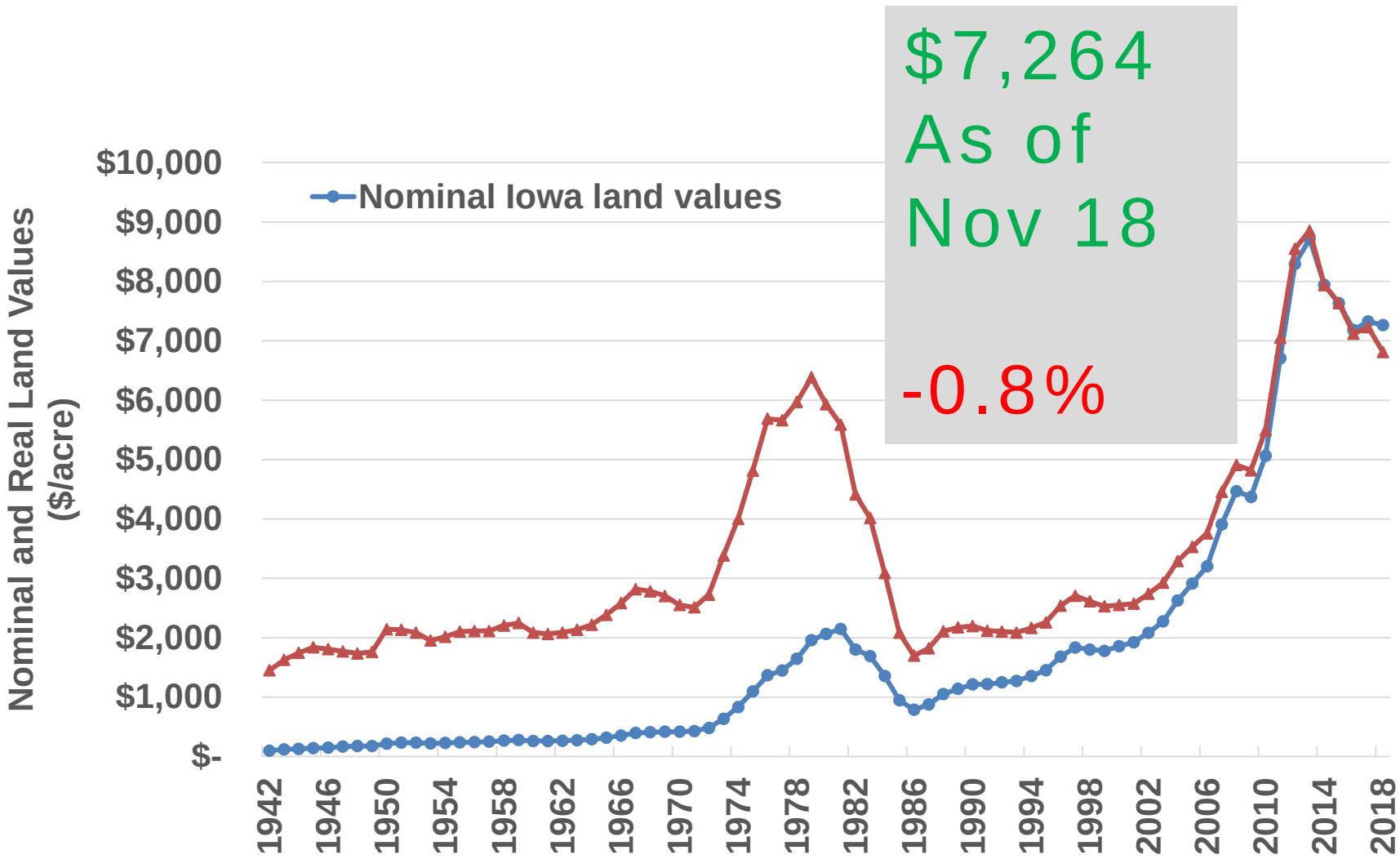
Why Care About Farmland Market?



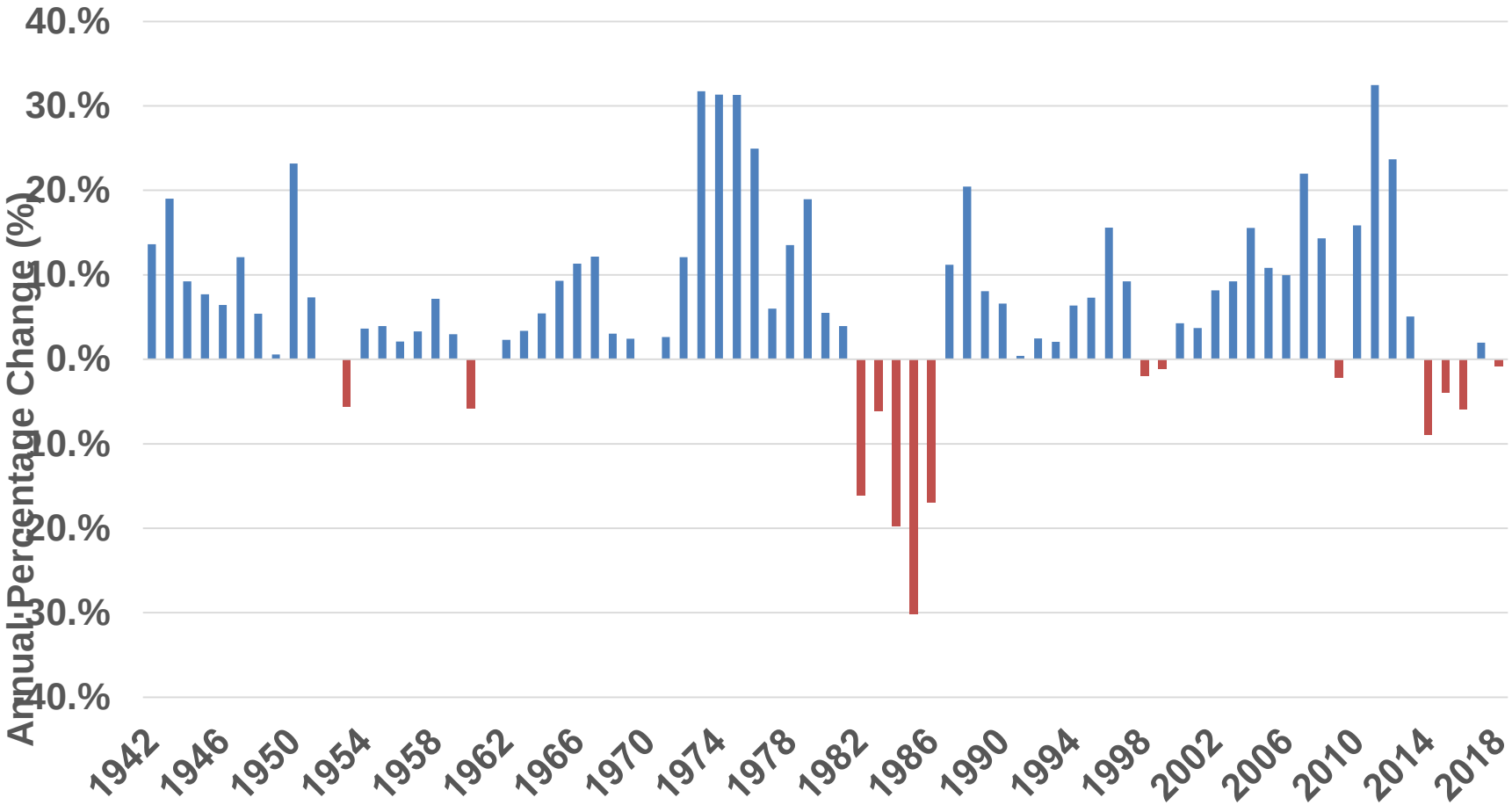
Note: F = forecast. The GDP chain-type price index is used to convert the nominal (current-dollar) statistics to real (inflation adjusted) amounts (2018=100).
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.
Data as of February 7, 2018.

AVERAGE Iowa Land Values

all farmland 1941–2018



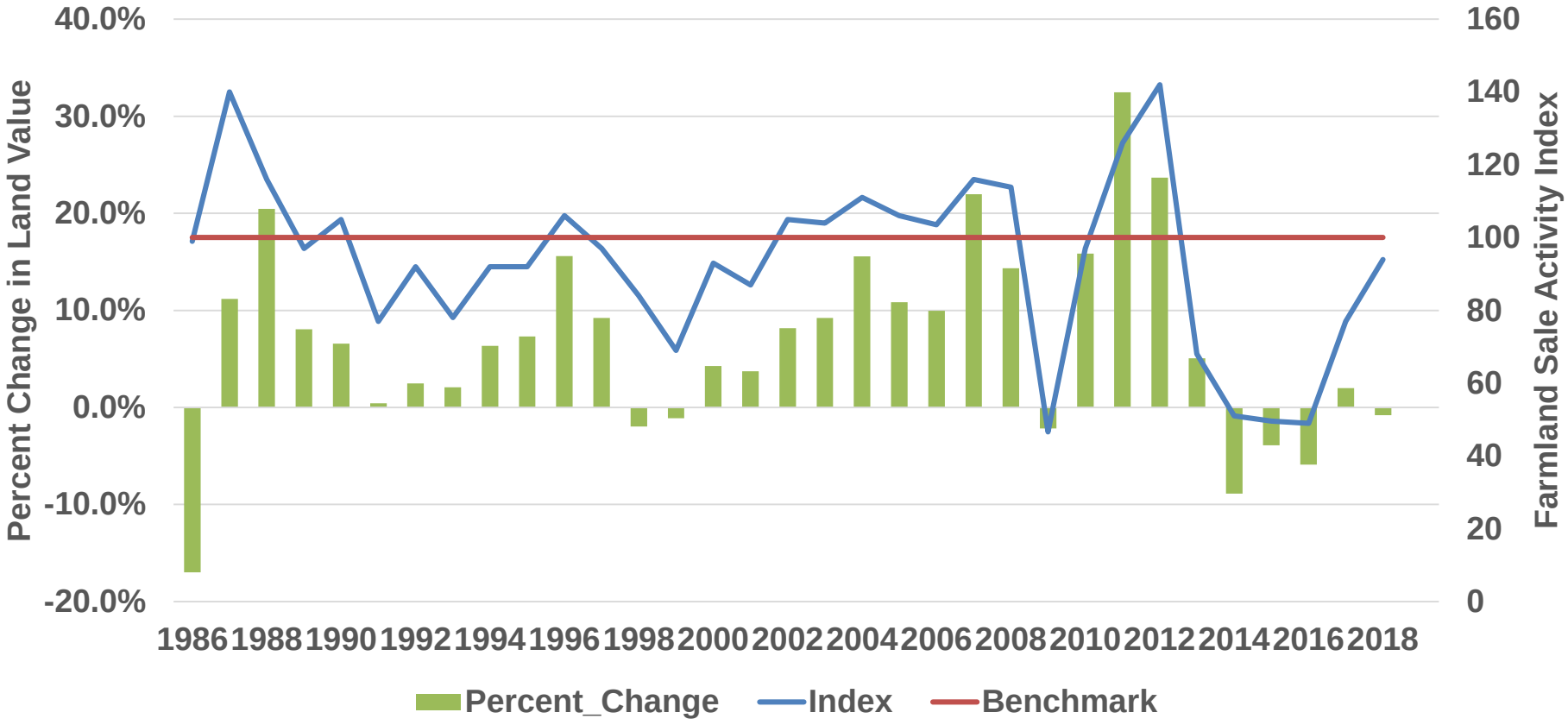
% Change in Nominal Iowa Farmland Values 1942-2018



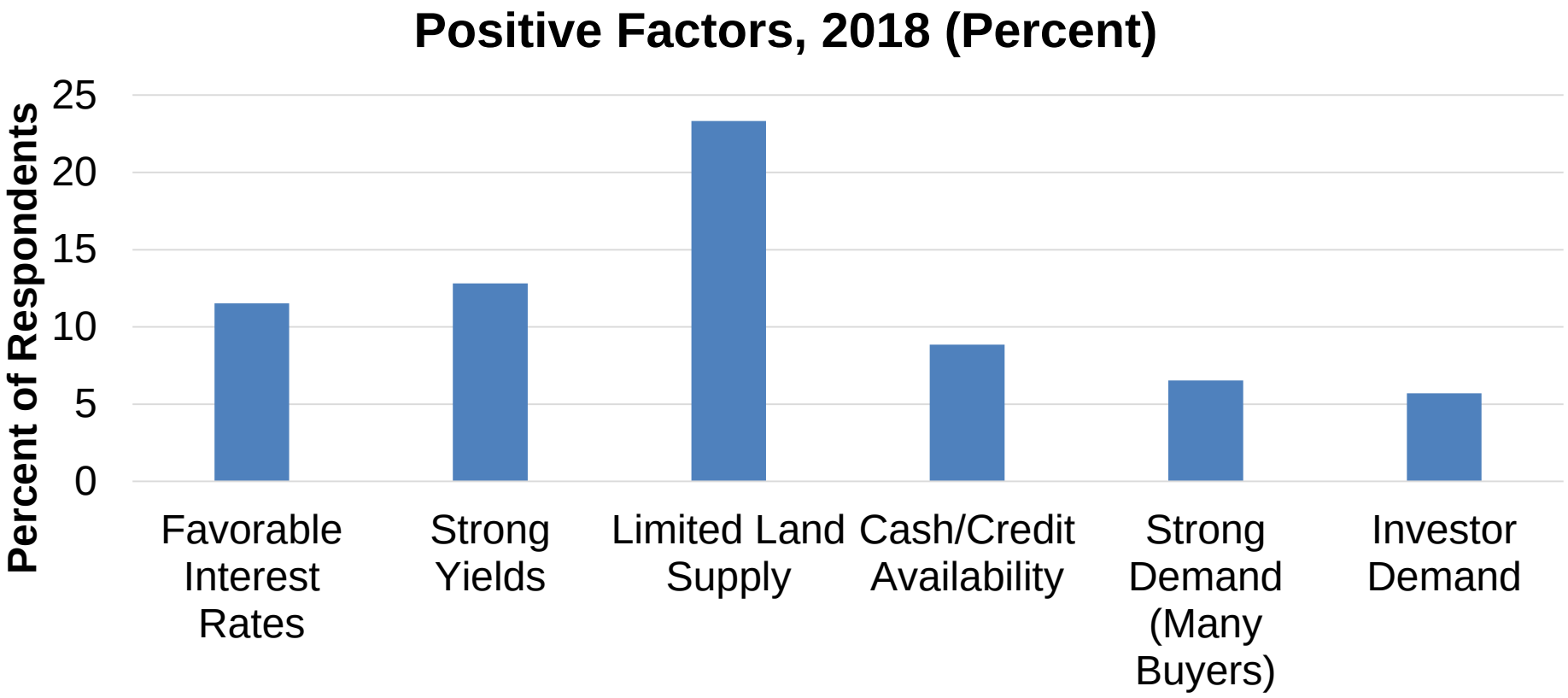
Guiding Framework

Land Value = localized net income / universal interest rate

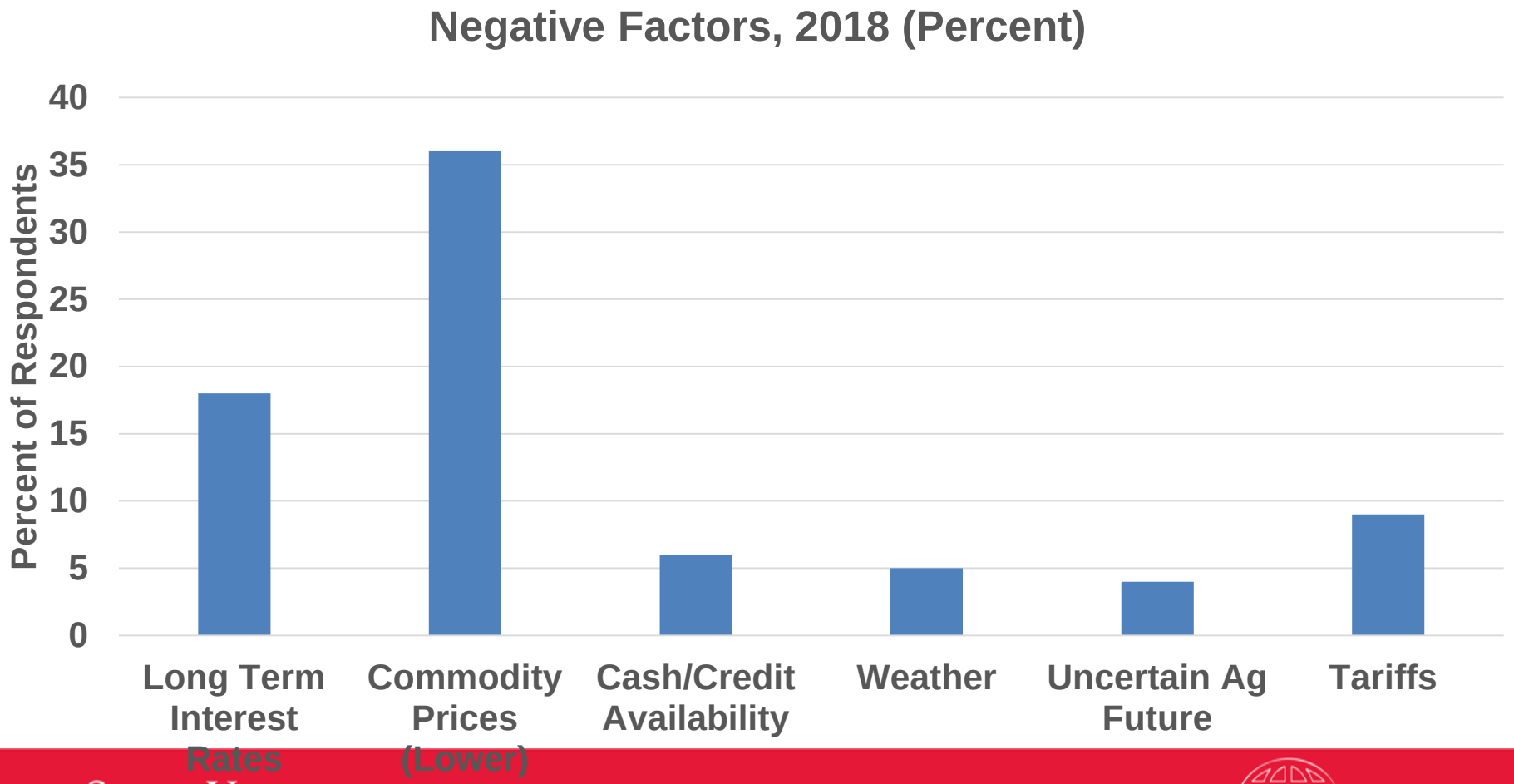
Limited land supply still a key factor holding up land values

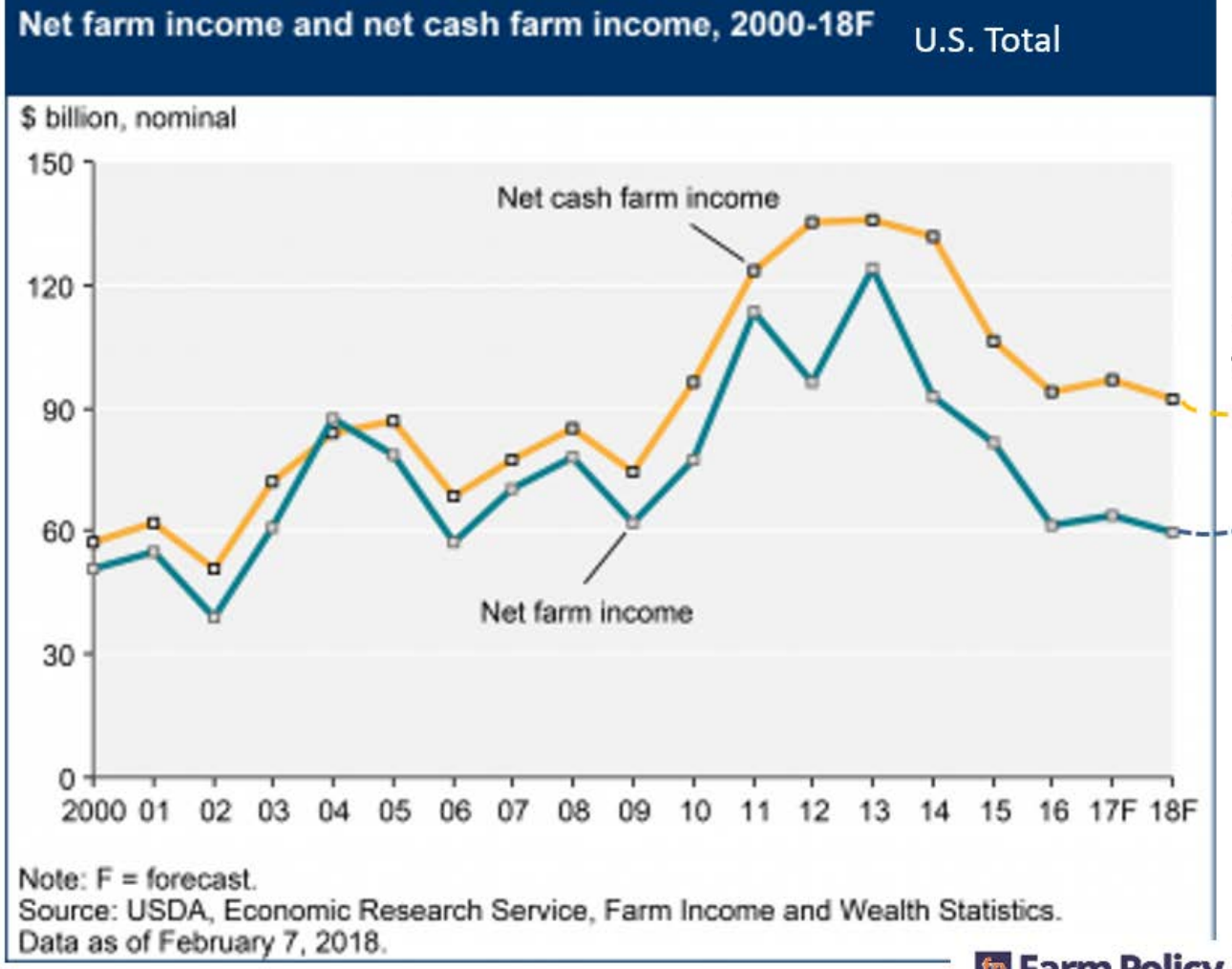


Major Positive Factors Affecting Iowa Farmland Market, 2018



Major Negative Factors Affecting Iowa Farmland Market, 2018





USDA OCE Forecast to 2026

Farm Policy News

The U.S. Department of Agriculture's Economic Research Service (ERS) indicated on Wednesday that, "**Net farm income**, a broad measure of profits, is forecast to **decrease** $4.3 billion (**6.7 percent**) to $59.5 billion in 2018, which would be the **lowest level in nominal terms since 2006**."

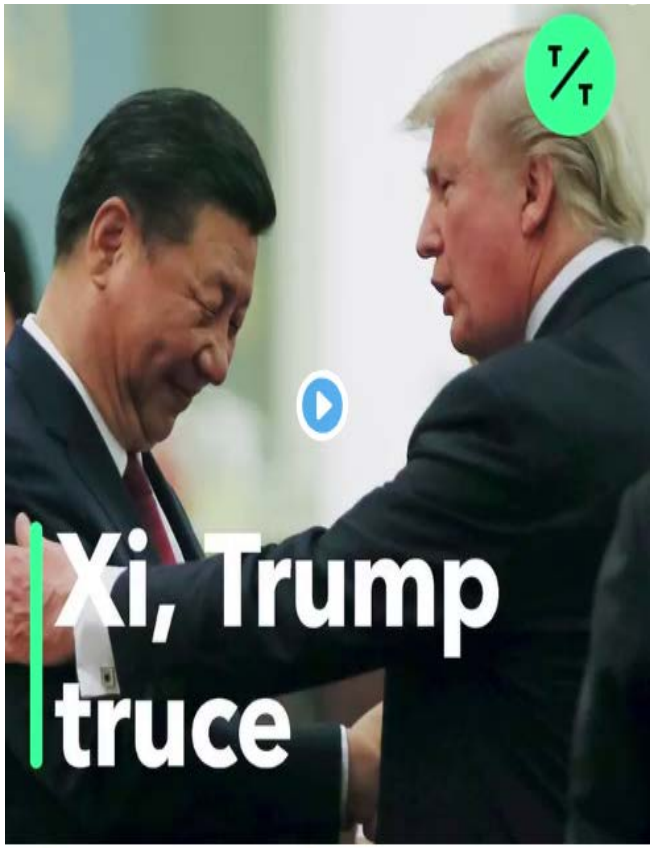
Center for Agricultural and Rural Development
IOWA STATE UNIVERSITY

CARD Policy Briefs

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.



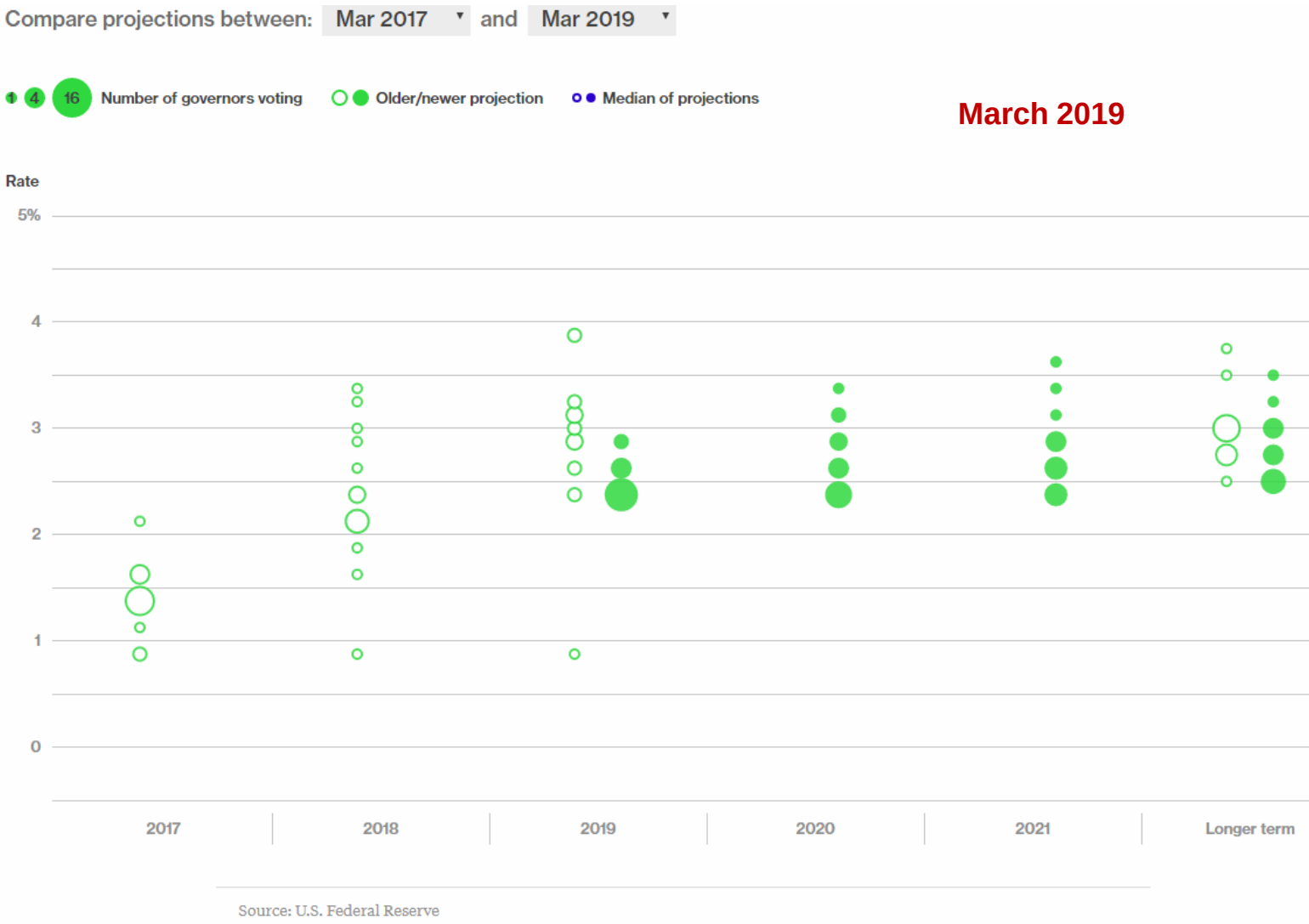
TicToc by Bloomberg
@tictoc

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

Long-term interest rate expectations

What the Fed Reserve thinks the interest rate should be



Land Values by CRD 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%**

Land Values by District and Quality, Nov 2017

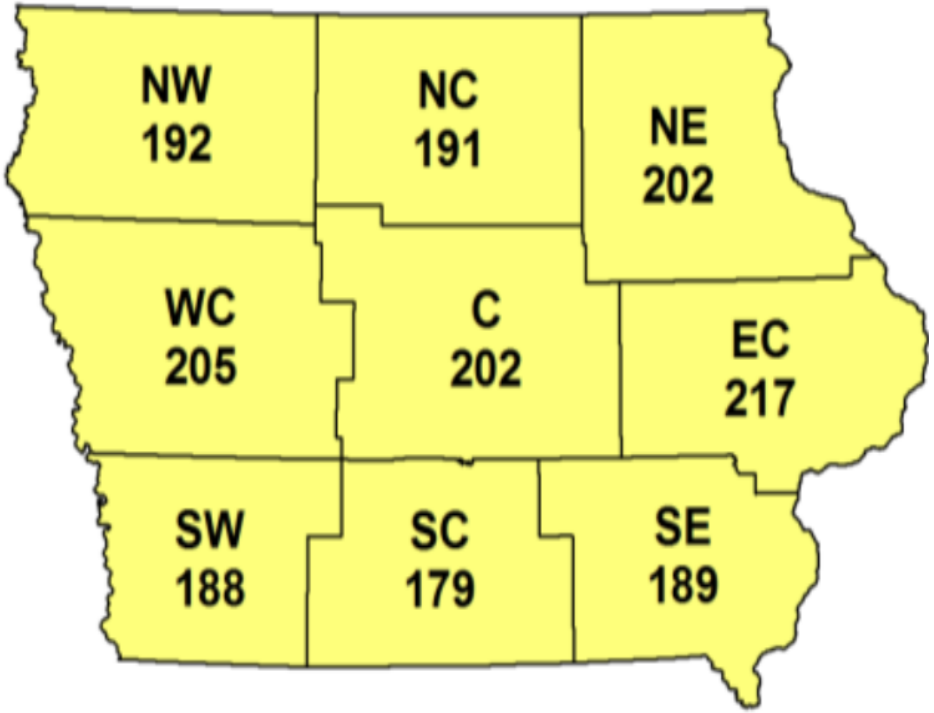
District	Average Value	% Change	High Quality	% Change	Medium Quality	% Change	Low Quality	% Change
Northwest	$9,388	1.6%	$10,829	1.7%	$8,555	1.0%	$6,216	3.3%
North Central	$7,802	3.2%	$8,730	3.4%	$7,218	3.2%	$5,265	2.0%
Northeast	$7,543	3.1%	$9,151	2.9%	$7,236	3.5%	$4,965	2.4%
West Central	$7,377	0.3%	$8,881	0.1%	$6,824	-0.7%	$4,684	2.3%
Central	$8,097	3.3%	$9,568	2.9%	$7,426	3.3%	$4,993	-3.2%
East Central	$8,218	3.8%	$9,900	4.2%	$7,674	3.8%	$5,305	3.0%
Southwest	$6,058	0.0%	$7,571	0.6%	$5,756	1.3%	$3,935	-6.1%
South Central	$4,172	-1.6%	$5,908	-1.2%	$4,079	-1.2%	$2,824	-2.3%
Southeast	$6,864	2.2%	$9,471	2.2%	$6,548	4.2%	$3,768	-0.4%
Iowa Avg.	$7,326	2.0%	$8,933	2.0%	$6,849	2.2%	$4,689	0.5%

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

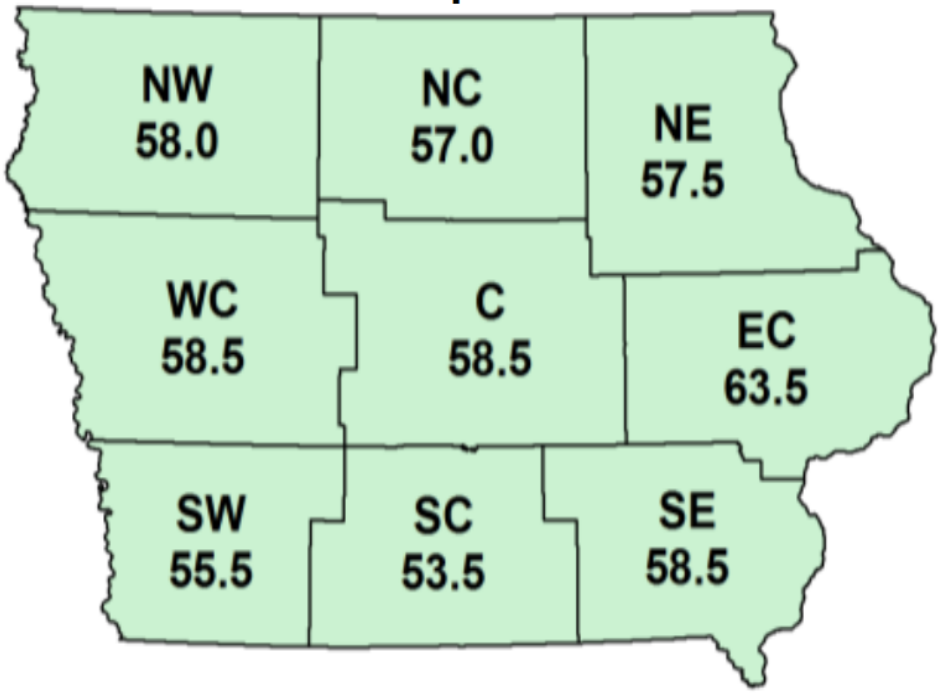
Strong crop yields, especially for SC Iowa

Corn Yield: November 1, 2018
Bushels per Acre



State Average: 198.0 bu/acre

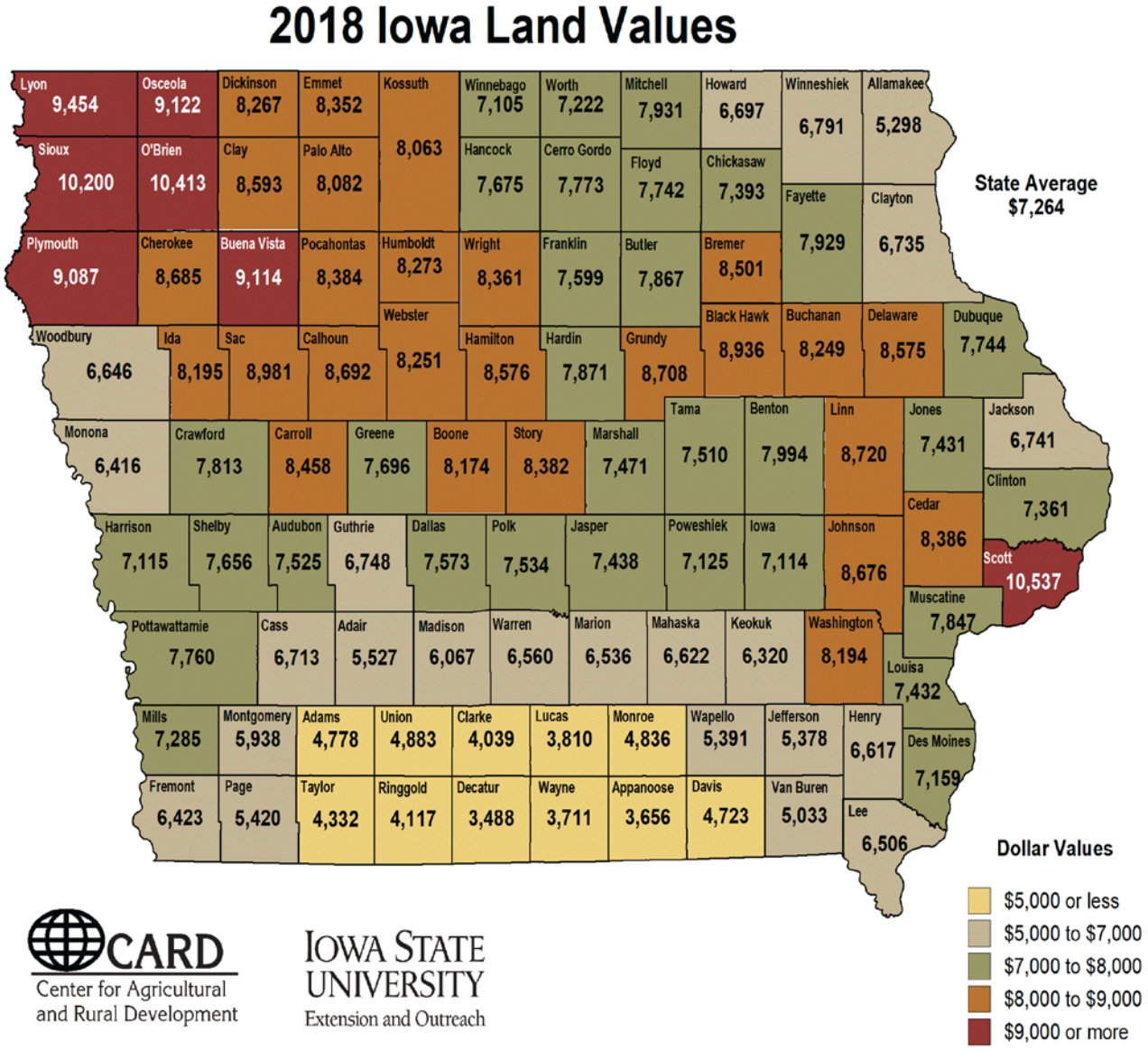
Soybean Yield: November 1, 2018
Bushels per Acre



State Average: 58.0 bu/acre

USDA NASS QuickStats

Land Values by County, 2018



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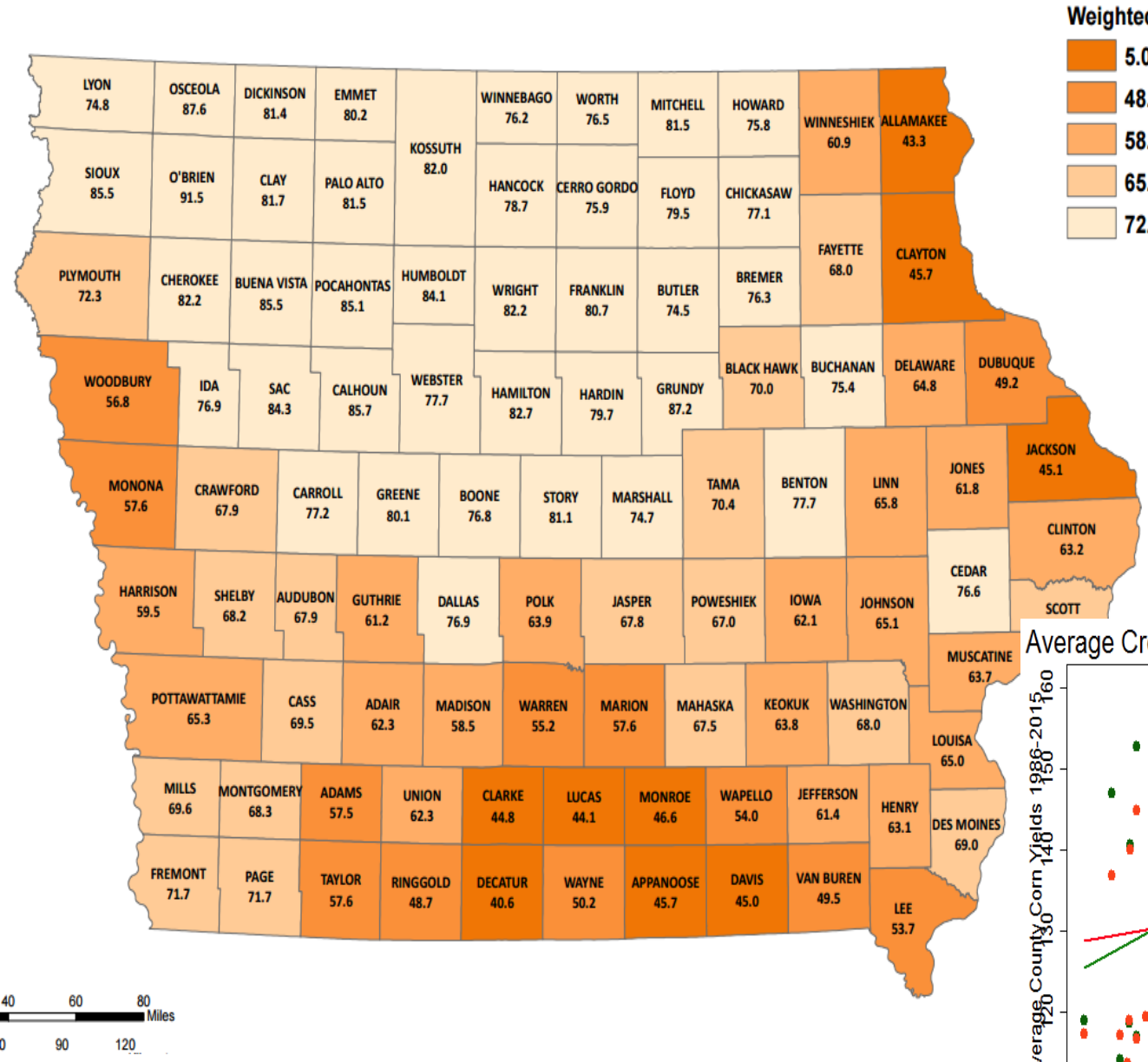
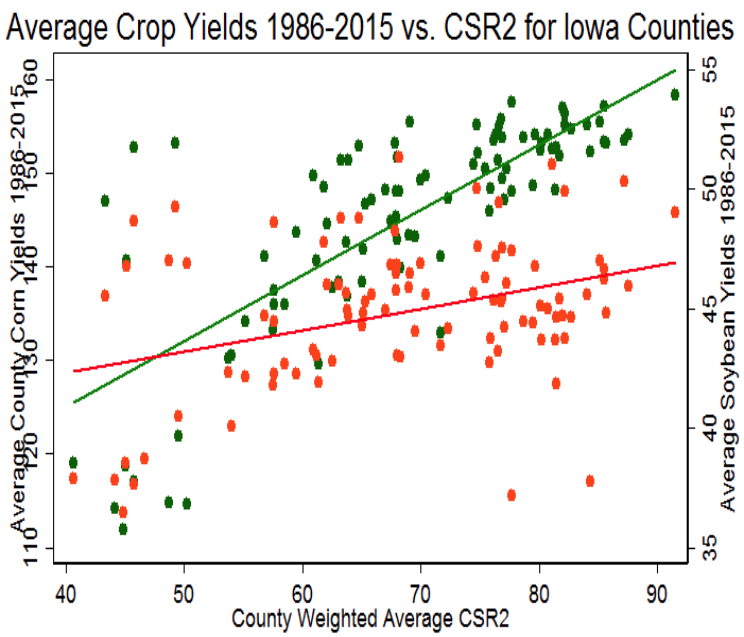
Iowa State University
Extension and Outreach

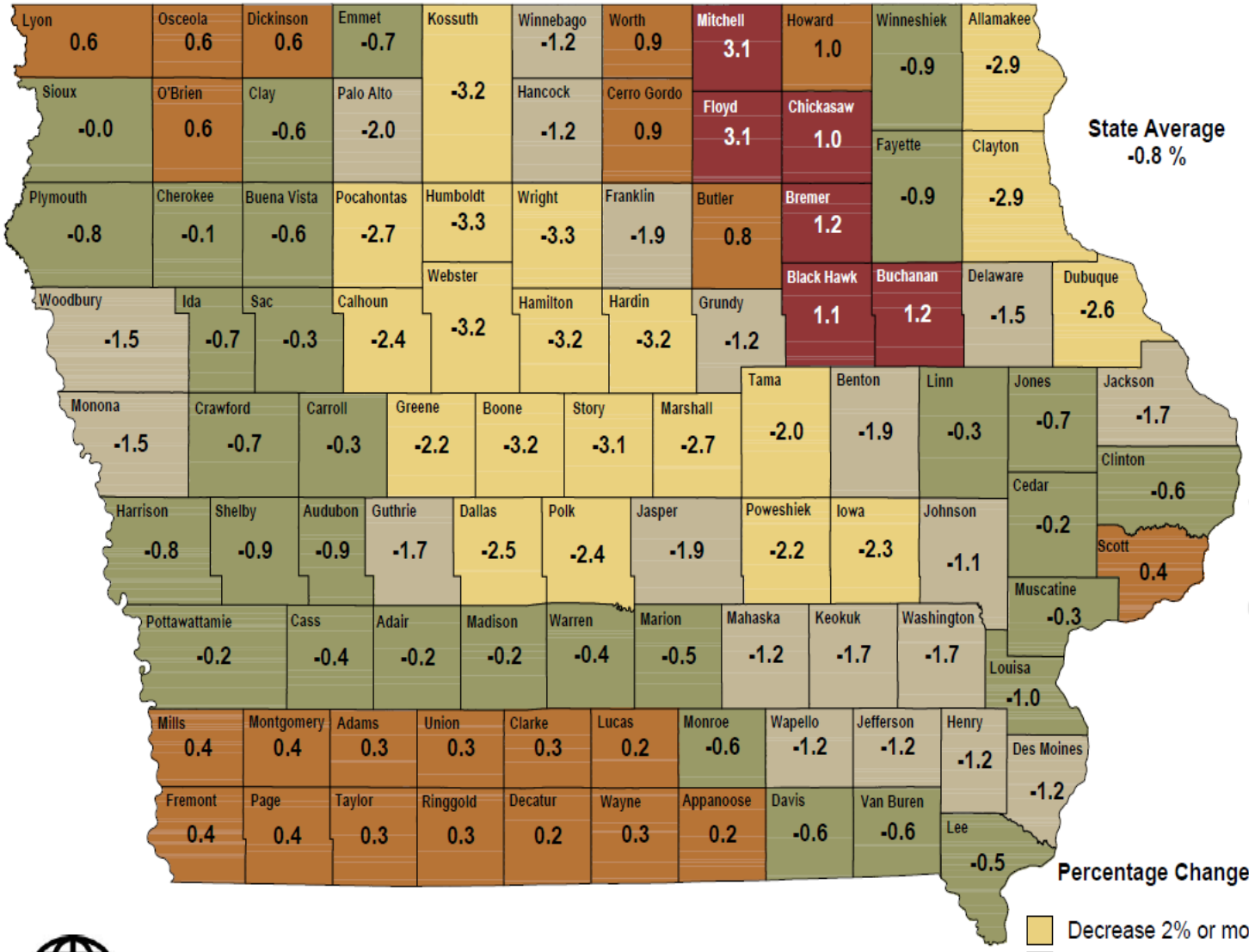
CSR2 – Corn Suitability Rating





Source: ISU Agronomy

Percentage Change in Iowa Land Values 2017 to 2018



Percent Changes in Land Values from Nov 2017

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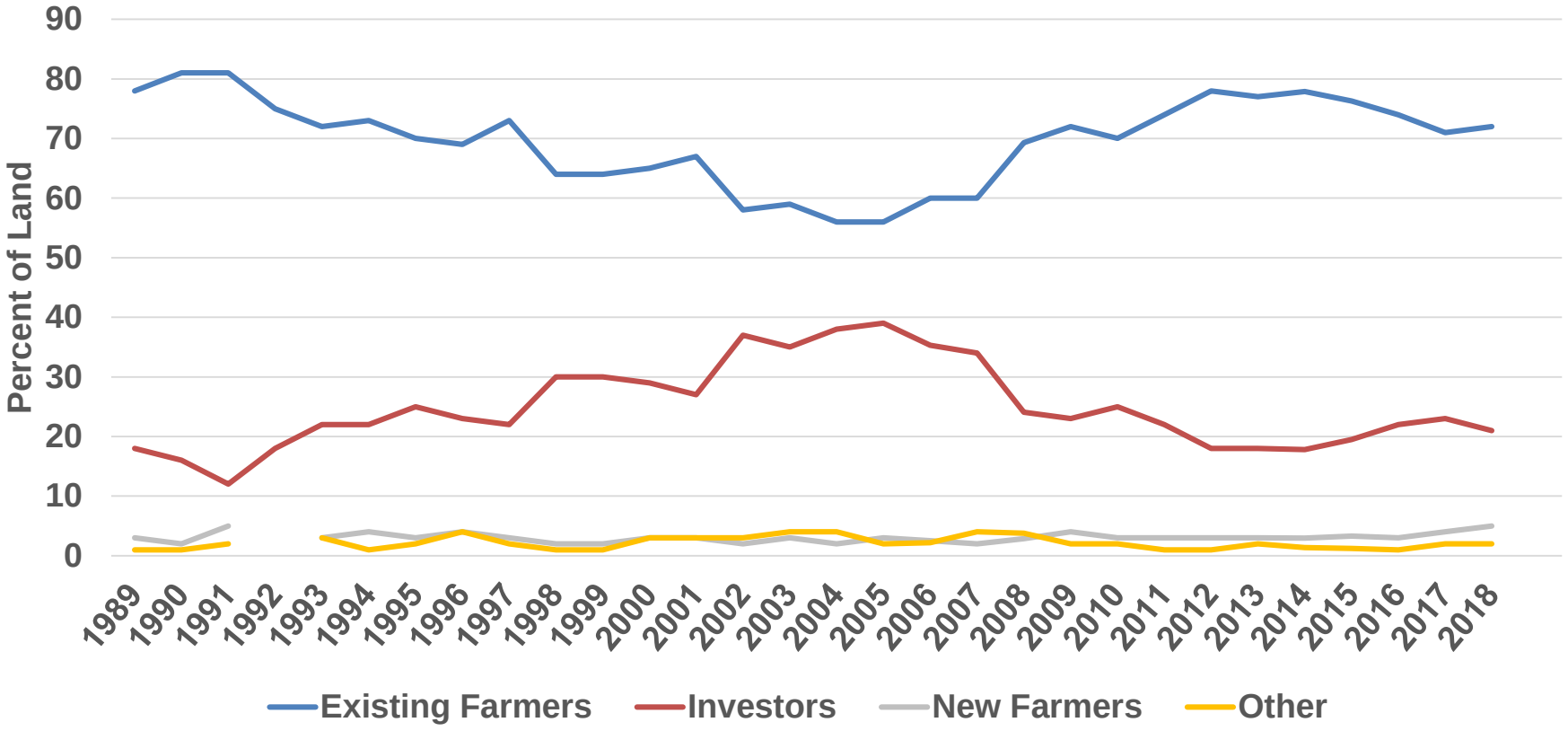
Iowa Farmland Purchases by Buyer Types 1989-2018



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**

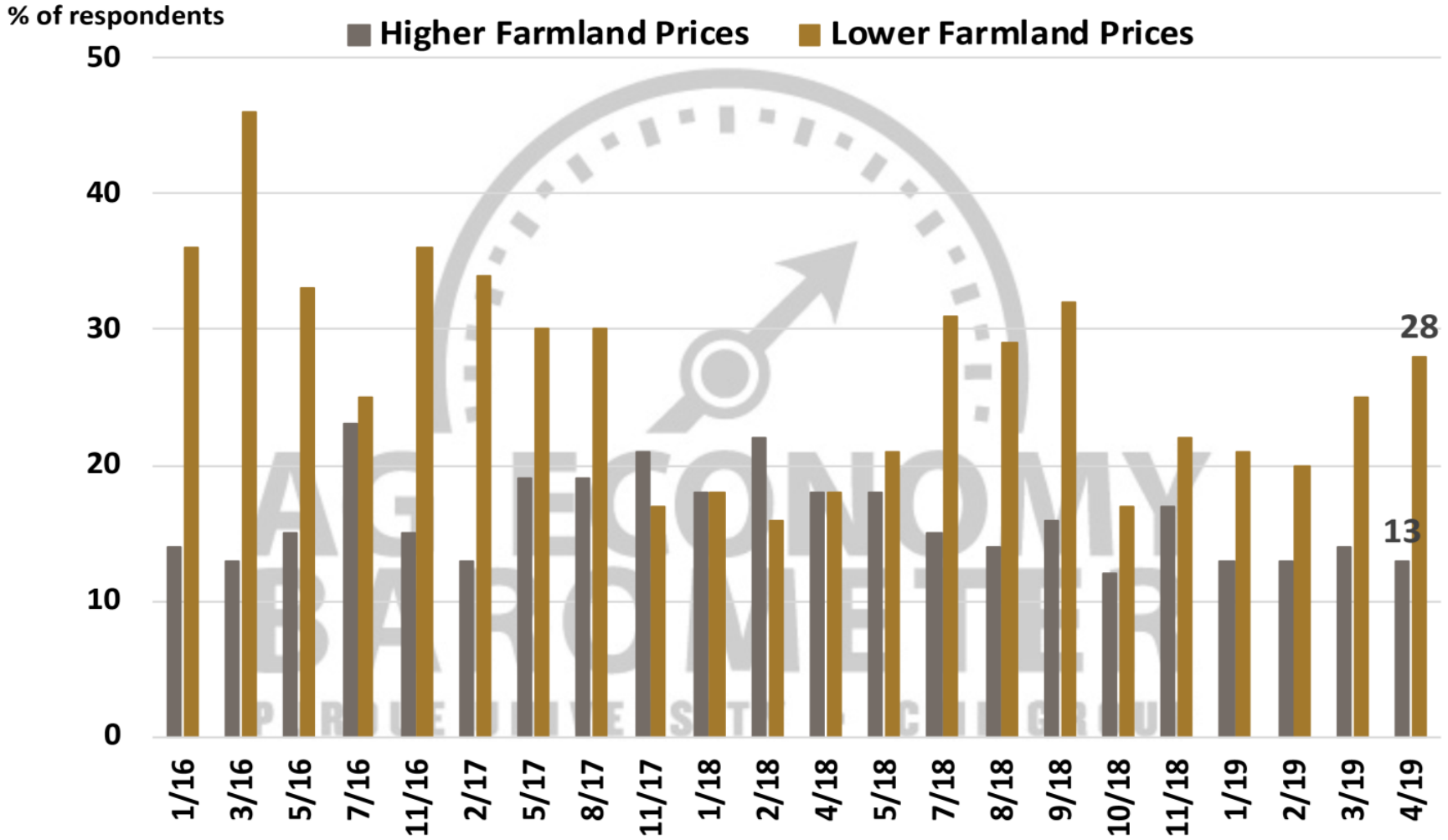
Land & Crop Price Forecasts as of May 2019

2019 SMLV Estimated Land and Commodity Price Forecasts					
LAND	**AVG ESTIMATE OF PERCENT CHANGE SINCE MAY 2019**				
	NW	**NE**	**SW**	**SE**	**STATE**
Nov 2019	-2.3%	-2.6%	-1.5%	-1.1%	**-2.1%**
Nov 2020	-2.1%	-3.1%	-1.7%	-1.4%	**-2.2%**
Nov 2021	-0.7%	-2.1%	-0.6%	0.1%	**-1.0%**
Nov 2025	1.2%	7.8%	9.7%	8.4%	**9.5%**
Nov 2040	46.8%	43.6%	49.5%	40.1%	**45.0%**
Commodity Cash Prices ($/bushel)					
	CORN		**SOYBEAN**		
May 2019	$	3.41	$	8.08	
Nov 2019	$	3.45	$	8.15	
Nov 2020	$	3.65	$	8.58	
Nov 2021	$	3.85	$	9.67	

Compared to May 2018: Less Optimistic Now

2018 SMLV Estimated Land and Commodity Price Forecast					
LAND:	AVERAGE ESTIMATE OF PERCENT CHANGE FROM May 2018				
	NW	NE	SW	SE	STATE
Nov 2018	0%	-1%	0%	-1%	-1%
Nov 2019	1%	-1%	1%	1%	0%
Nov 2020	3%	0%	3%	4%	2%
Nov 2025	17%	13%	23%	16%	16%
Nov 2040	48%	55%	102%	54%	57%
Commodity Cash Prices $/bushel					
	CORN		SOYBEAN		
Nov 2018	$	3.57	$	9.54	
Nov 2019	$	3.76	$	9.78	
Nov 2020	$	3.94	$	10.12	

Farmland Price Expectations, 12 Months Ahead

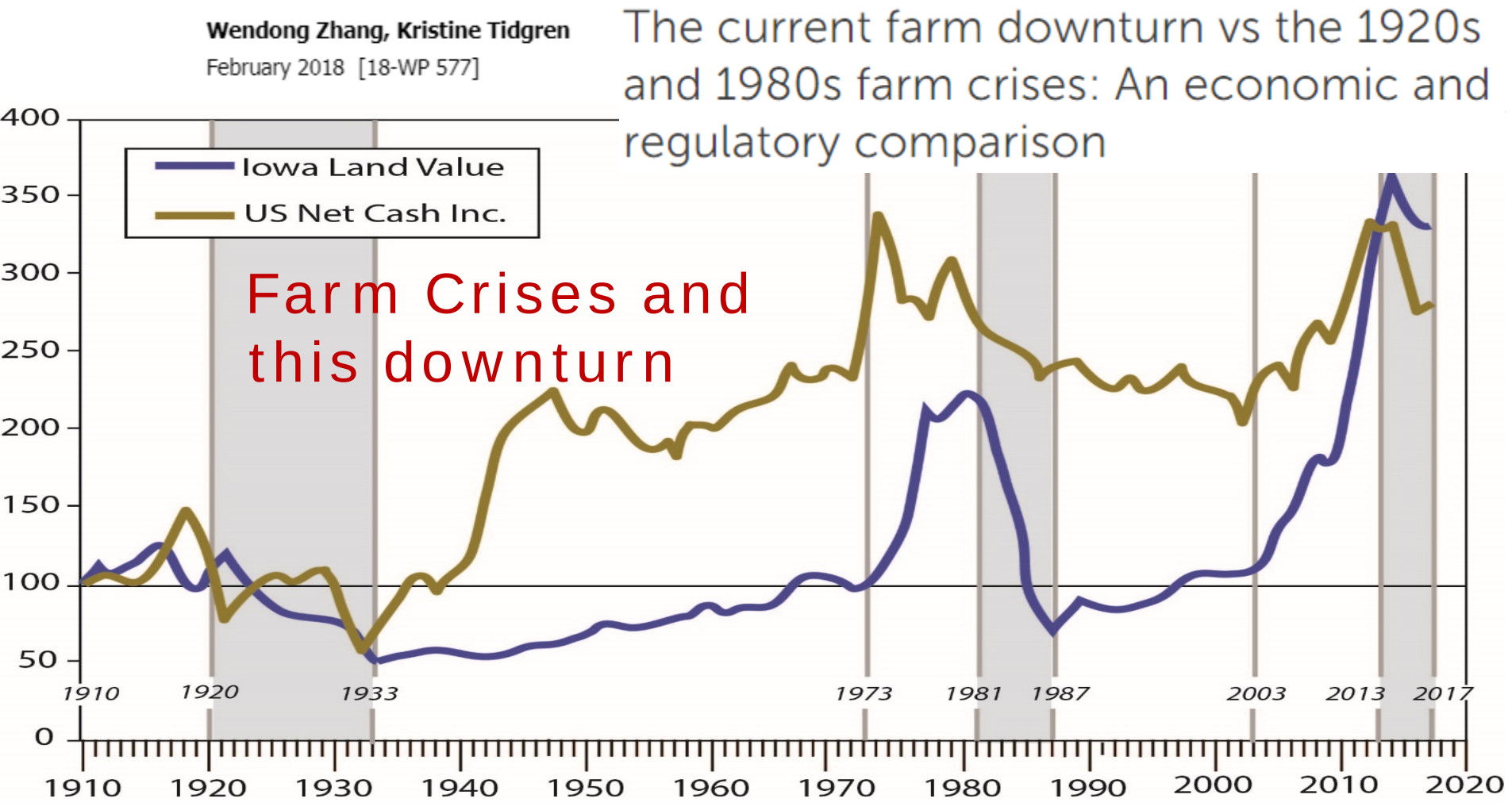


Source: Purdue Center for Commercial Agriculture, Producer Survey, April 2019

Stable Short- & Long-term Cap Rate Forecasts

2019 SMLV Estimated Gross Cap Rate for Land Value					
(Estimated Cash Rent / Estimated Land Value)					
	AVERAGE ESTIMATE OF GROSS CAP RATE				
	NW	NE	SW	SE	STATE
May 2019	2.9%	3.2%	3.6%	4.1%	3.3%
Nov 2019	2.9%	3.3%	3.6%	4.1%	3.3%
Nov 2020	2.9%	3.2%	3.6%	4.1%	3.3%
Nov 2021	3.0%	3.3%	3.7%	4.0%	3.4%
Nov 2025	3.0%	3.3%	3.7%	4.2%	3.4%
Nov 2040	3.3%	3.2%	3.4%	4.1%	3.4%

Inflation-adjusted Iowa Ag Real Estate Values 1850-2017



Positive 1: Real Income Accumulation 2003-2013

Average annual percent change in nominal values			
Golden Eras	***Iowa Land***	***U.S. Gross Income***	***U.S. Net Income***
1910-1920	9.3%	9.0%	8.4%
1973-1981	19.5%	9.8%	5.3%
2003-2013	13.7%	7.1%	10.7%
Crises and Declines	***Iowa Land***	***U.S. Gross Income***	***U.S. Net Income***
1921-1933	-8.9%	-4.7%	-3.6%
1981-1987	-14.0%	2.1%	7.3%
2013-2017	1.1%	-2.4%	-6.4%
Average annual percent change in inflation-adjusted values			
Golden Eras	***Iowa Land***	***U.S. Gross Income***	***U.S. Net Income***
1910-1920	1.7%	1.1%	0.5%
1973-1981	9.6%	0.7%	-3.4%
2003-2013	11.0%	4.5%	8.2%
Crises and Declines	***Iowa Land***	***U.S. Gross Income***	***U.S. Net Income***
1921-1933	-5.8%	-2.0%	-1.3%
1981-1987	-15.0%	-2.4%	2.7%
2013-2017	-0.1%	-3.7%	-7.6%

Source: Zhang and Tidgren 2017

Positive 2: Historically low interest rates

Positive 3: Prudence in Ag Lenders/Regulators

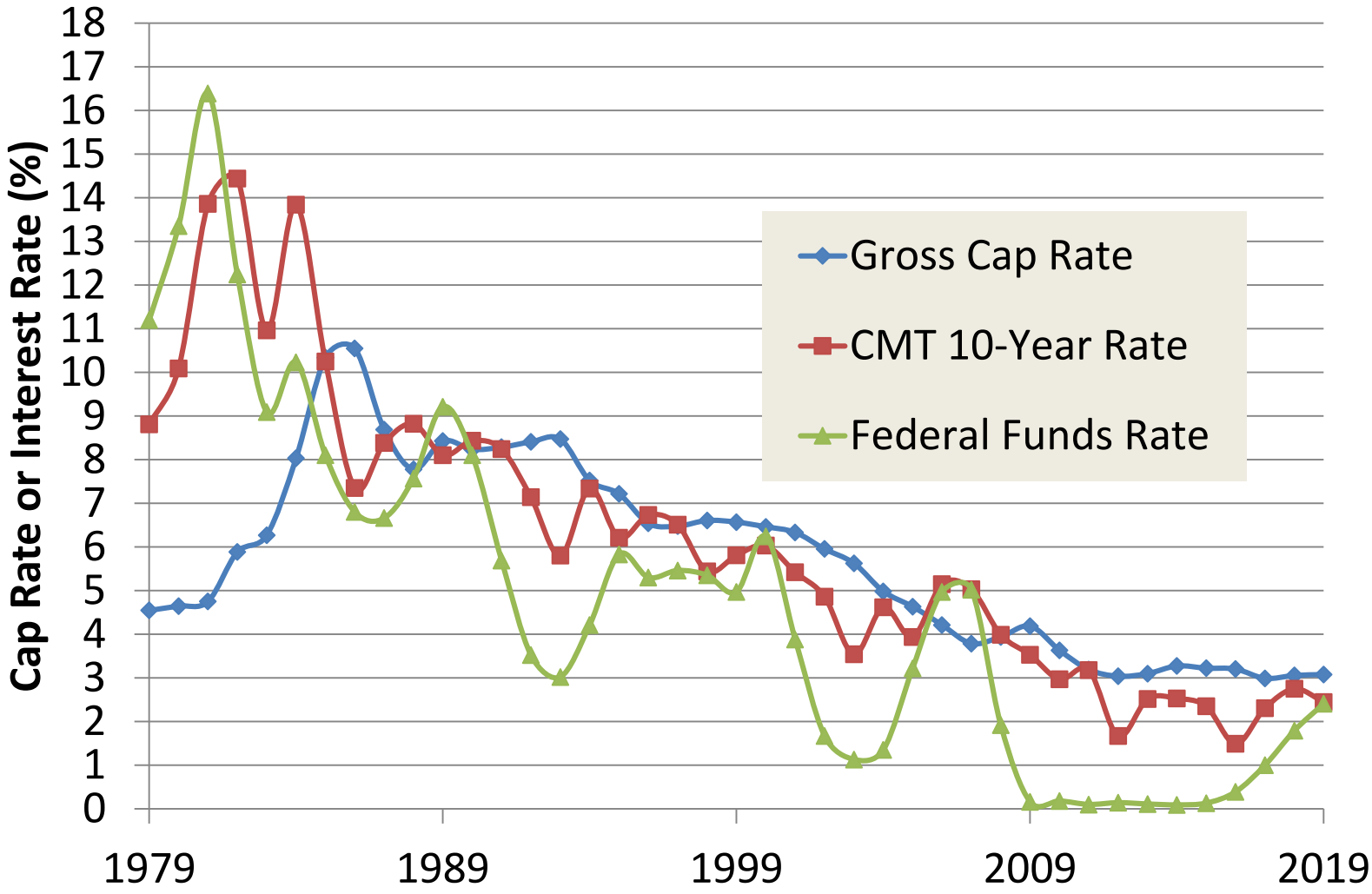
- Banking Regulations
  - More stringent, frequent stress-test
  - BASEL III, liquidity requirements for banks
  - (Ron Hansen – Iowa Division of Banking Superintendent) walk into this “with eyes wide open”
- Cash-Flow Based Loan Practice
  - Before 1987: loan to value ratio is 85%
  - 1987-2008: loan to value ratio is 65%
  - After 2008: use cash-flow method for collateral ($4 corn, $10 bean) and 50% of cash flow value

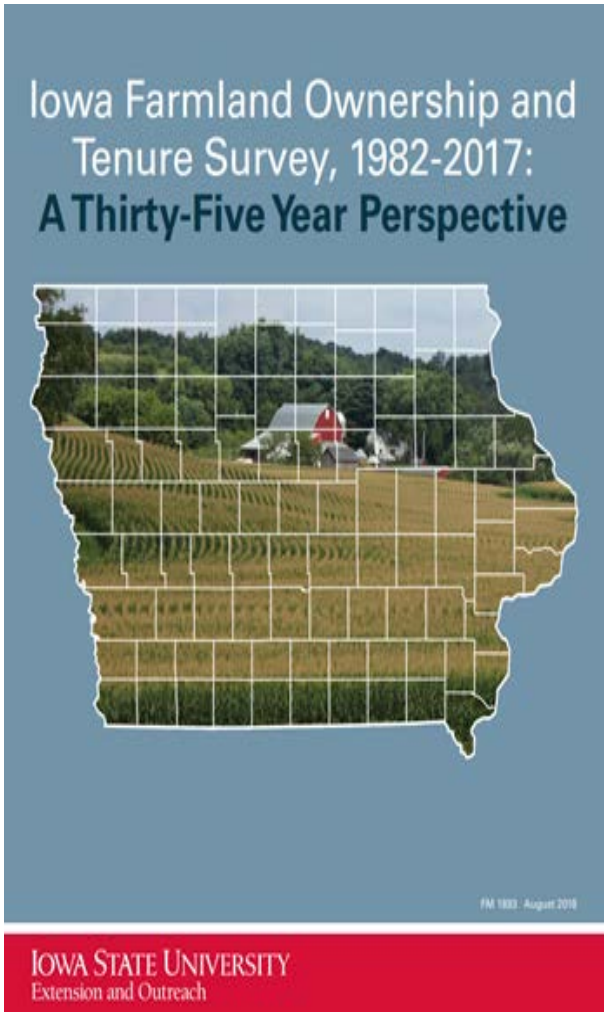
Lenders more institutionalized & regulated

FARMLAND DEBT BY LENDER

	1920	1980	2016
PRIVATE INVESTORS	75%	31%	5.6%
COMMERCIAL BANKS	13%	8.7%	37.6%
LIFE INSURANCE	12%	13%	5.9%
FARM CREDIT SERVICES		37%	46.2%
FSA/FARMER MAC		8.3%	4.7%
STORAGE FACILITY LOANS			1.8%

Cap Rate tends to Track Interest Rates





- 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

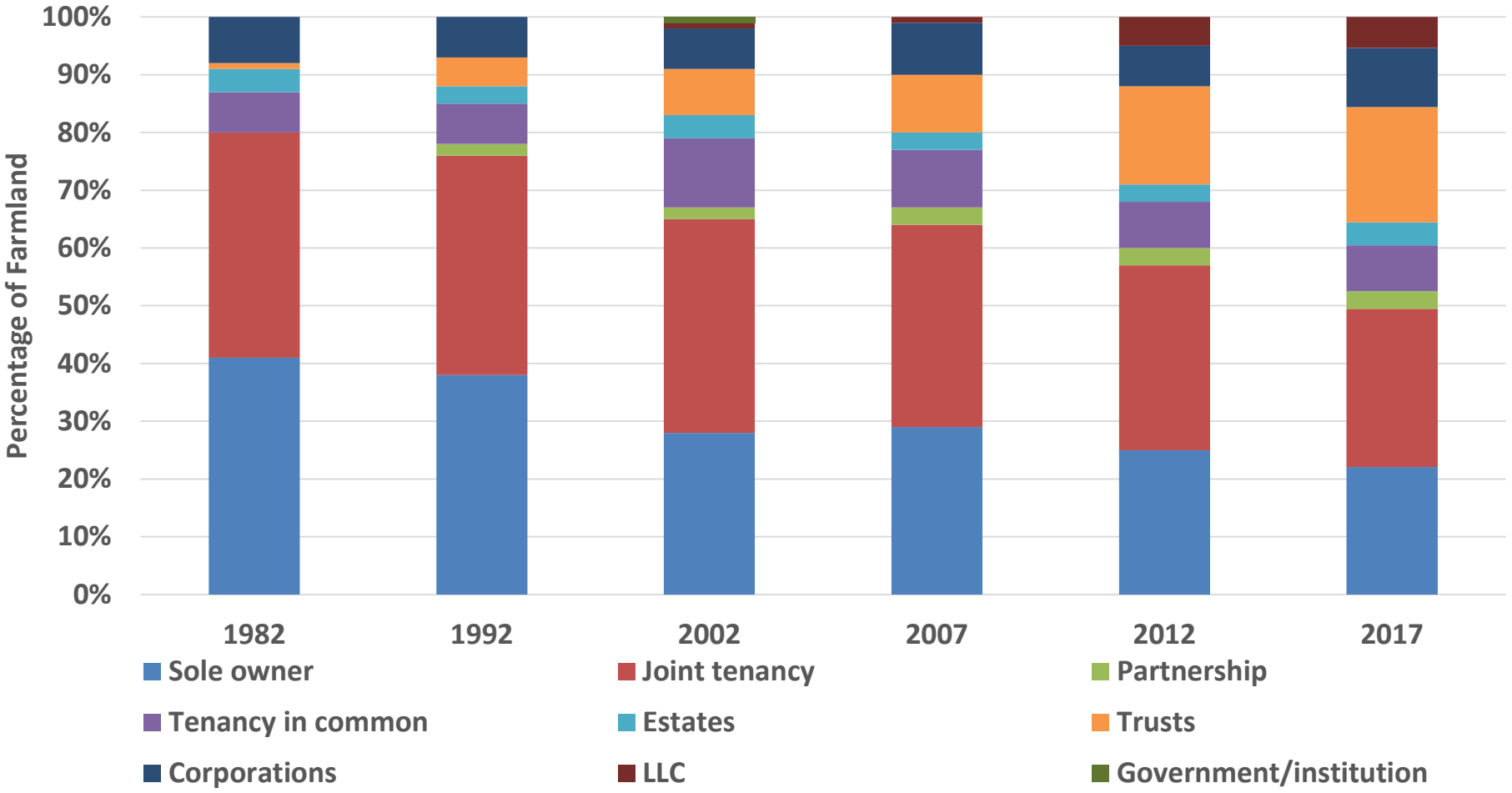
($5 each print copy!)

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

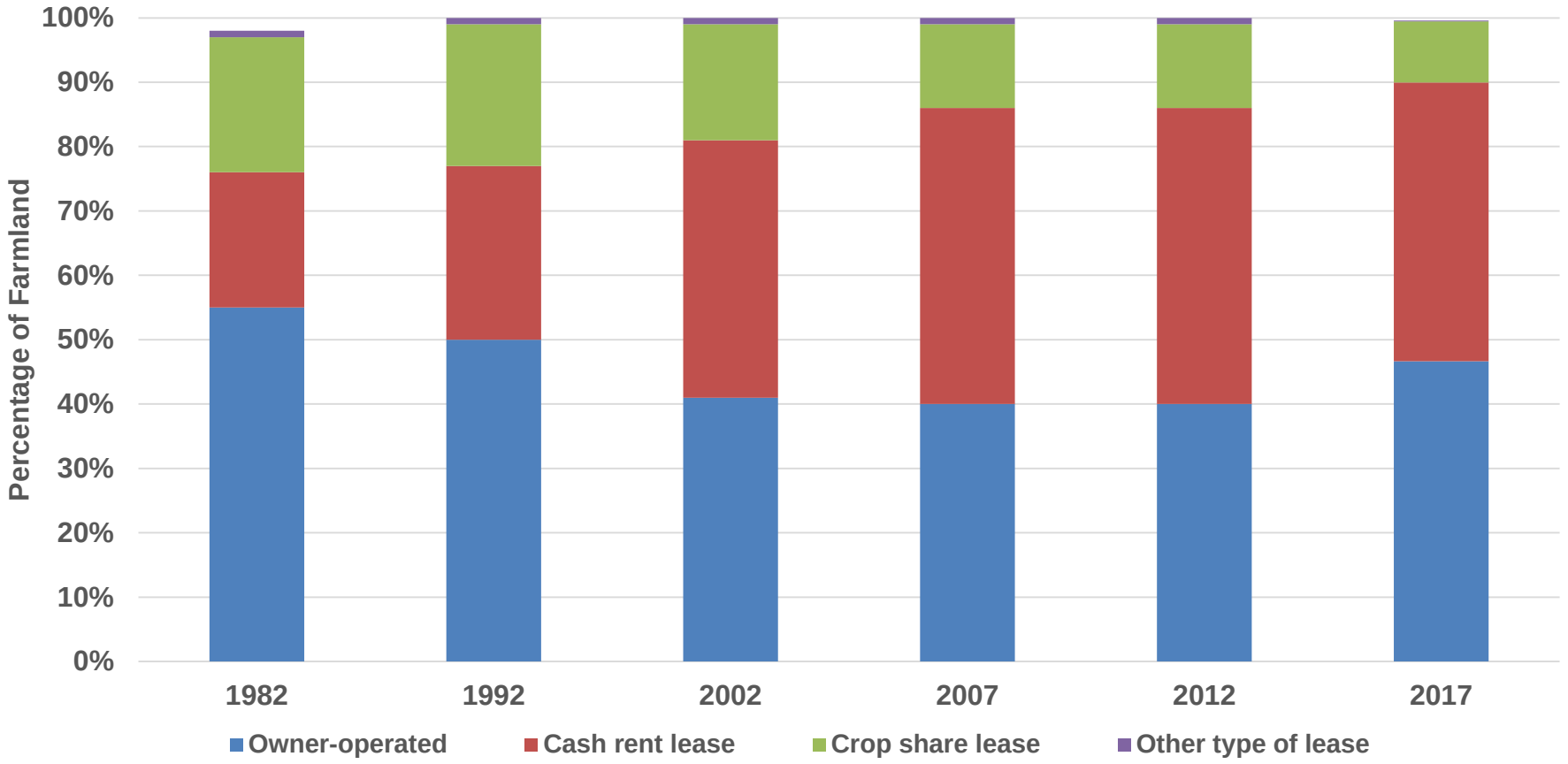
Iowa Farmland Ownership and Tenure Survey - history

- **The first and only consistent data collection of land ownership & tenure in the nation**:
  - 1949, 1958, 1970, 1976, 1982, 1992, 1997, 2002, 2007, 2012, **and 2017**.
- **Statistically representative of all owners & all land in Iowa**
- Widely used and best available information
- USDA data: AELOS 1999, TOTAL 2014

Distribution of Iowa Farmland Acres by Land Ownership Type 1982-2017



Distribution of Iowa Farmland Acres by Tenure 1982-2017

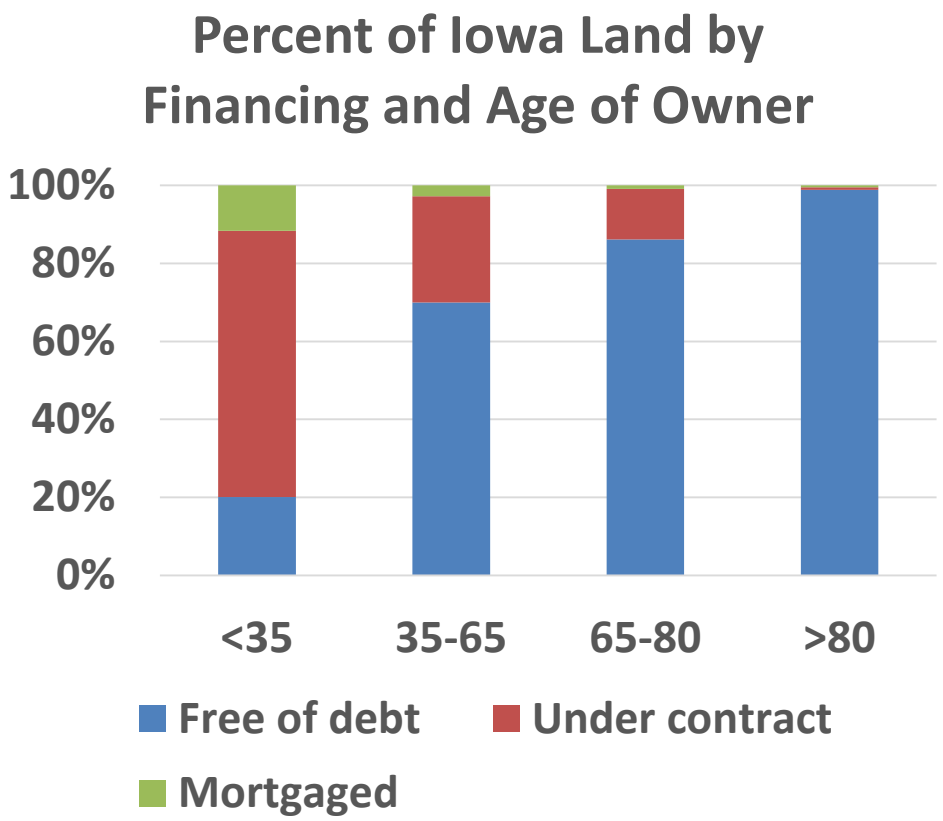


Percent of Land across Iowa Residency and Leasing Relationship 2017

Iowa Residency	Owner-Operated	Cash Rent	Crop Share	Percent of Land by Iowa Residency
Live in Iowa full time	53%	41%	7%	**80%**
Live in Iowa Part-time	27%	60%	13%	**7%**
Do not live in Iowa	26%	48%	25%	**13%**

Method of Finance 1982-2017

Younger owner have more contracts and debt

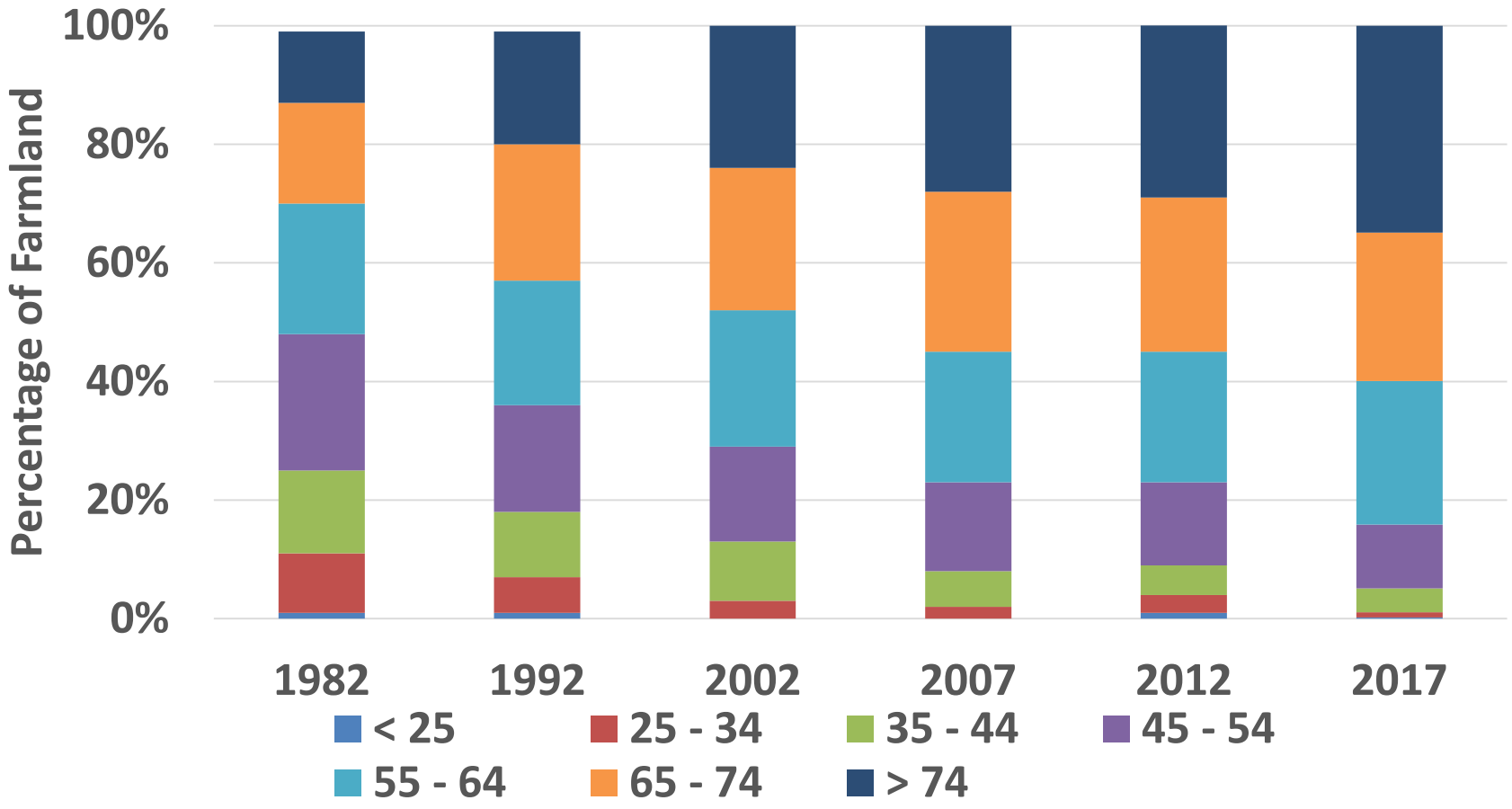


Years Owned	2017	2012
> 50 Years	8%	20%
40-50 Years	12%	
30-40 Years	13%	15%
20-30 Years	20%	19%
10-20 Years	24%	21%
< 10 Years	24%	24%

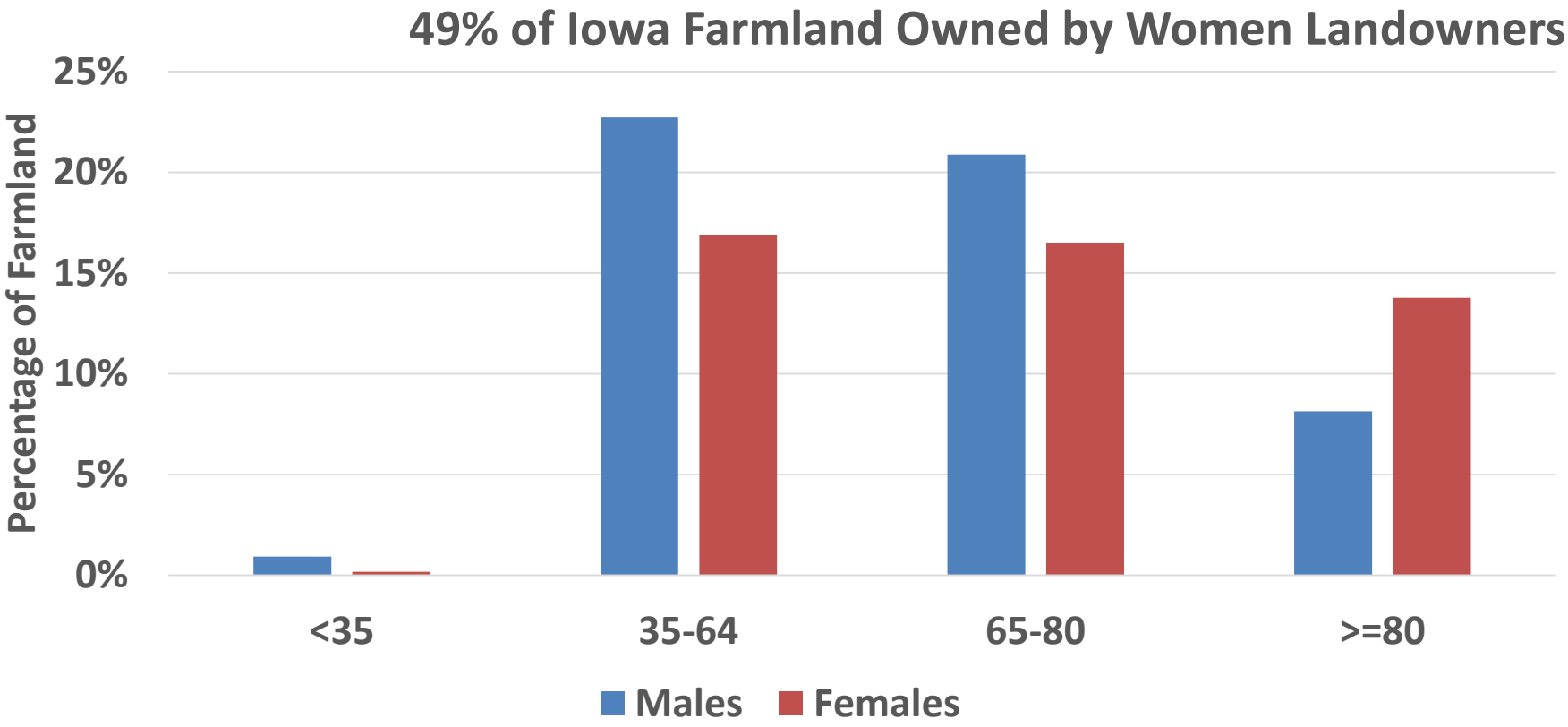
Percent of Land and Owners Using Various Conservation Practices 2017

	Owners	Acres
No-till	21%	27%
Cover crops	5%	4%
Buffer strips	3%	3%
Pond or sedimentation basin	1%	2%

% of Farmland by Age of Owners 1982-2017 – Avg. Age 64.5 years



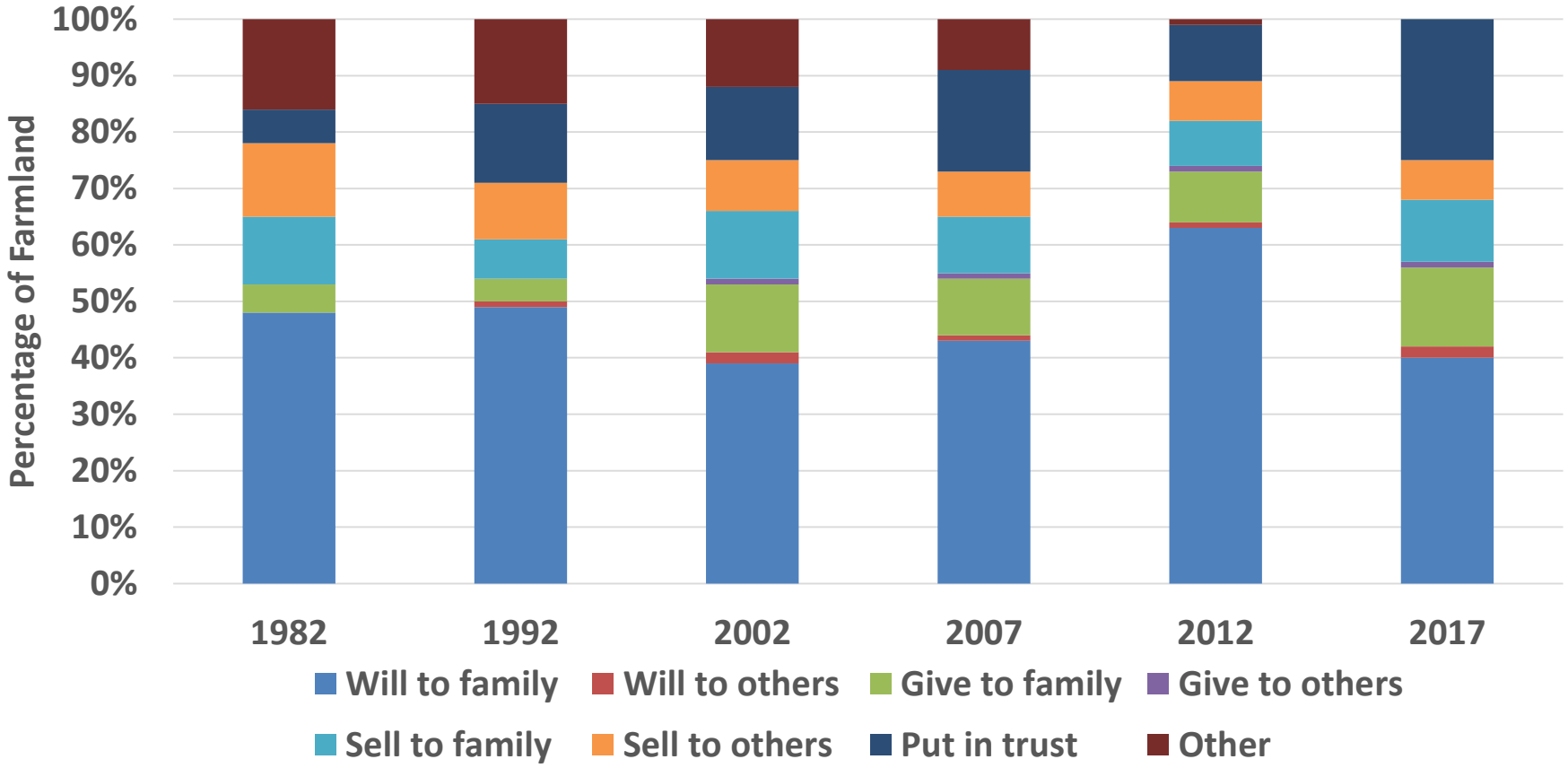
% of Iowa Farmland by Owner Age and Gender



Primary Reason to Own Land 2012 vs. 2017

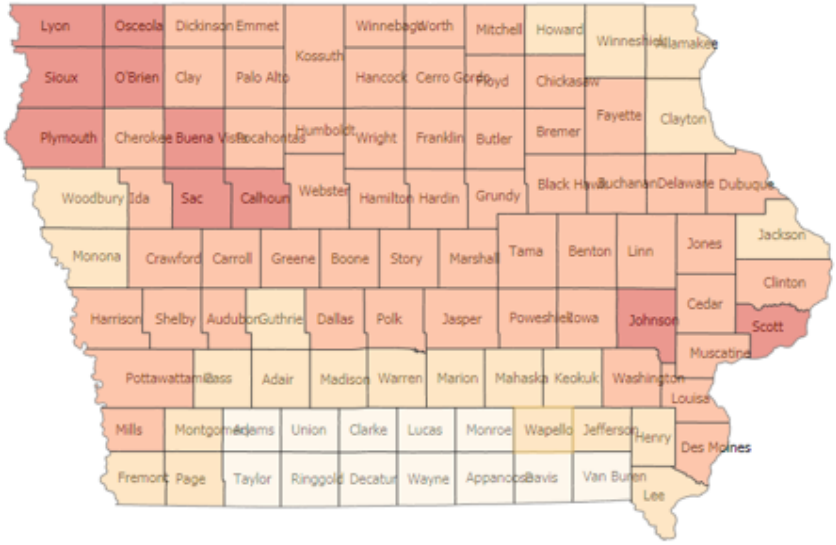
	2012	2017				
		All	<35	35-65	65-80	>80
Current income	56%	**49%**	40%	56%	45%	41%
Long-term investment	19%	**19%**	44%	15%	22%	19%
Family or Sentimental	22%	**29%**	0%	25%	30%	38%
Home	1%	**2%**	12%	2%	1%	1%
Recreation	1%	**1%**	5%	1%	1%	0%
None given	1%	**1%**	0%	1%	0%	1%

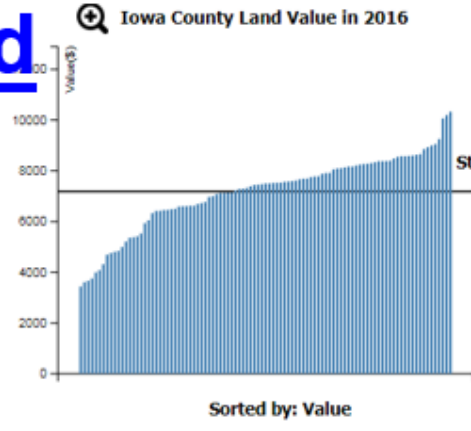
Method of Anticipated Transfer 1982-2017

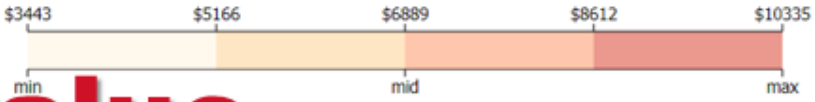


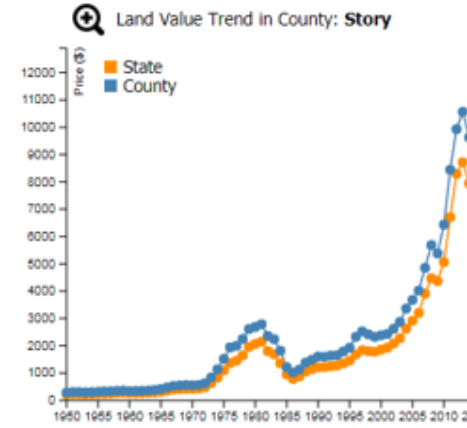
https://www.card.iastate.edu/farmland

Iowa Farmland Value Portal









#ISUlandvalue

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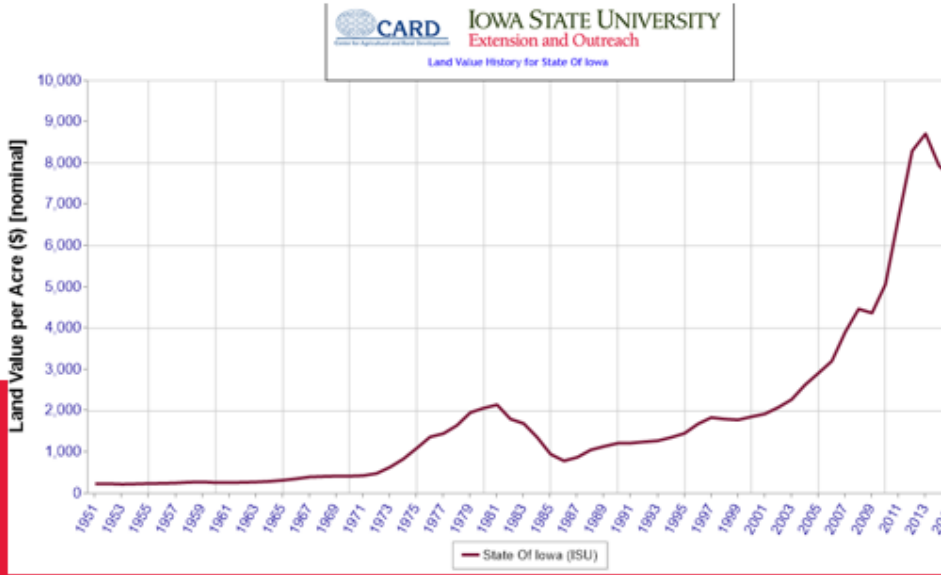
http://bit.ly/LandResults2017



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Vol. 23, No. 4 www.extension.iastate.edu/agdm February 2019

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By Wendong Zhang, extension economist, 515-294-2536, wdzhang@iastate.edu

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Thank You!

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