

# Soft Landing? Buying and Renting Agricultural Land in 2023

---

## Wendong Zhang

Assistant Professor, Dyson School of Applied Economics and Management, Cornell University;

[wendongz@cornell.edu](mailto:wendongz@cornell.edu)

(607) 254-3231

<https://wendongzhang.weebly.com/>



Dyson  
Cornell  
SC Johnson College of Business

## Matthew Gammans

Assistant Professor, Department of Agricultural, Food, and Resource Economics, Michigan State University;

[gammansm@msu.edu](mailto:gammansm@msu.edu)

(616) 204-4506

**MICHIGAN STATE**  
UNIVERSITY

College of Agriculture  
and Natural Resources

# A Quick Introduction: Dr. Wendong Zhang

- Grew up in a rural county in Shandong Province, China
- Attended college in Shanghai and Hong Kong
- Ph.D. in Ag Econ from Ohio State in 2015
- Worked at Iowa State for 7 years, leading the Iowa Land Value Survey
- Moved to Cornell University Dyson School of Applied Economics & Mgmt in July 2022 (50% extension appointment)
- 2022 Iowa Farmland Ownership and Tenure Survey will be released early June 2023
- Research and extension interests:

**land value/ownership** <https://www.card.iastate.edu/farmland>

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

Cornell Institute for China Economic Research (CICER)

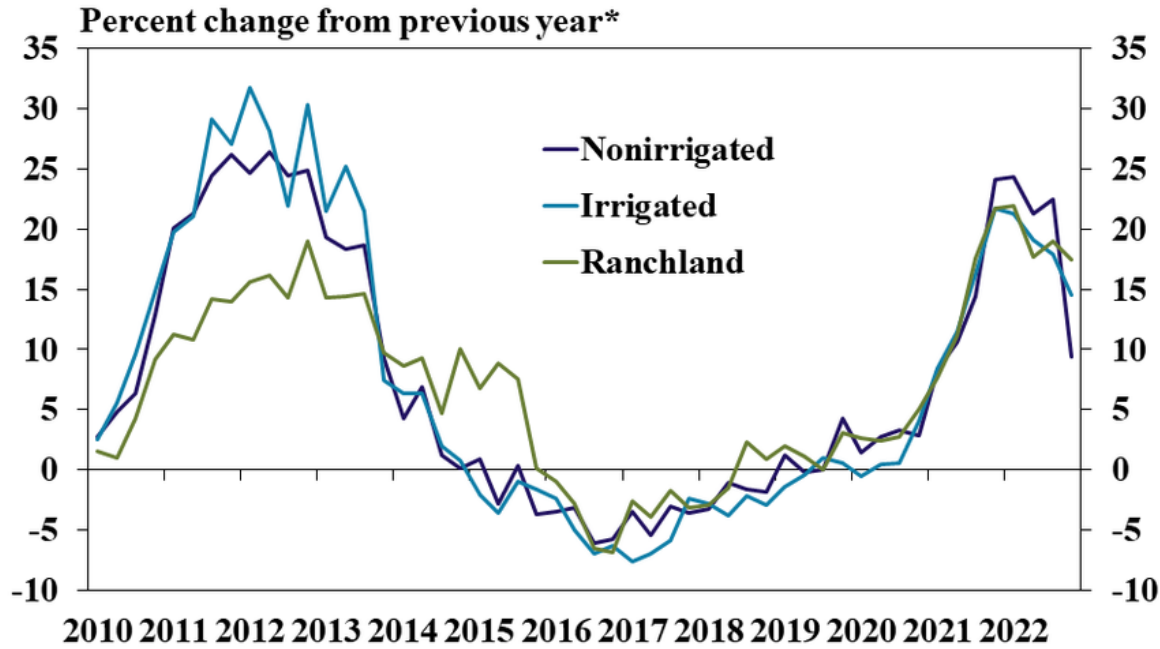
<http://china.dyson.cornell.edu/>

Cornell Atkinson Center for Sustainability: <https://www.atkinson.cornell.edu/>

### Chart 3: Tenth District Farmland Values



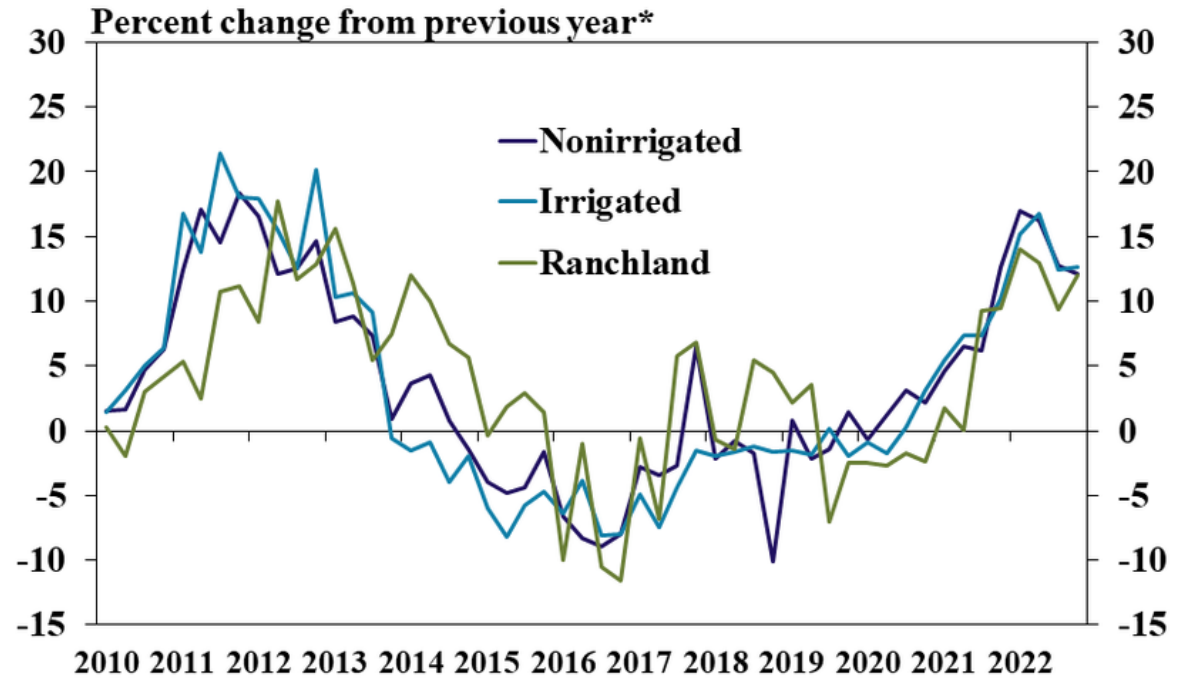
February 17, 2023 | Agriculture | Ag Credit Survey



\*Percent changes are calculated using responses only from those banks reporting in both the past and the current quarters.

<https://www.kansascityfed.org/agriculture/ag-credit-survey/growth-in-farmland-value-continues-but-higher-rates-temper-the-outlook/>

### Chart 4: Tenth District Cash Rents



\*Percent changes are calculated using responses only from those banks reporting in both the past and the current quarters.

Growth in farm real estate values remained strong, but showed signs of easing alongside higher interest rates.

# FEDERAL RESERVE BANK *of* CHICAGO

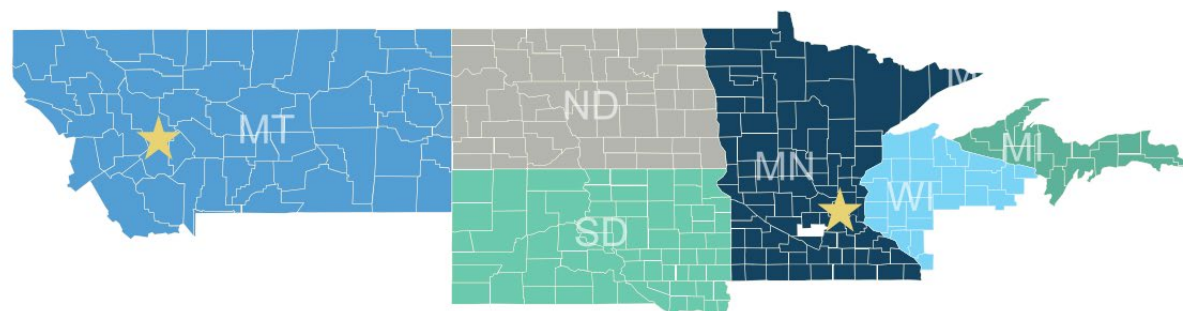
## Percent change in dollar value of "good" farmland

	July 1, 2022 to October 1, 2022	October 1, 2021 to October 1, 2022
<b>Illinois</b>	+5	+20
<b>Indiana</b>	+8	+29
<b>Iowa</b>	+6	+22
<b>Michigan</b>	*	*
<b>Wisconsin</b>	-3	+12
<b>Seventh District</b>	+4	+20

## Percent change in dollar value of "good" farmland

	October 1, 2022 to January 1, 2023	January 1, 2022 to January 1, 2023
<b>Illinois</b>	+2	+14
<b>Indiana</b>	+1	+23
<b>Iowa</b>	-2	+11
<b>Michigan</b>	*	*
<b>Wisconsin</b>	-1	+11
<b>Seventh District</b>	0	+12

## THE FED'S NINTH DISTRICT



# Another strong finish to the year for Ninth District farmers

Fourth-quarter 2022 agricultural credit conditions survey

February 15, 2023

## Cash rents and land values

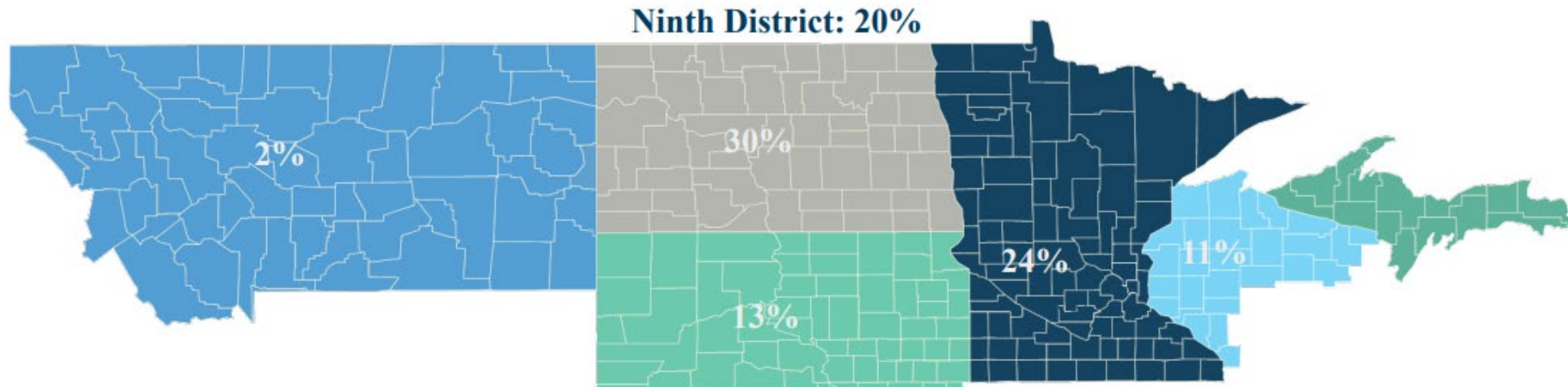
About half of all lenders across the district reported that the volume of land sales increased in their areas in 2022, while 12 percent said the number of sales decreased. “The number of land sales are higher, mainly due to estate sales from non-farming heirs,” wrote a Minnesota lender. A Wisconsin contact said that while recreational land sales to non-farmers increased, “some of it is being rented back to local farmers.”

Cropland values continued to climb in the final three months of 2022, and cash rents also increased. Nonirrigated cropland values increased 18 percent on average across the district compared with a year earlier, while cash rents for that land increased 10 percent. Irrigated farmland values rose 16 percent on average, while ranchland values rose 12 percent.



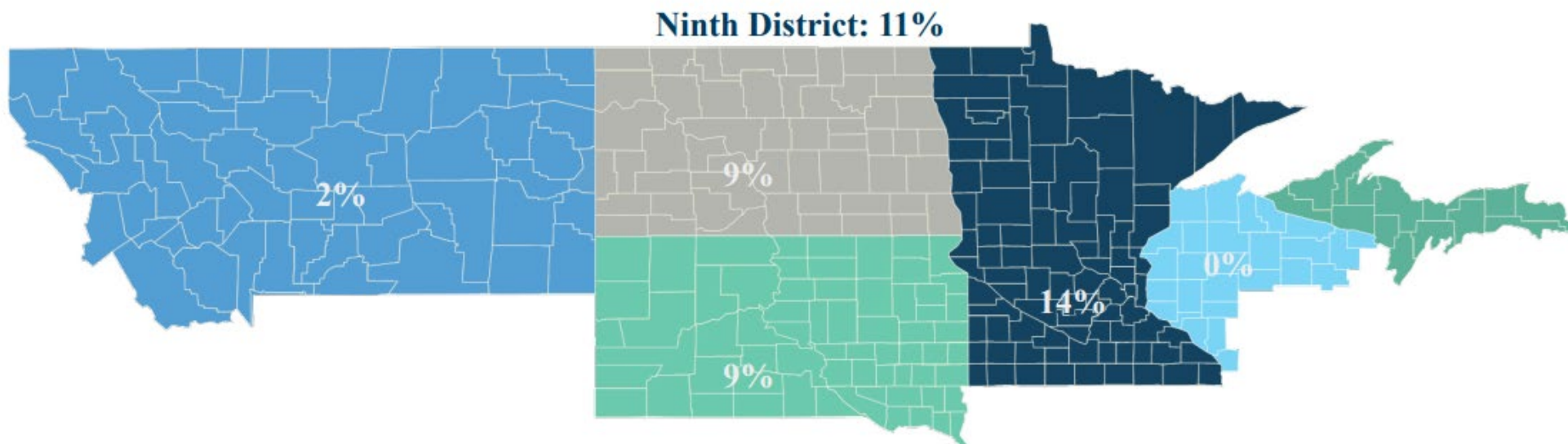
# LAND VALUES UP FROM LAST YEAR

AVERAGE CHANGE IN PRICE OF NONIRRIGATED FARMLAND, 2021Q3-2022Q3

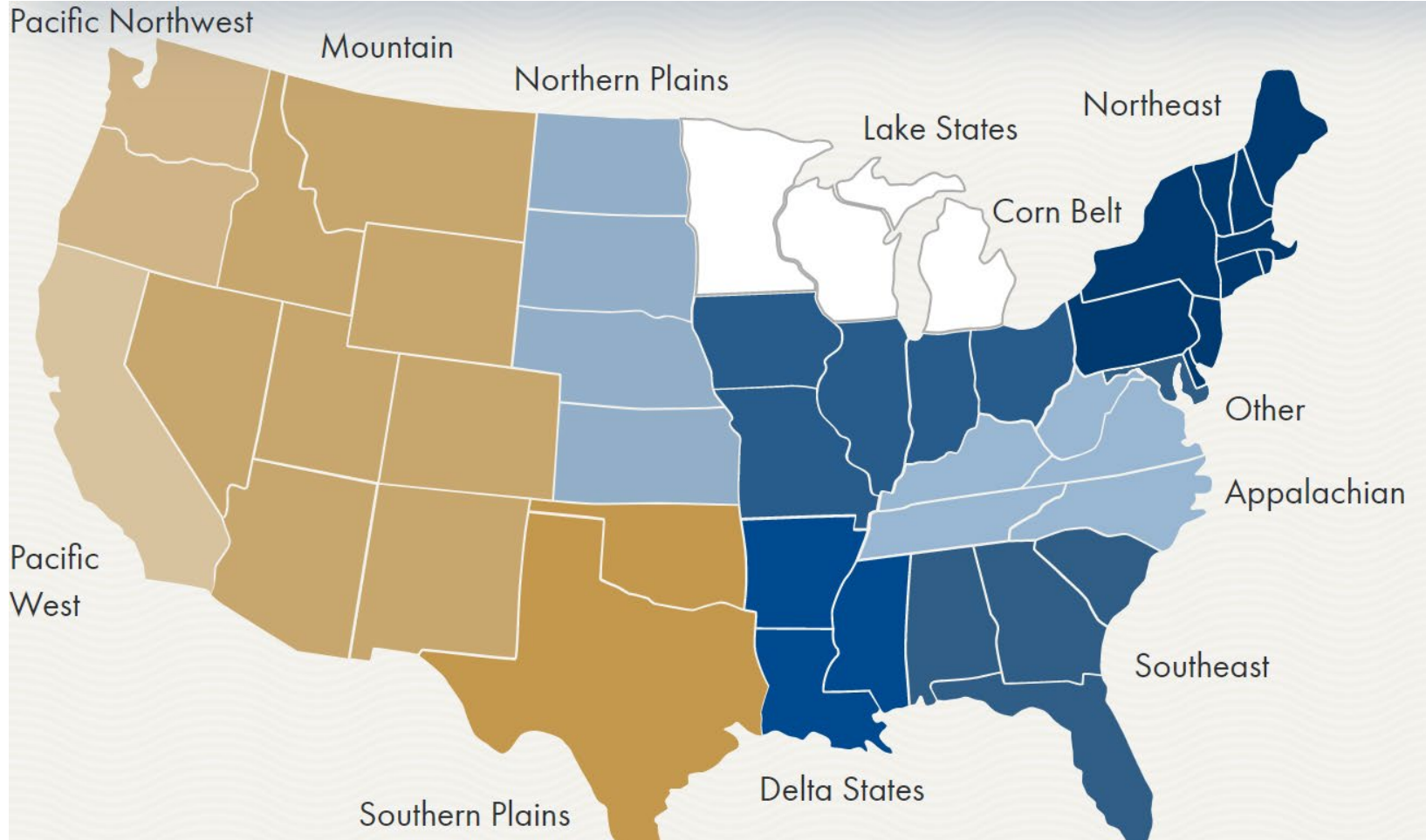


# CASH RENTS INCREASED TOO

AVERAGE CHANGE IN CASH RENTS FOR NONIRRIGATED FARMLAND, 2021Q3-2022Q3



# NCREIF Farmland Property Index



**4th Quarter 2022**

Total Market Value:  
\$518,575,252.00

FILTER BY PROPERTY TYPE

All

Permanent  
Cropland

Annual  
Cropland

**3.98%**

**1.46%**

**1.71%**

**8.88%**

**16.82%**

1 Q 2022

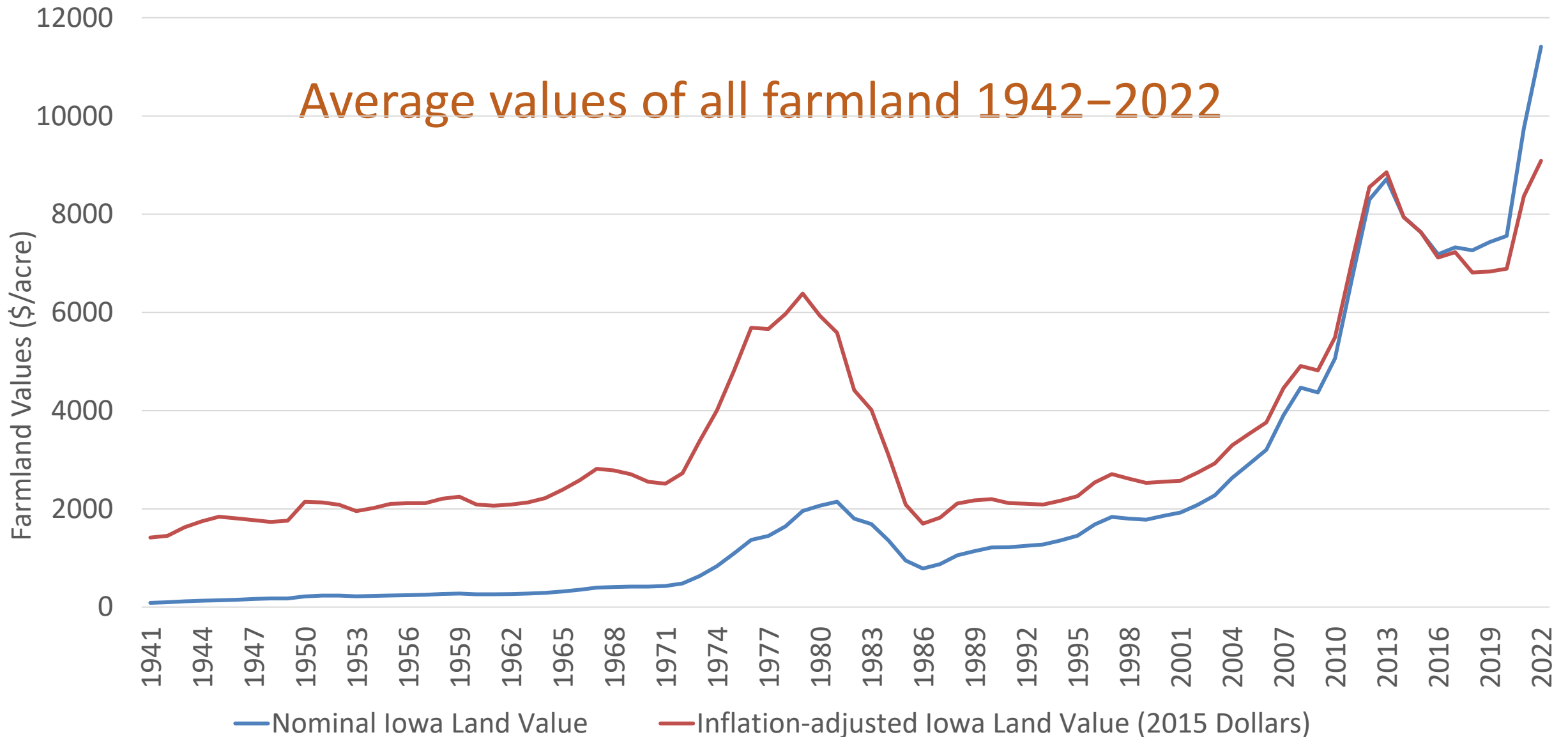
2 Q 2022

3 Q 2022

4 Q 2022

2022 ANNUAL TOTAL

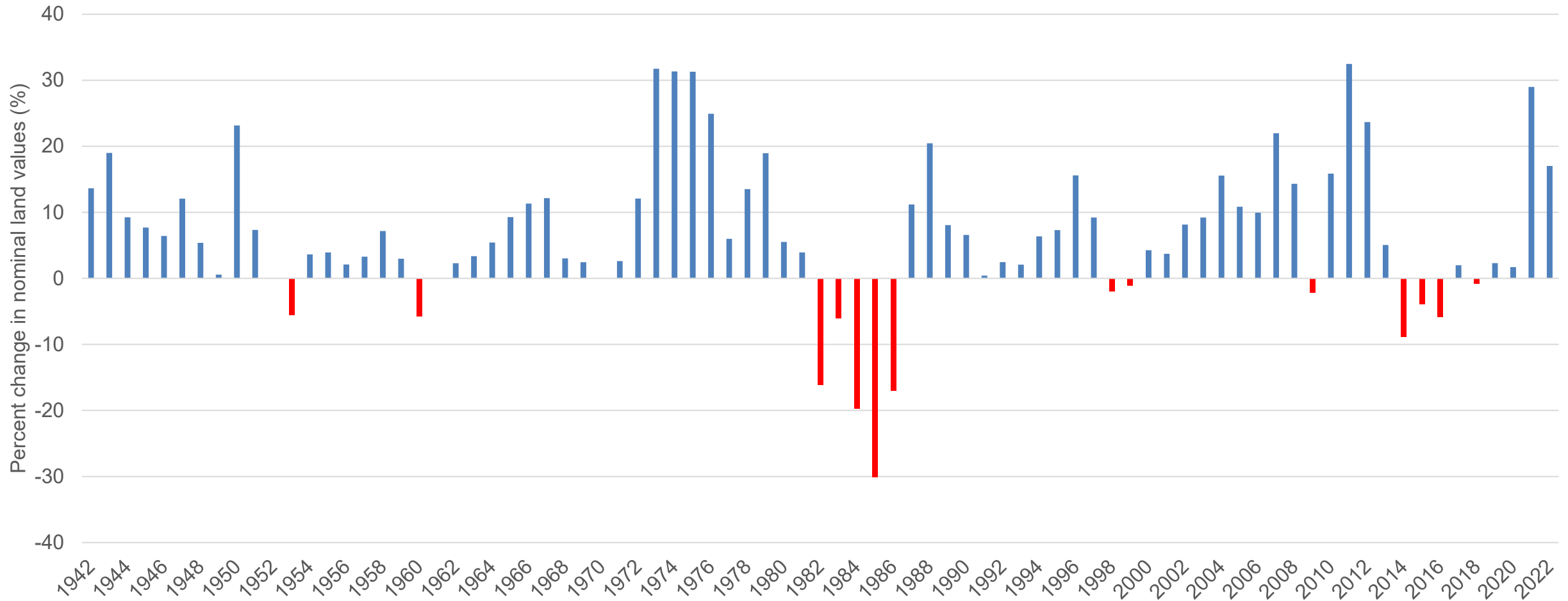
# Nominal and inflation-adjusted land values all reach historic highs (Nominal values +17%; Inflation-adjusted values +8.6%)





# 2022 hike: 17% nominal, 8.6% inflation-adjusted

## % Change in Nominal Iowa Farmland Values 1942–2022

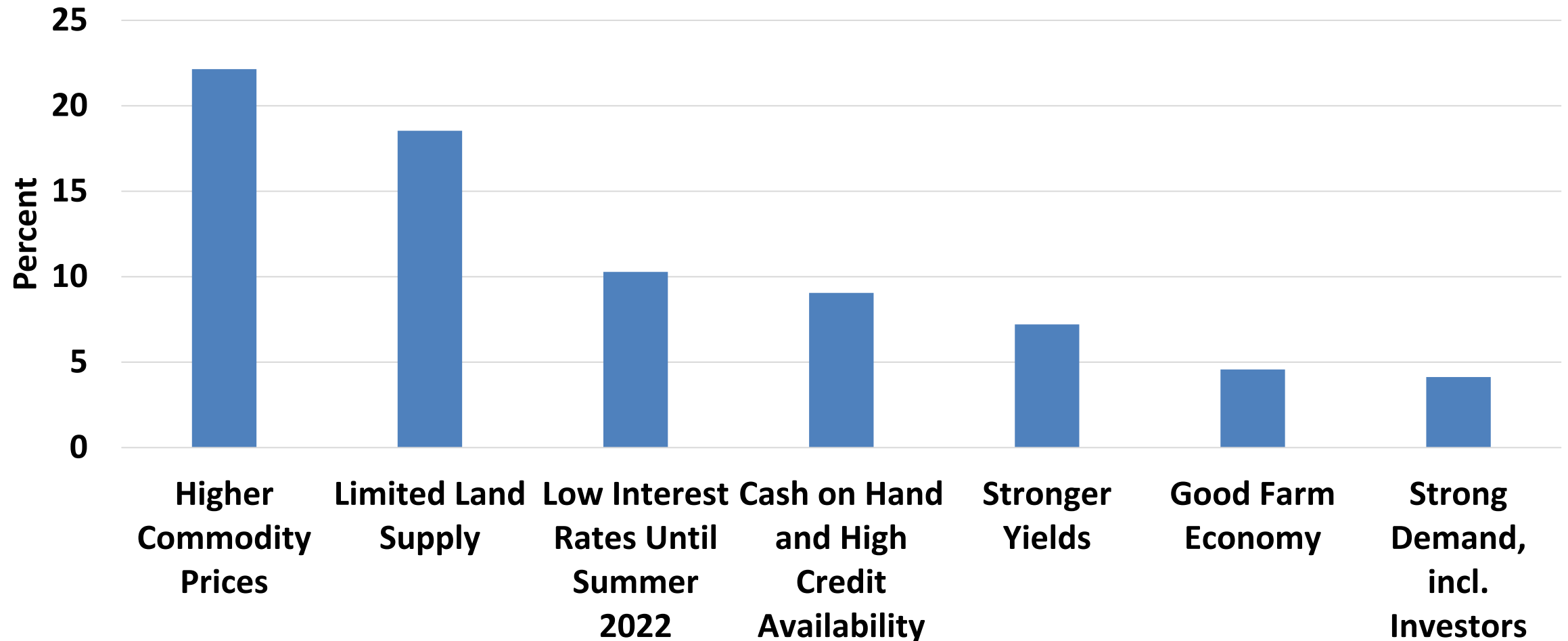


# Local Land Supply and Demand Explain Variations in Land Market

**Land Value = localized net income / universal interest rate**

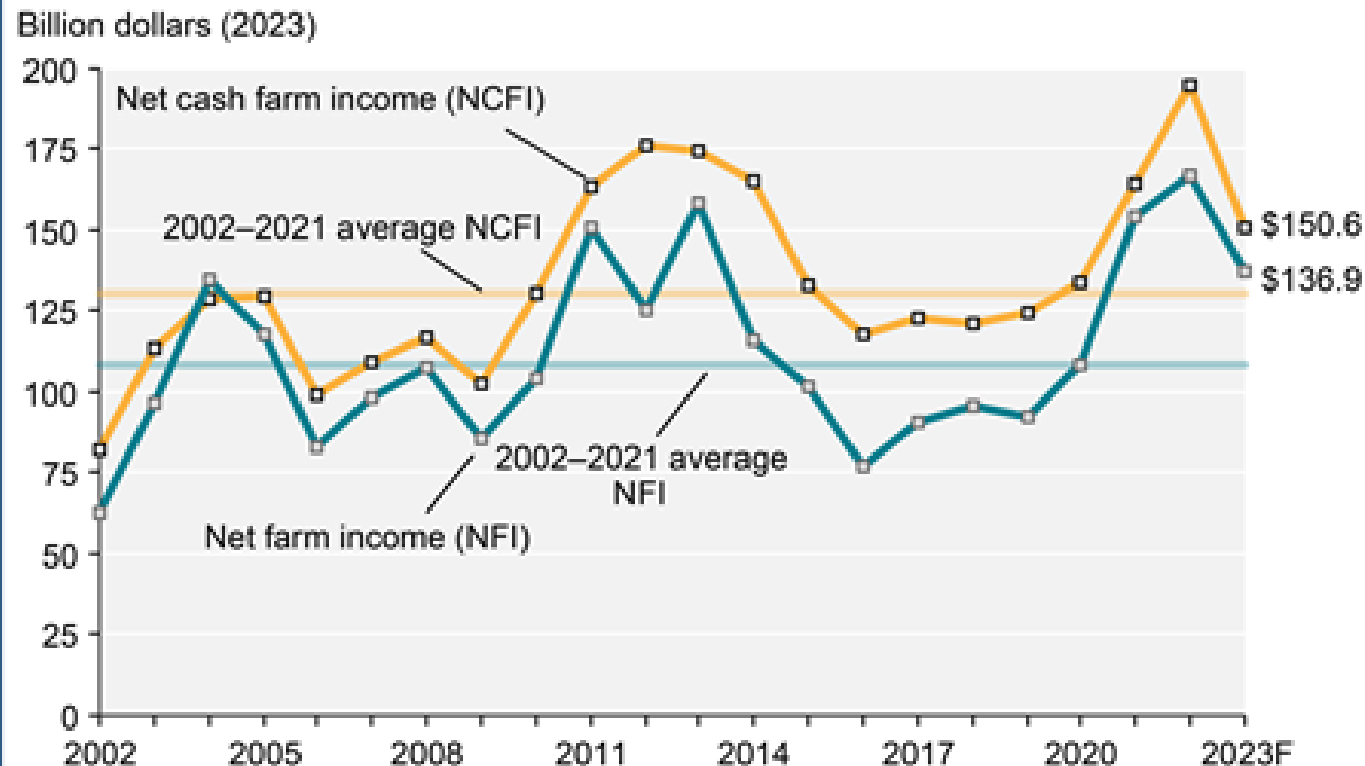
# Major Positive Factors Affecting Iowa Farmland Market, 2022

Positive Factors Affecting 2022 Farmland Market



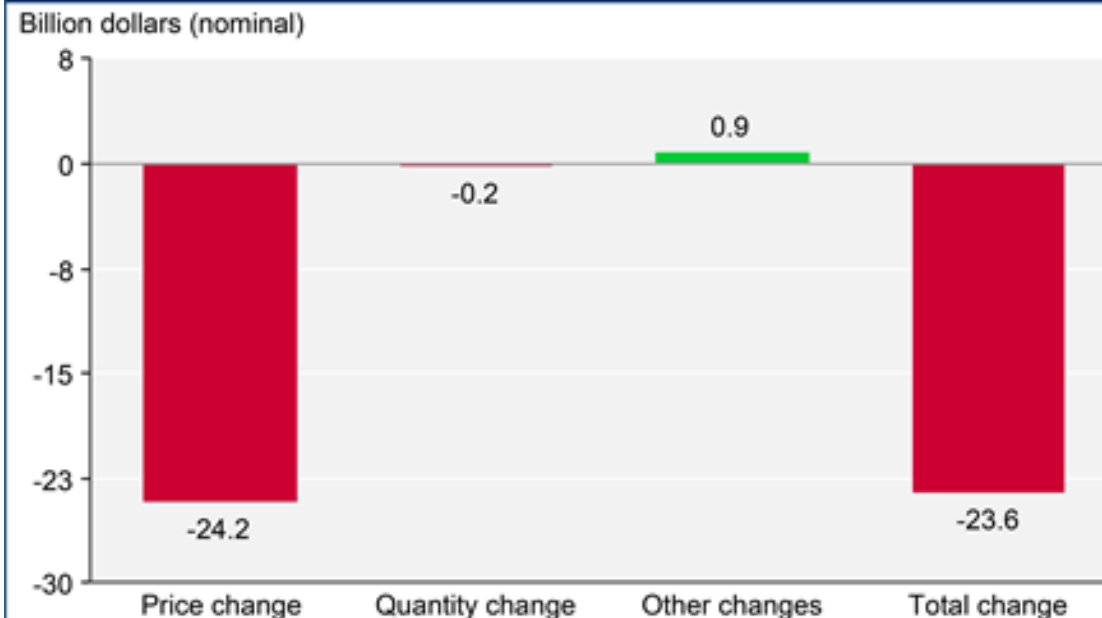
# 2023 Farm Income is Stronger, But is Smaller

U.S. net farm income and net cash farm income, inflation adjusted, 2002–2023F



Note: F = forecast. Data for 2022 and 2023 are forecasts. Values are adjusted for inflation using the U.S. Bureau of Economic Analysis Gross Domestic Product Price Index (BEA API series code: A191RG) rebased to 2023 by USDA, Economic Research Service. Source: USDA, Economic Research Service, Farm Income and Wealth Statistics. Data as of February 7, 2023.

Change in U.S. farm cash receipts, 2022F–2023F, by component of change



Note: F = forecast. Other changes include price/quantity changes in "all other crops" (excluding sugarcane and sugarbeets), proso millet, and miscellaneous animals/products for which data are not available. Price, quantity, and other changes may not sum to total because of rounding.

Source: USDA, Economic Research Service, Farm Income and Wealth Statistics. Data as of February 7, 2023.

<https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast/>





Sources: Board of Governors; Dallas Fed



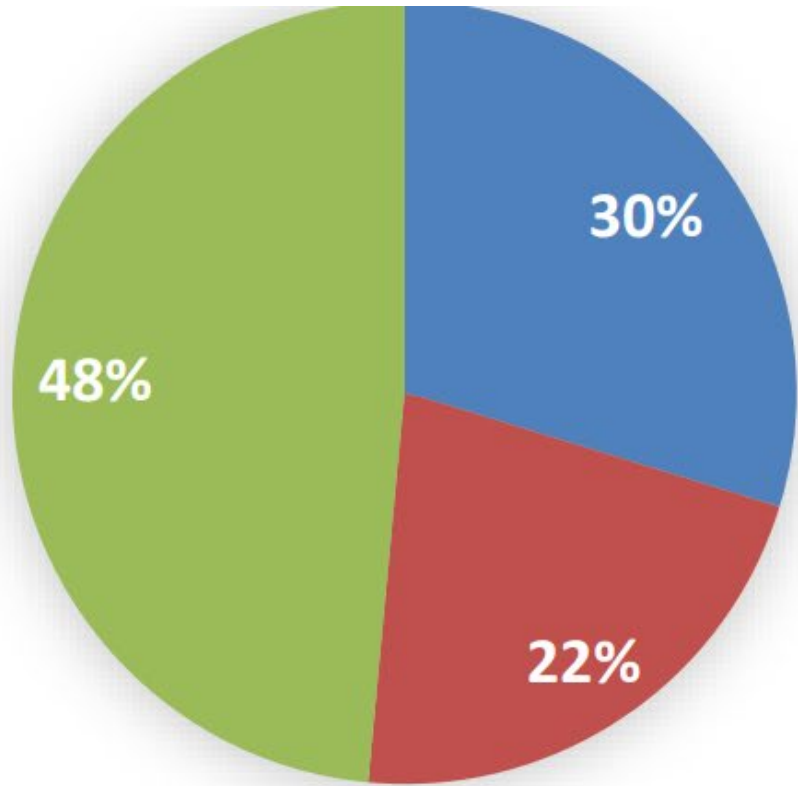
# Interest Rates are Higher

**The Fed Raises Rates a Quarter Point in February 2023 and Signals More Ahead**

America's central bank has shifted into a new phase, raising rates more slowly as inflation shows signs of moderating.

**The New York Times**

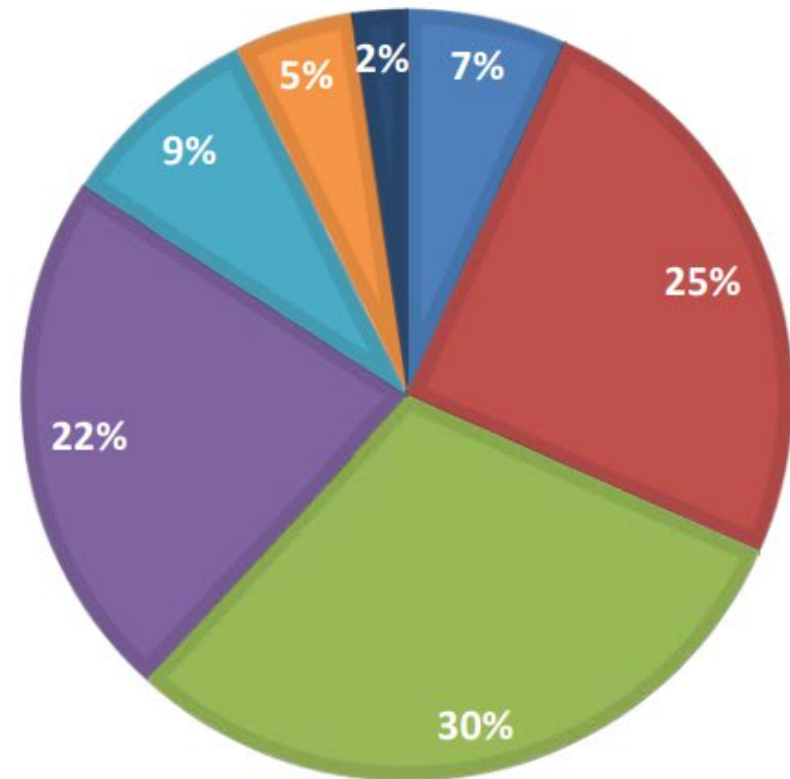
# Who are the tenants? – Iowa data from 2017



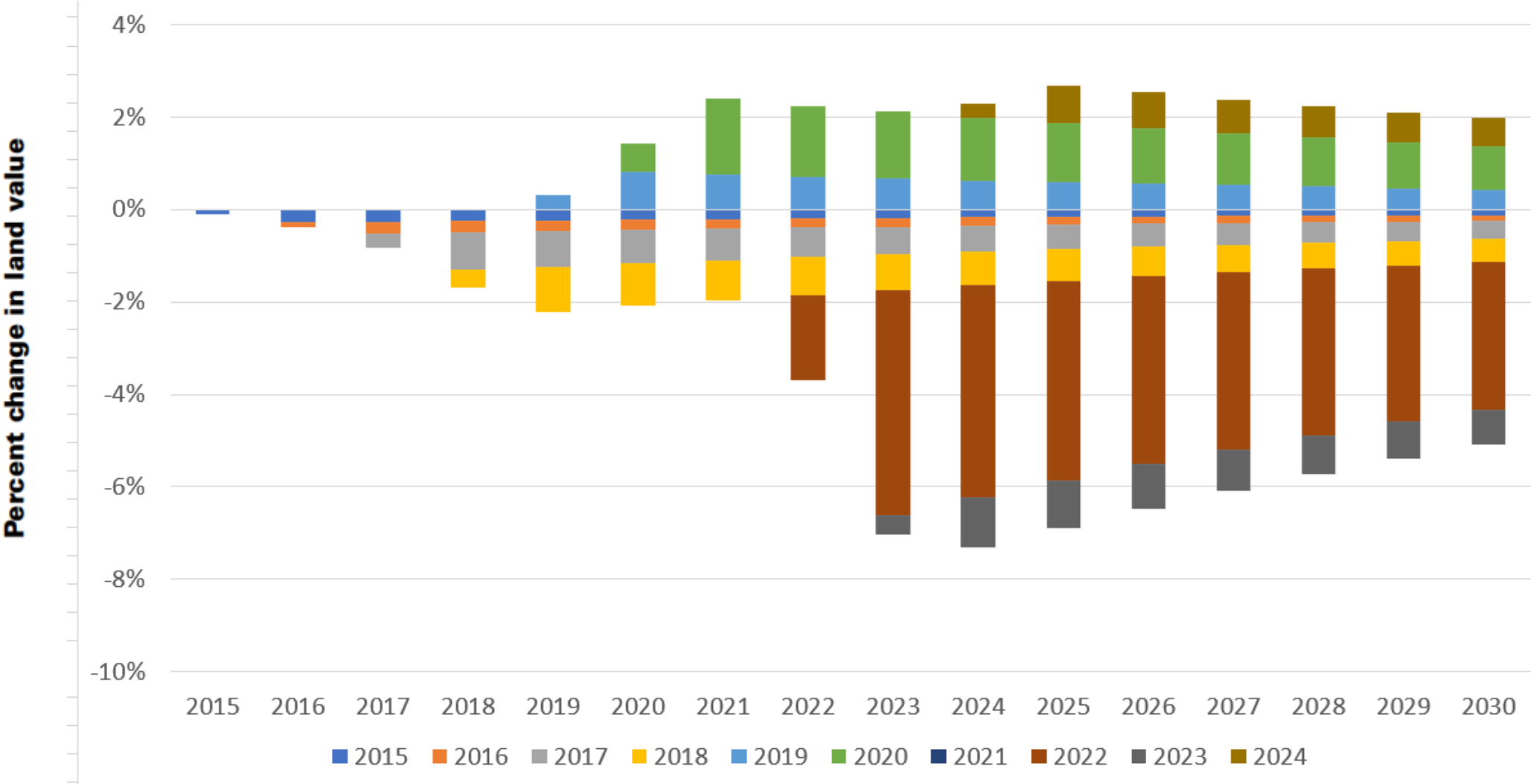
- relative
- close friend
- someone else

## YEARS OF LEASING RELATIONSHIP (NOT LEASE)

- 1 Year
- 2 to 5 Years
- 6 to 10 Years
- 11 to 20 Years
- 21 to 30 Years
- 31 to 40 Years
- 41 Years or More

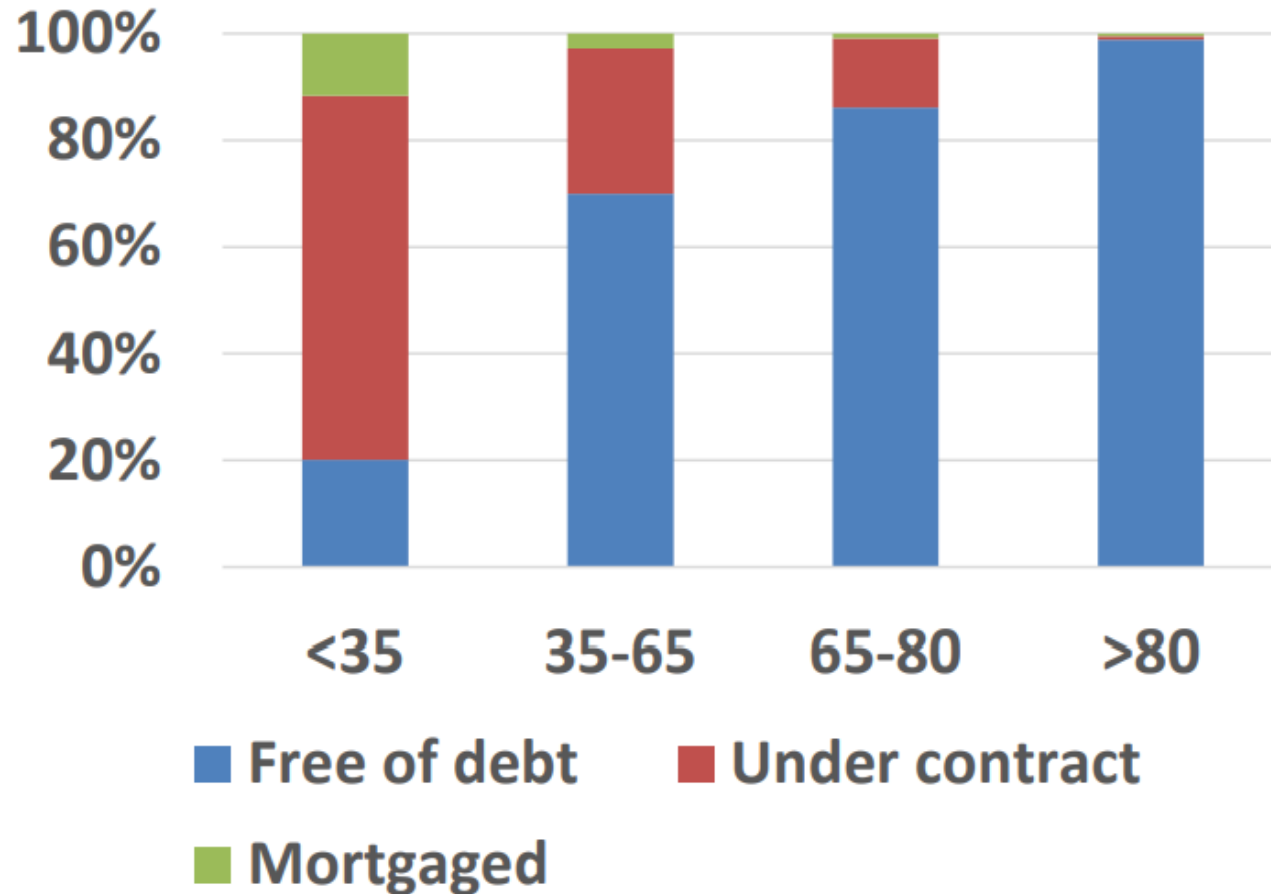


# The short- & long-term impacts of recent and projected federal interest rate changes on Lakes states' farmland values



# 81% of Iowa land is owned debt-free

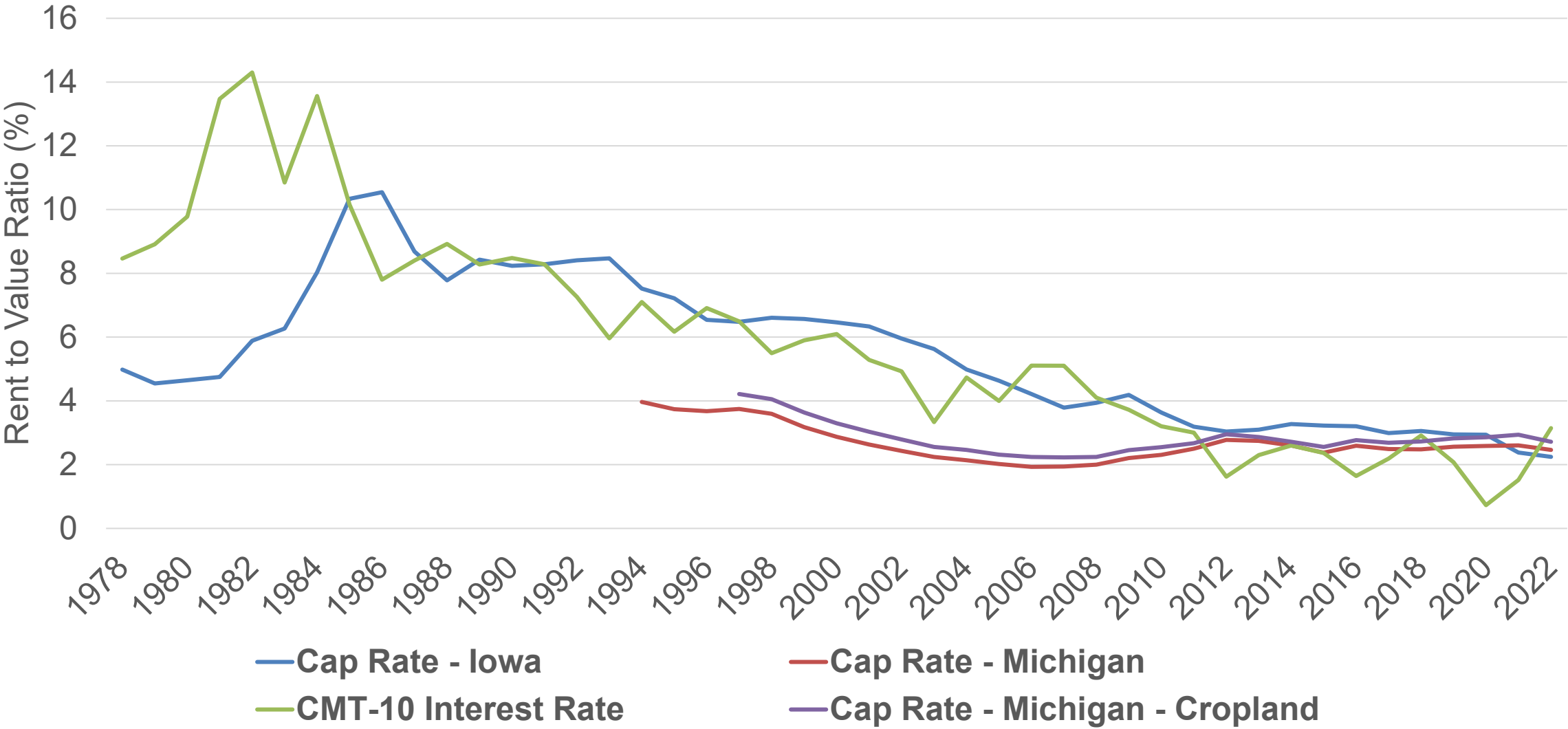
Percent of Iowa Land by Financing and Age of Owner



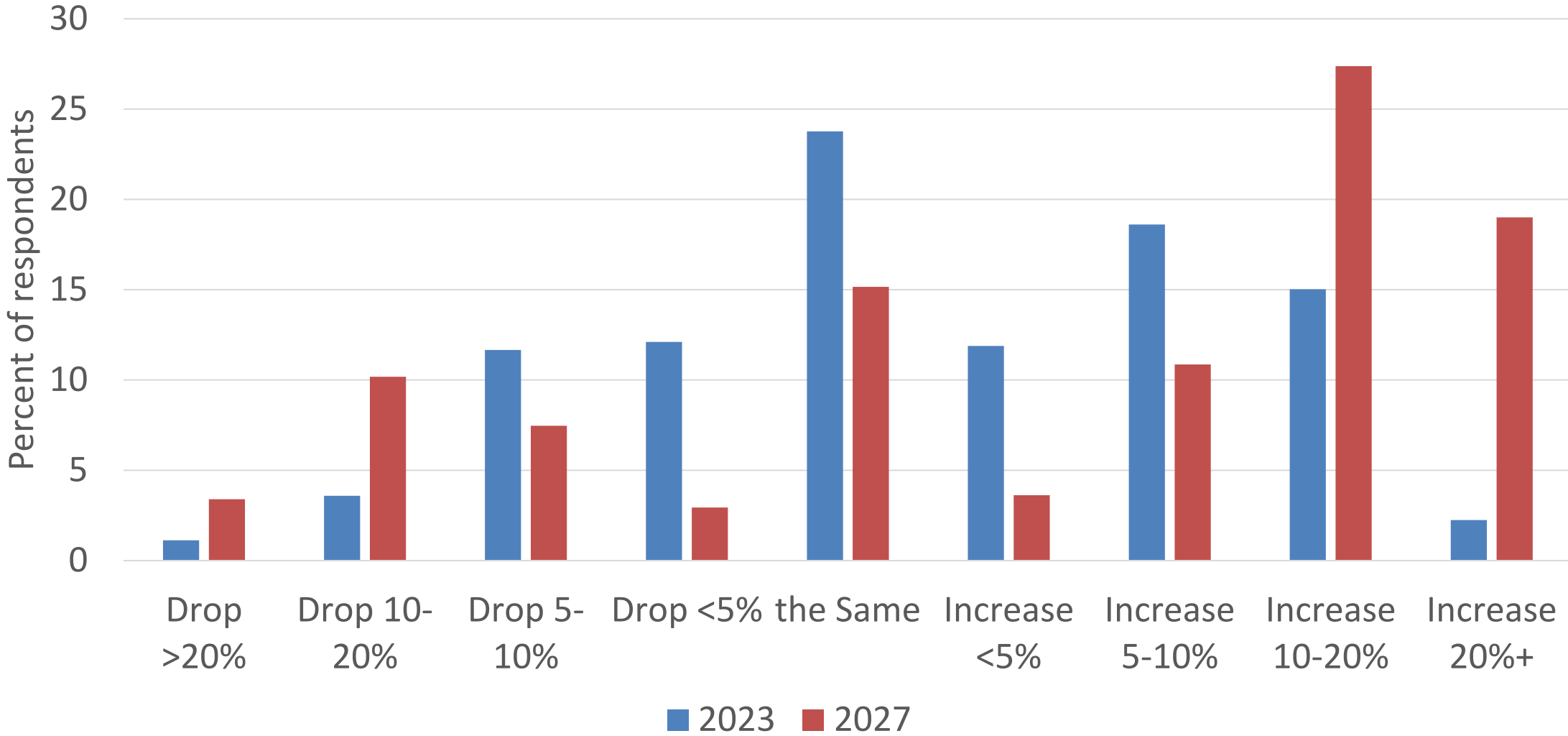
Years Owned	2017	2012
> 50 Years	8%	20%
40-50 Years	12%	
30-40 Years	13%	15%
20-30 Years	20%	19%
10-20 Years	24%	21%
< 10 Years	24%	24%



# Rent to Value Ratio vs. 10-Year Interest Rate



# Land value predictions for 2023 and 2027



From 2022 Iowa State University Land Value Survey  
[www.card.iastate.edu/farmland](http://www.card.iastate.edu/farmland)

# Cash Rents Tend to Follow Land Values

Table 1. Average and Professionally Managed Cash Rents, Illinois, 2021, 2022, and 2023P

Land Class	Soil Productivity Index	Average Corn Yield <sup>1</sup> Bushels/Acre	Average Rent <sup>2</sup> \$/Acre		ISPFMRA Rents \$/Acre		
			2021	2022	2021	2022	2023P
Excellent	133 to 147	211	\$277	\$314	\$309	\$369	\$386
Good	117 to 132	204	\$240	\$263	\$265	\$322	\$336
Average	100 to 116	190	\$185	\$215	\$225	\$275	\$284
Fair	<100	142	\$135	\$171	\$166	\$240	\$248

<sup>1</sup> Average corn yields from 2017 to 2021 for counties with average SPIs in the various ranges.

<sup>2</sup> Average of NASS cash rents for counties with average SPIs in the various ranges.

**Data Sources:**

National Agricultural Statistics Service, USDA, for corn yields and average rents

Illinois Society of Professional Farm Managers and Rural Appraisers (ISPFMRA) rents come from their land value effort available on the ISPFMRA.org website.



# Perceptions of current land values

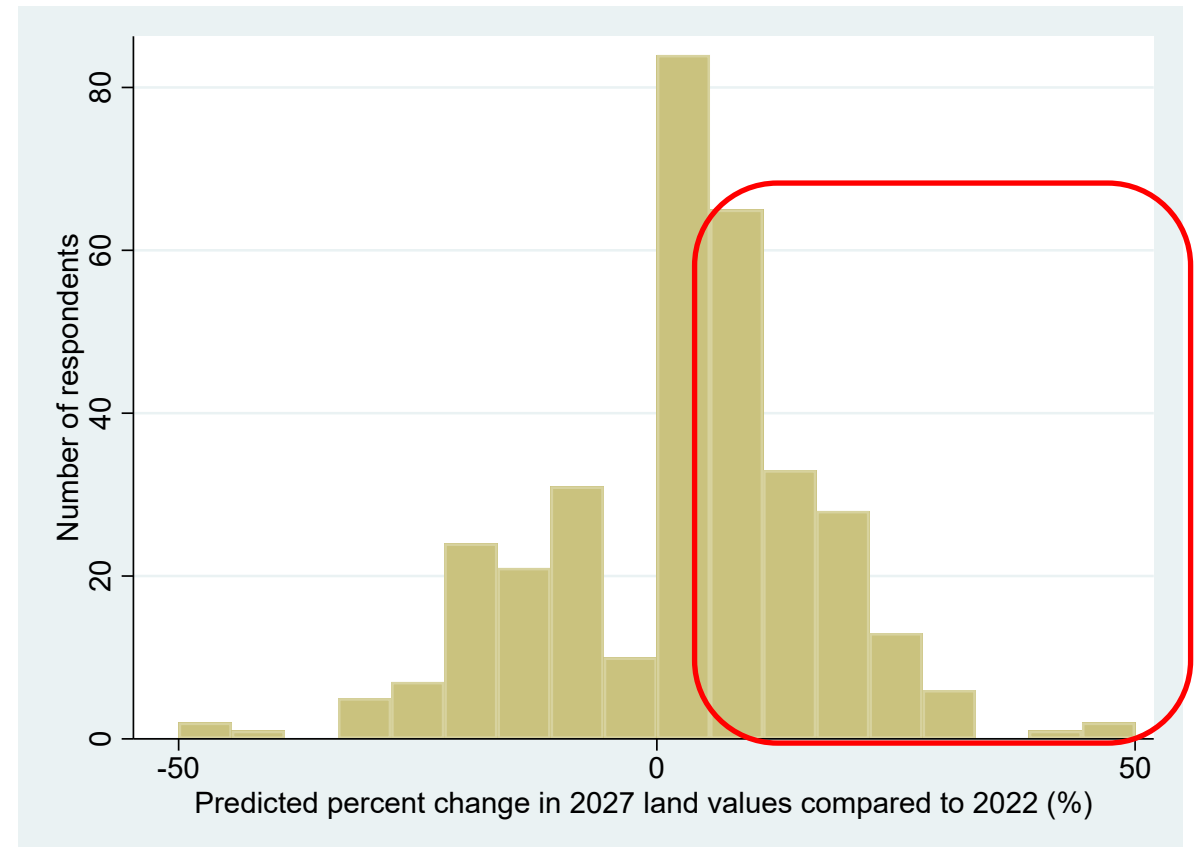
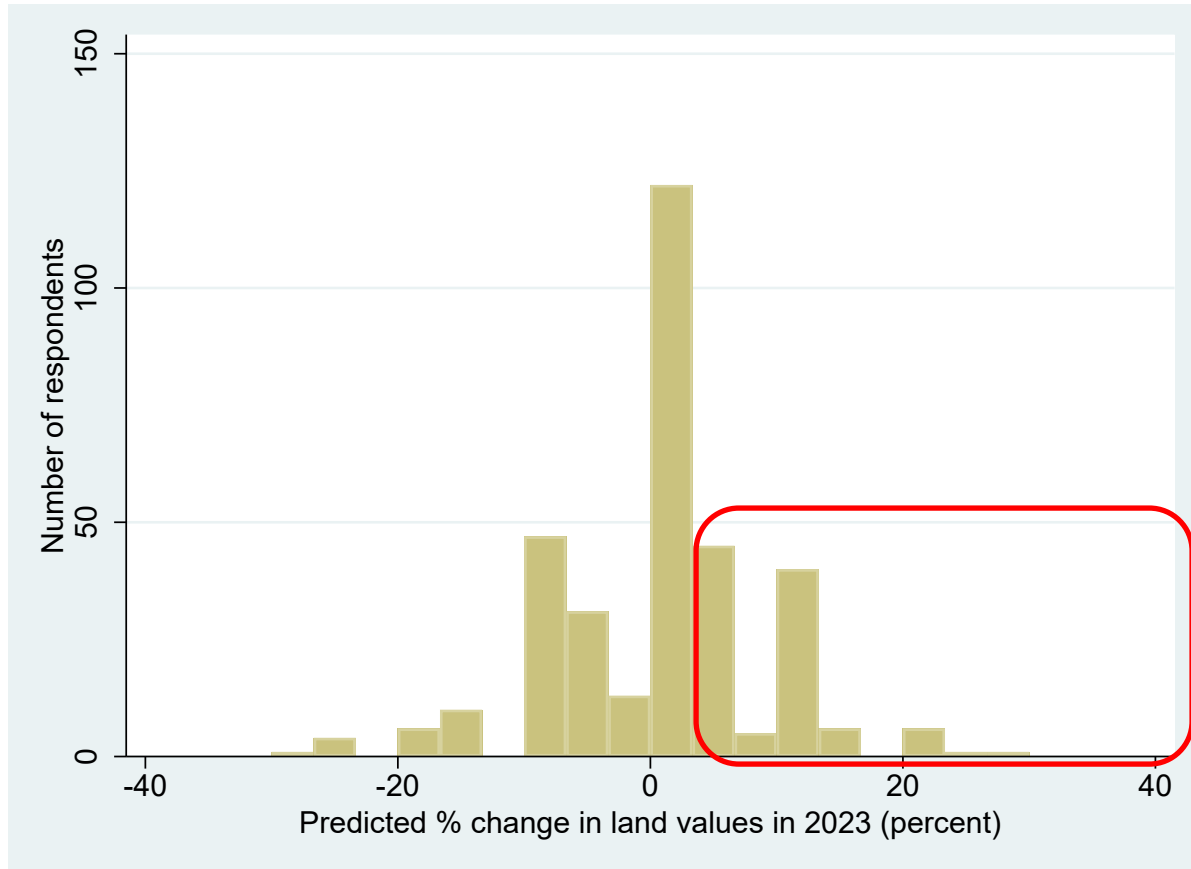
	Way Too Low	Too Low	Just Right	Too High	Way Too High
	Percent of respondents				
<b>Northwest</b>	3	3	22	59	13
<b>North Central</b>	3	2	21	65	9
<b>Northeast</b>	0	1	16	57	26
<b>West Central</b>	7	0	19	62	12
<b>Central</b>	7	2	41	43	7
<b>East Central</b>	0	2	17	70	11
<b>Southwest</b>	0	0	26	62	12
<b>South Central</b>	0	2	20	70	8
<b>Southeast</b>	2	11	38	42	7
<b>STATE</b>	<b>3%</b>	<b>2%</b>	<b>24%</b>	<b>59%</b>	<b>12%</b>

From 2022 Iowa State University Land Value Survey  
[www.card.iastate.edu/farmland](http://www.card.iastate.edu/farmland)



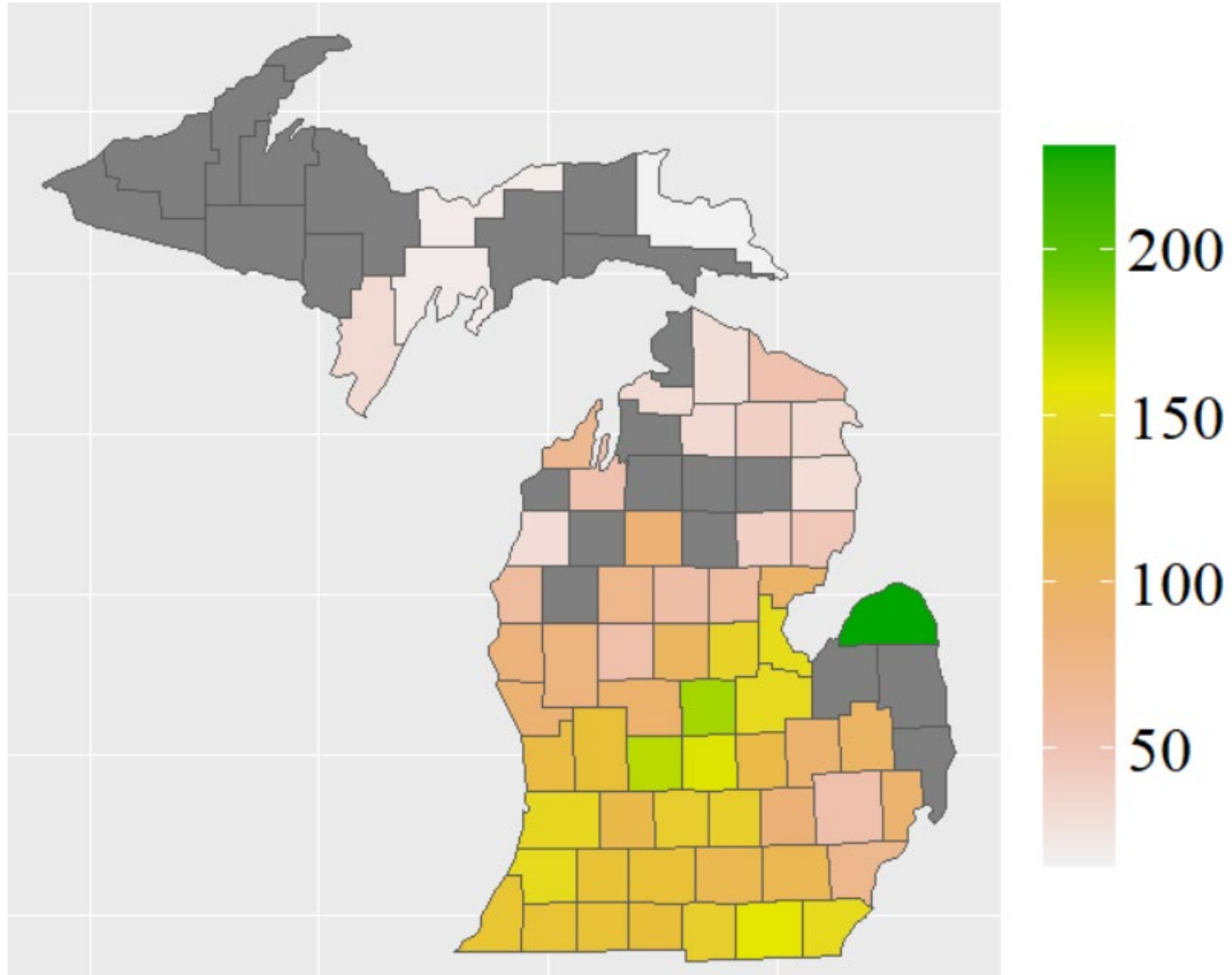
# Farmland bubble?

What the respondents who think land values are too high predict future land values?

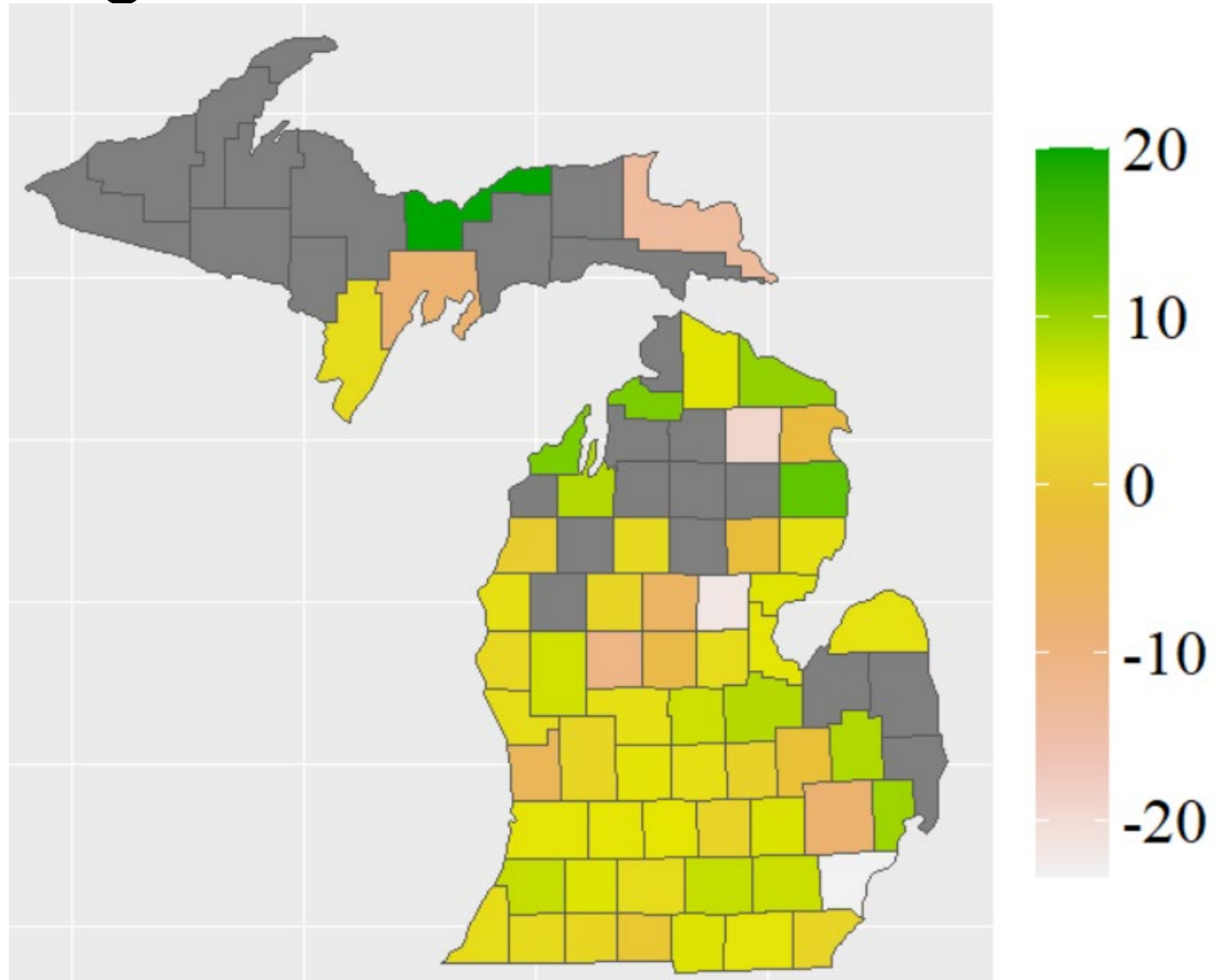


From 2022 Iowa State University Land Value Survey  
[www.card.iastate.edu/farmland](http://www.card.iastate.edu/farmland)

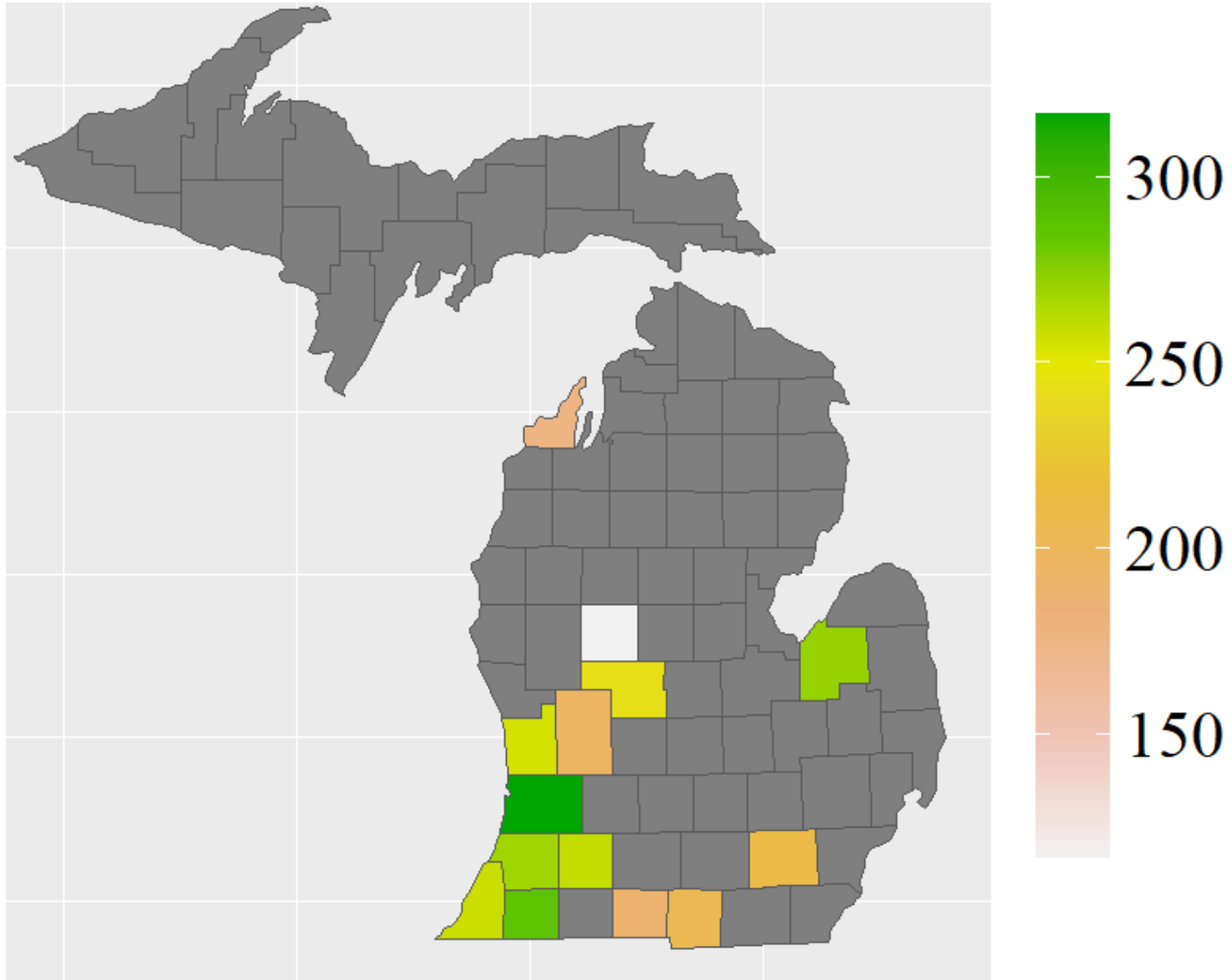
# 2022 cash rents (non-irrigated)



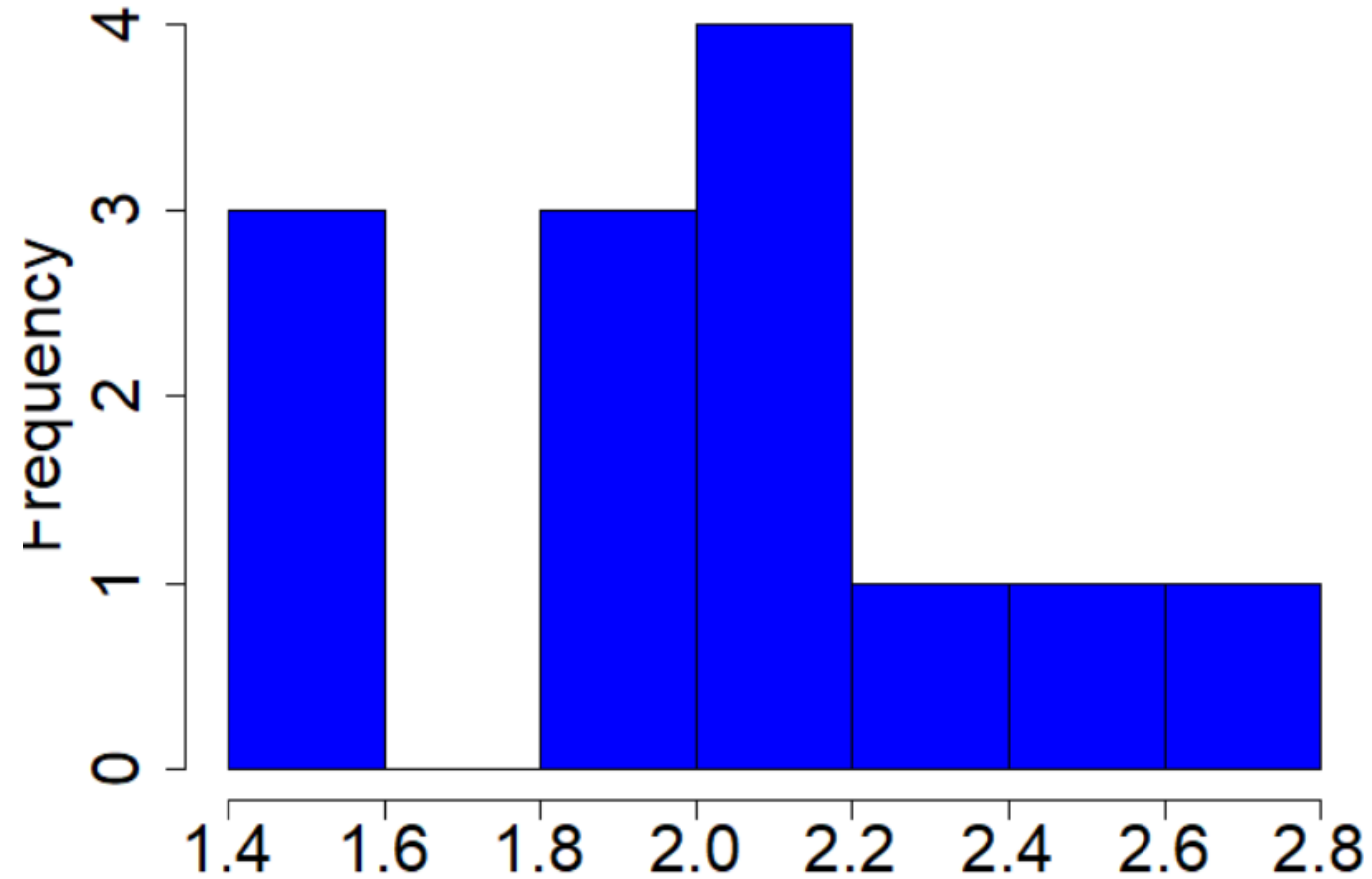
# Cash rent growth rates



# Cash rents (irrigated)



# Irrigation premiums in cash rents



# Tiling premiums in cash rents

- Tiling is a land improvement—  
land owners are responsible for costs
- Tiled land can be rented for more
  - A 2013 analysis in Ohio suggested a premium of \$25/acre
  - MSU Land Value survey suggest premiums between \$14 and \$40 over past 10 years
  - Tiling premium is historically largest in the Thumb



# 2023 Rent Outlook

- USDA farm income forecasts projects 2022 farm income will be 7.2% above 2021
- Projections for 2023 are typically slightly lower

# 2023 Rent Outlook

- USDA farm income forecasts projects 2022 farm income will be 7.2% above 2021
- Projections for 2023 are typically slightly lower
- Land values have climbed considerably

# 2023 Rent Outlook

- USDA farm income forecasts projects 2022 farm income will be 7.2% above 2021
- Projections for 2023 are typically slightly lower
- Land values have climbed considerably
- Michigan landowners have continued to invest in infrastructure such as tiling/irrigation

# 2023 Rent Outlook

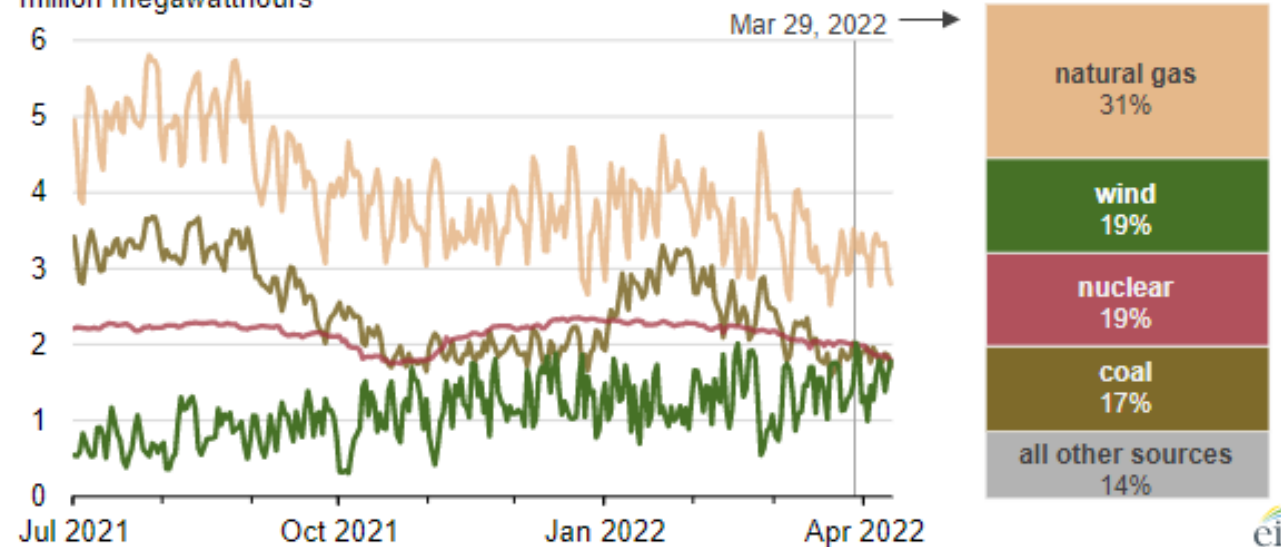
- USDA farm income forecasts projects 2022 farm income will be 7.2% above 2021
- Projections for 2023 are typically slightly lower
- Land values have climbed considerably
- Michigan landowners have continued to invest in infrastructure such as tiling/irrigation

*Cash rents are likely to slightly increase in 2023.*

# Wind turbines on farmland

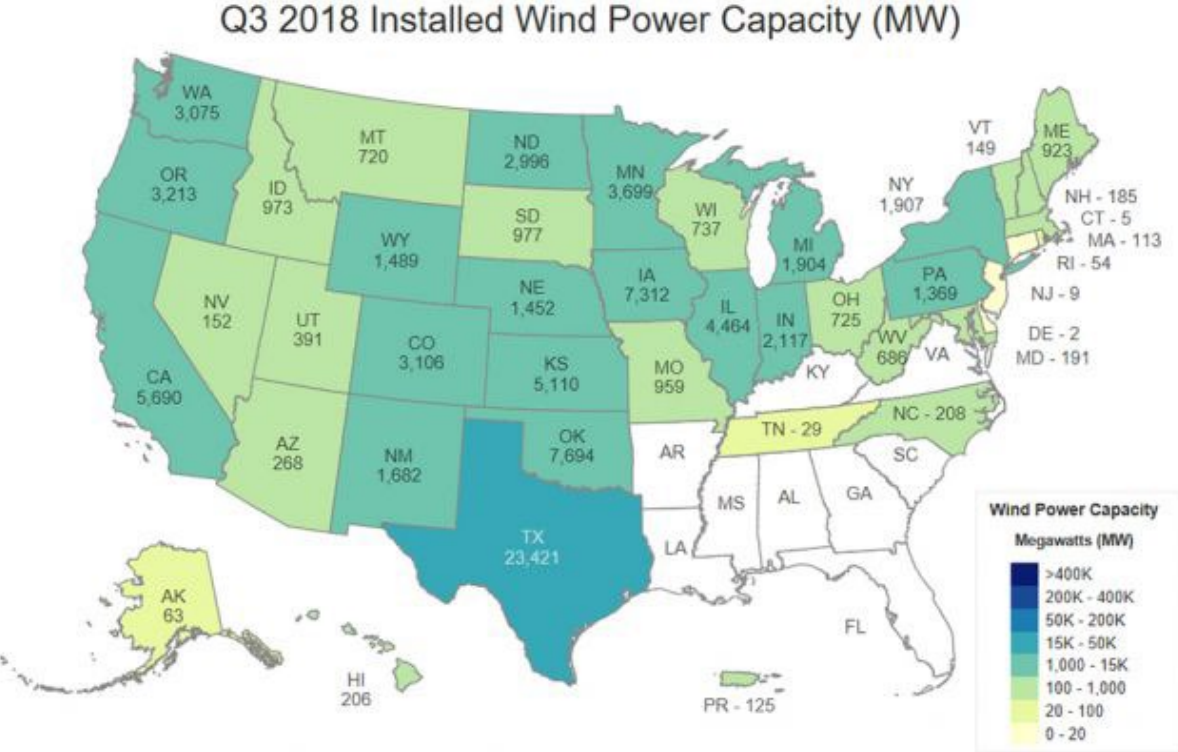
- 40% of wind turbines are installed on cropland (CDL, 2014)
- The share of US energy coming from wind continues to increase (~10%)
- Individual payments to landowners vary on location/turbine size:
  - Typically \$3,000-9,000

Daily U.S. electricity generation from selected sources (Jul 1, 2021–Apr 10, 2022)  
million megawatthours



Source: U.S. Energy Information Administration, [Hourly Electric Grid Monitor](#)

# Wind resources and installed wind power



Total Installed Wind Capacity: 90,550 MW



# What's the effect of wind energy on land values?

- No significant effect in Pennsylvania (Shulz et al, 2015) or Kansas (Sampson et al 2022)
- Small negative effects in West Texas (Baker et al 2021)
- Small positive effects (Pates et al, 2021)
- Effects may depend on location-specific factors, including local preferences



# Farmland and institutional investing

- Institutional investors are groups investing on behalf of others
- Includes pension funds, hedge funds, endowments, etc.
- Institutional investors own less than 2% of US farmland (by value)

## Institutional Investors

### Types of Institutional Investors



# Farmland and institutional investing

- Institutional investors are groups investing on behalf of others
- Includes pension funds, hedge funds, endowments, etc.
- Institutional investors own less than 2% of US farmland (by value)
- But institutional investment in US farmland has grown from \$2.3 billion to \$11.7 billion over the past ten years.
- This increased interest puts upward pressure on land.

## Institutional Investors

### Types of Institutional Investors



# Thank you!

---

**Wendong Zhang**  
**wendongz@cornell.edu**

**[https://wendongzhang.  
weebly.com/](https://wendongzhang.weebly.com/)**

**Matthew Gammans**  
**gammansm@msu.edu**



**Dyson**  
Cornell  
SC Johnson College of Business

**MICHIGAN STATE**  
**UNIVERSITY**

College of Agriculture  
and Natural Resources