

# Understanding Farmer Perspectives on Climate Change and Adaptation to Increased Weather Variability

J. Gordon Arbuckle Jr  
Iowa State University  
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United States Department of Agriculture  
National Institute of Food and Agriculture

This research is part of a regional collaborative project supported by the USDA-NIFA, Award No. 2011-68002-30190:  
*Cropping Systems Coordinated Agricultural Project: Climate Change, Mitigation, and Adaptation in Corn-based Cropping Systems*

# Sustainable Corn Project Social Science Research

A map of the United States is shown in the background. The Corn Belt region, which includes parts of the Midwest and South, is highlighted in a light orange color. The rest of the map is light blue with white state boundaries.

**Research Problem: Increasing weather variability impacts agriculture, which over time could threaten societal stability**

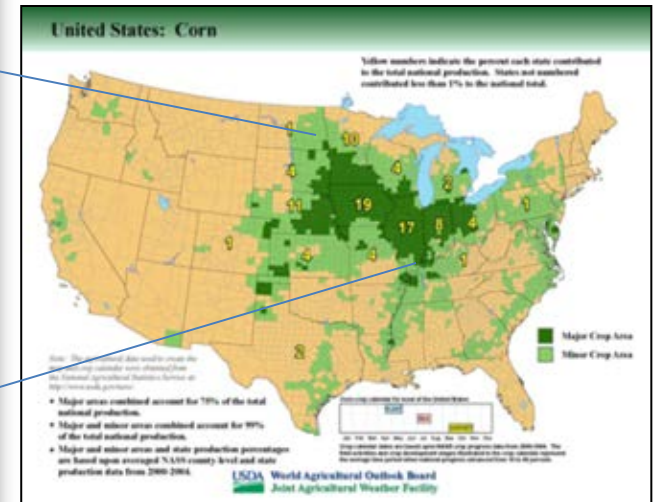
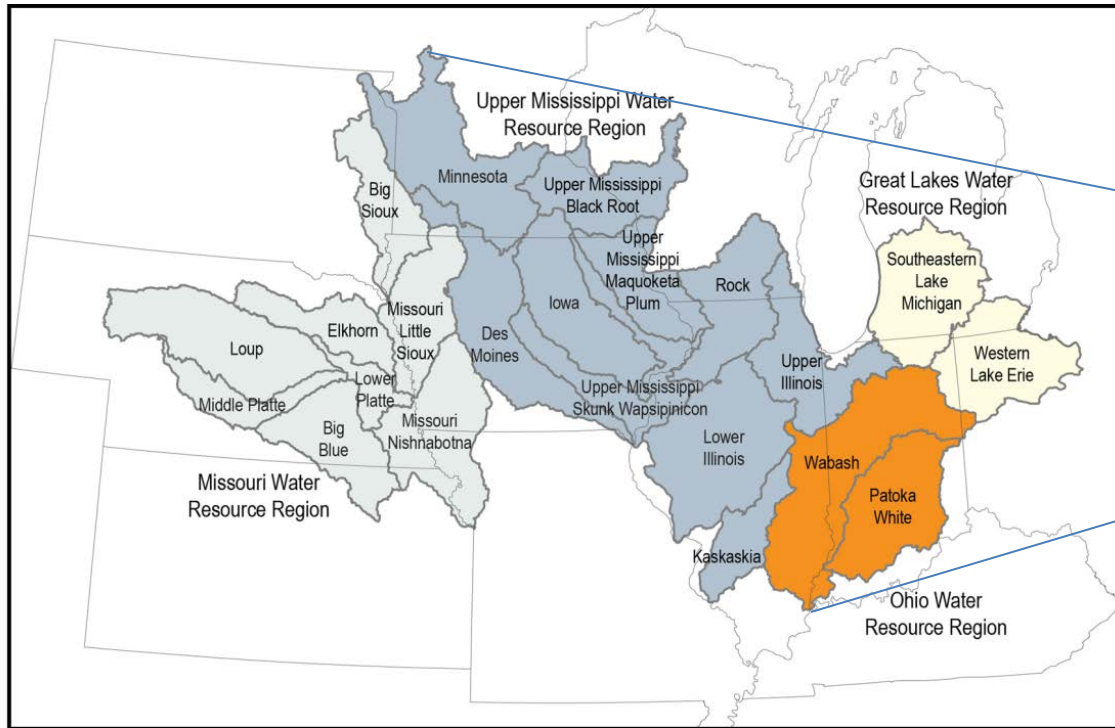
**We knew very little about farmers' perspectives**

- What do farmers think about climate change?
- Are they concerned about increasing weather variability?
- Do they support action?
  - Farmer adaptive action?
  - Extension, farm groups, government help toward greater resilience?

**Main objective: To learn about farmer perspectives to inform conversations with farmers and advisors**

- Survey of farmers from across the Corn Belt
- In-depth interviews with farmers across the region

# Survey Scope and Scale



## Survey details:

- Partnership with USDA NIFA-funded Useful to Usable (U2U) project
- Larger-scale farmers: \$100k+ Gross Revenue, ~80% of farmland
- Sample stratified by 22 HUC6 Corn Belt watersheds
  - Representing ~60% of U.S. corn production
  - USDA NASS conducted survey in February 2012
- Surveyed 4,778 farmers



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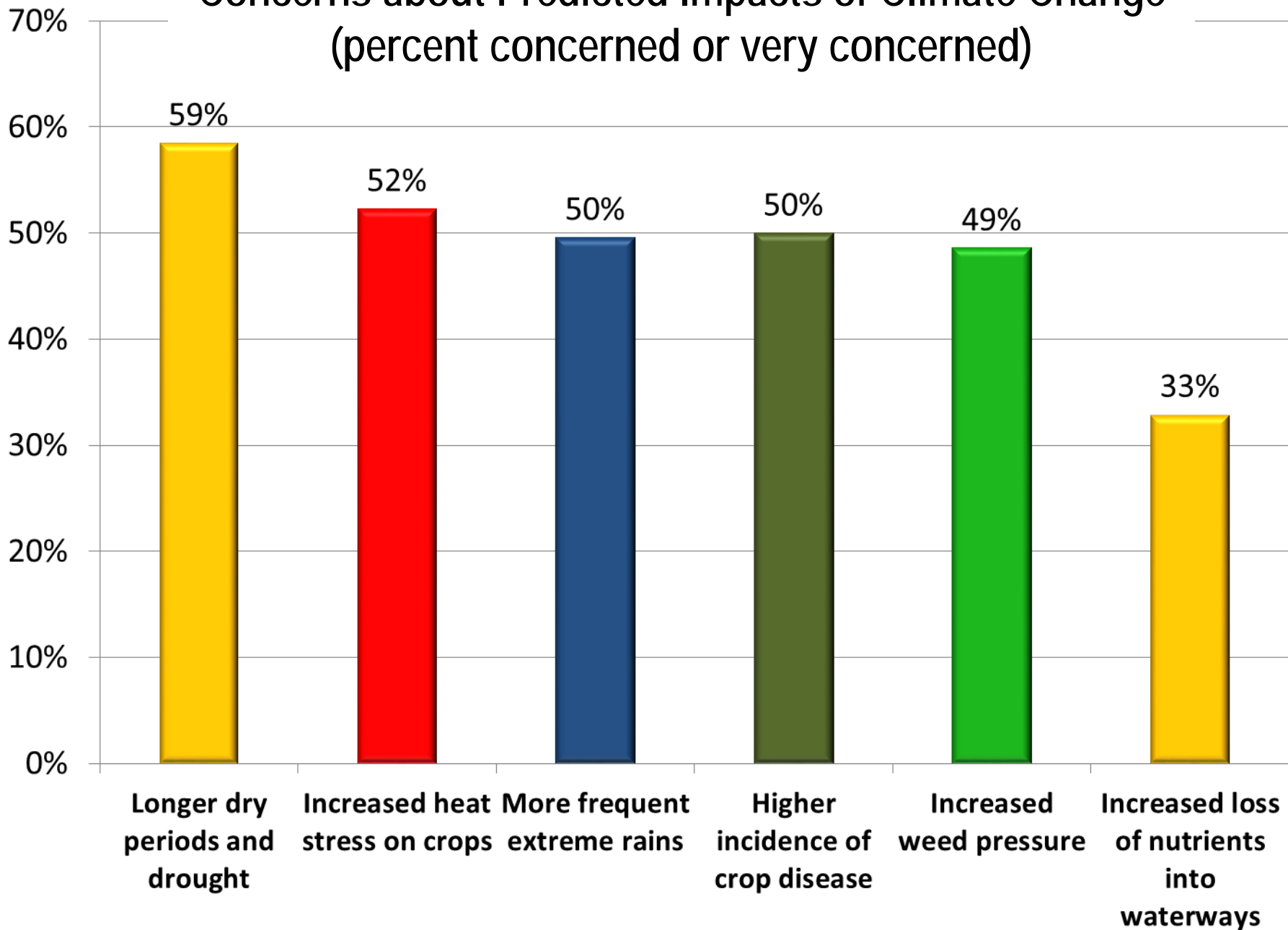
# Concerns about increasing weather variability

Developed questions based on predicted impacts of climate change on Corn Belt agriculture

“How concerned are you about the following potential problems for your farm operation?”

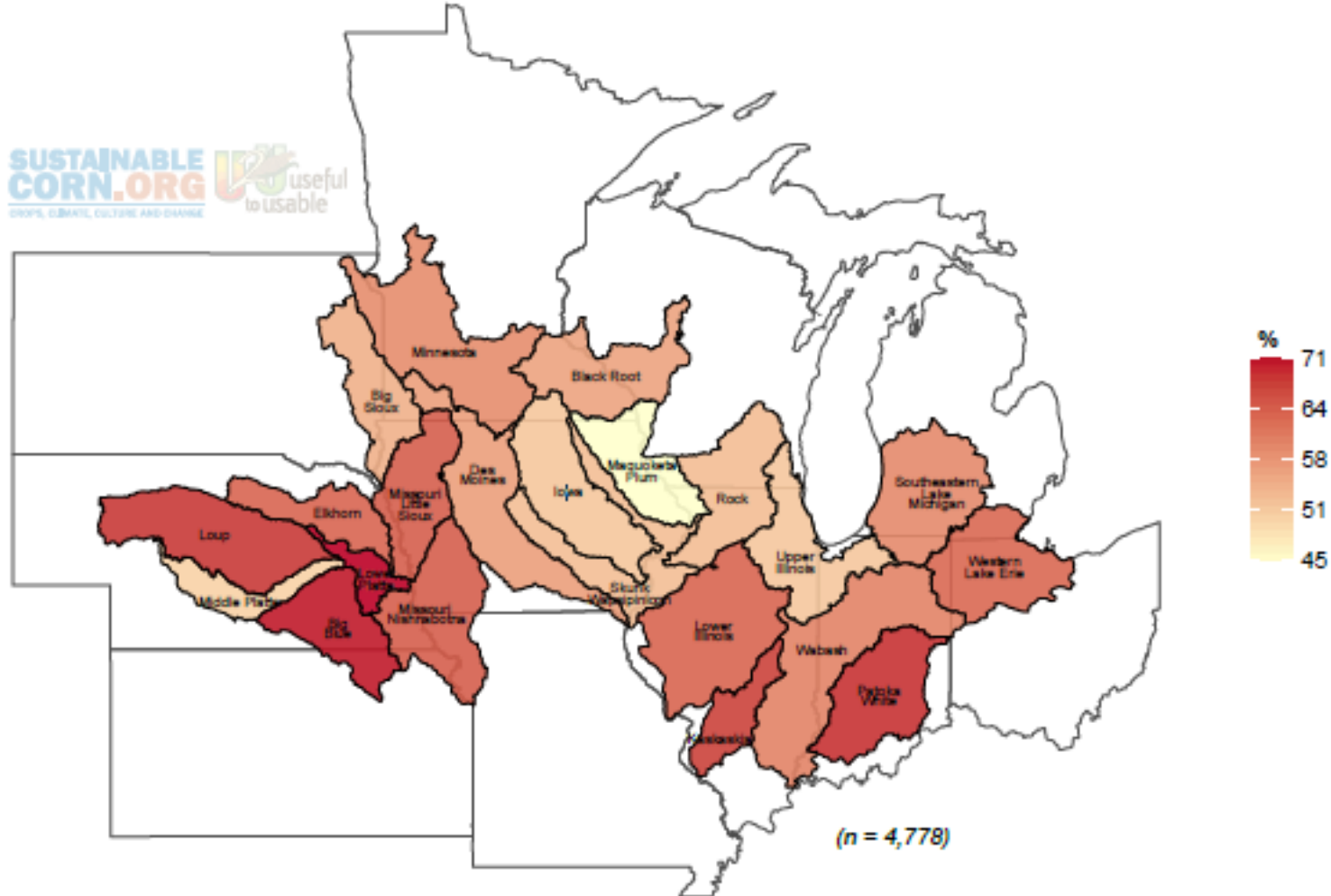
- Drought and heat
- Excess water issues
- Pest and disease issues

# Concerns about Predicted Impacts of Climate Change (percent concerned or very concerned)

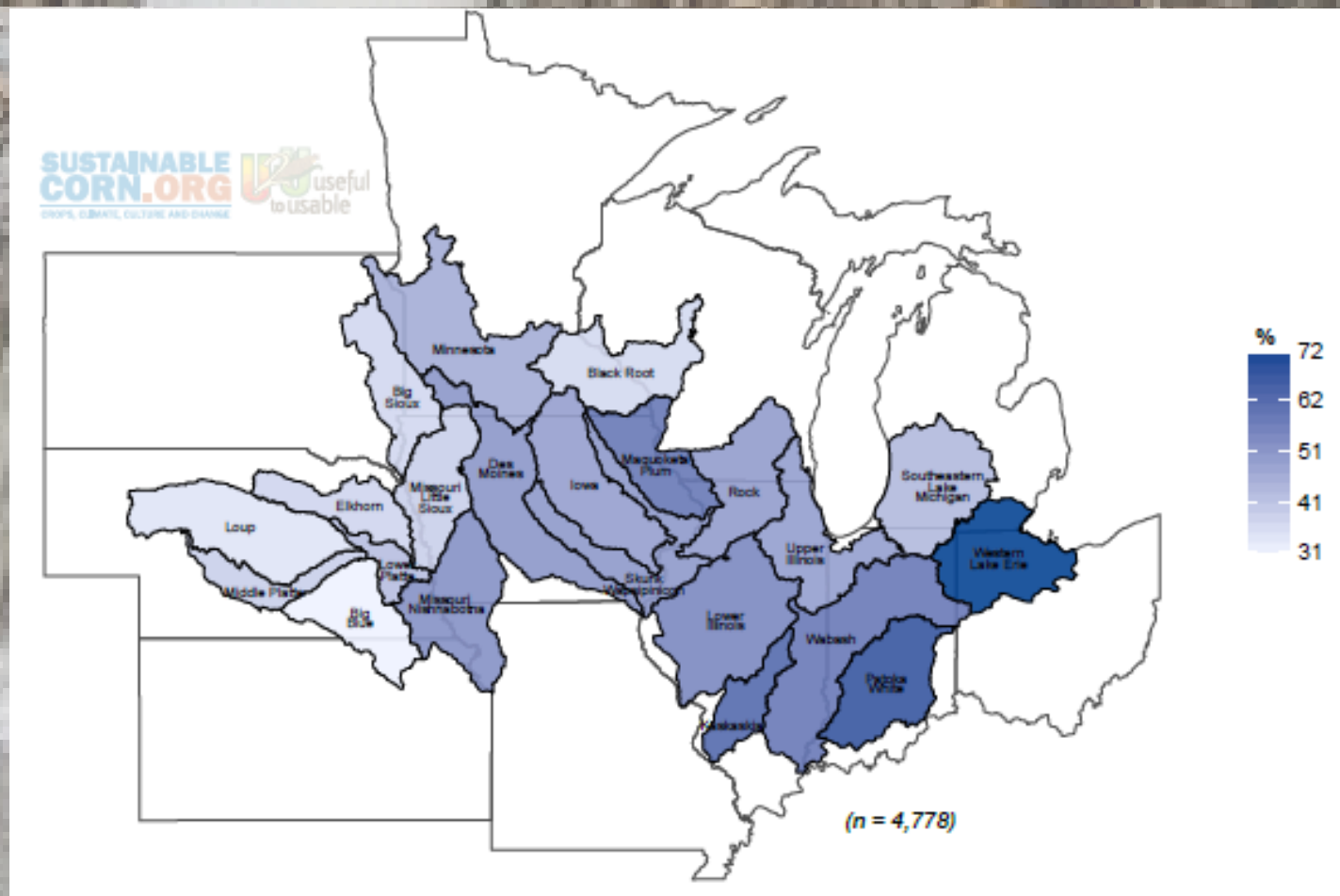




# Concern about Longer Dry Periods and Drought (percent concerned or very concerned)



# Concerns about More Frequent Extreme Rains (percent concerned or very concerned)



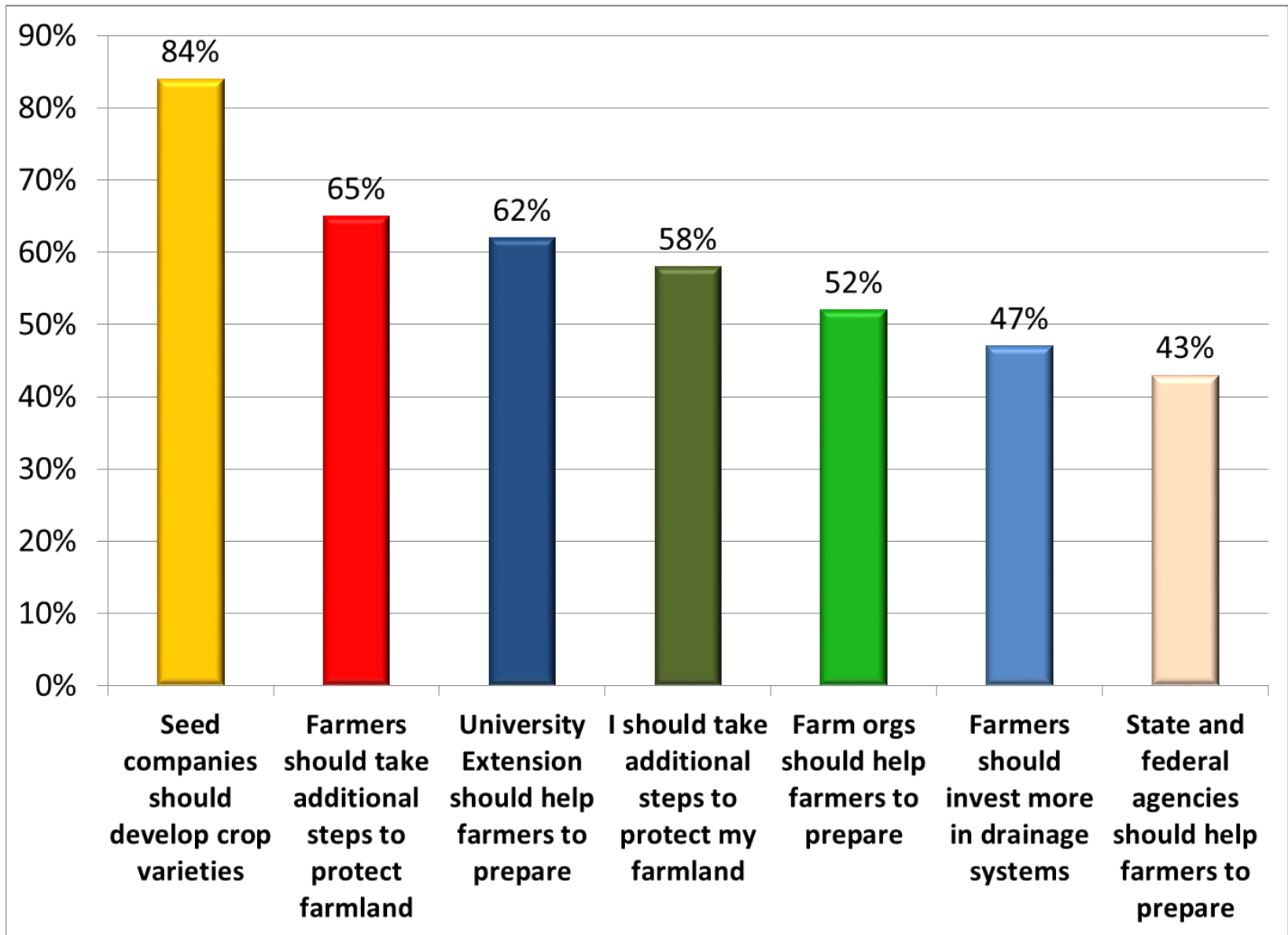
# Attitudes toward Adaptation Action

## What should be done and by whom?

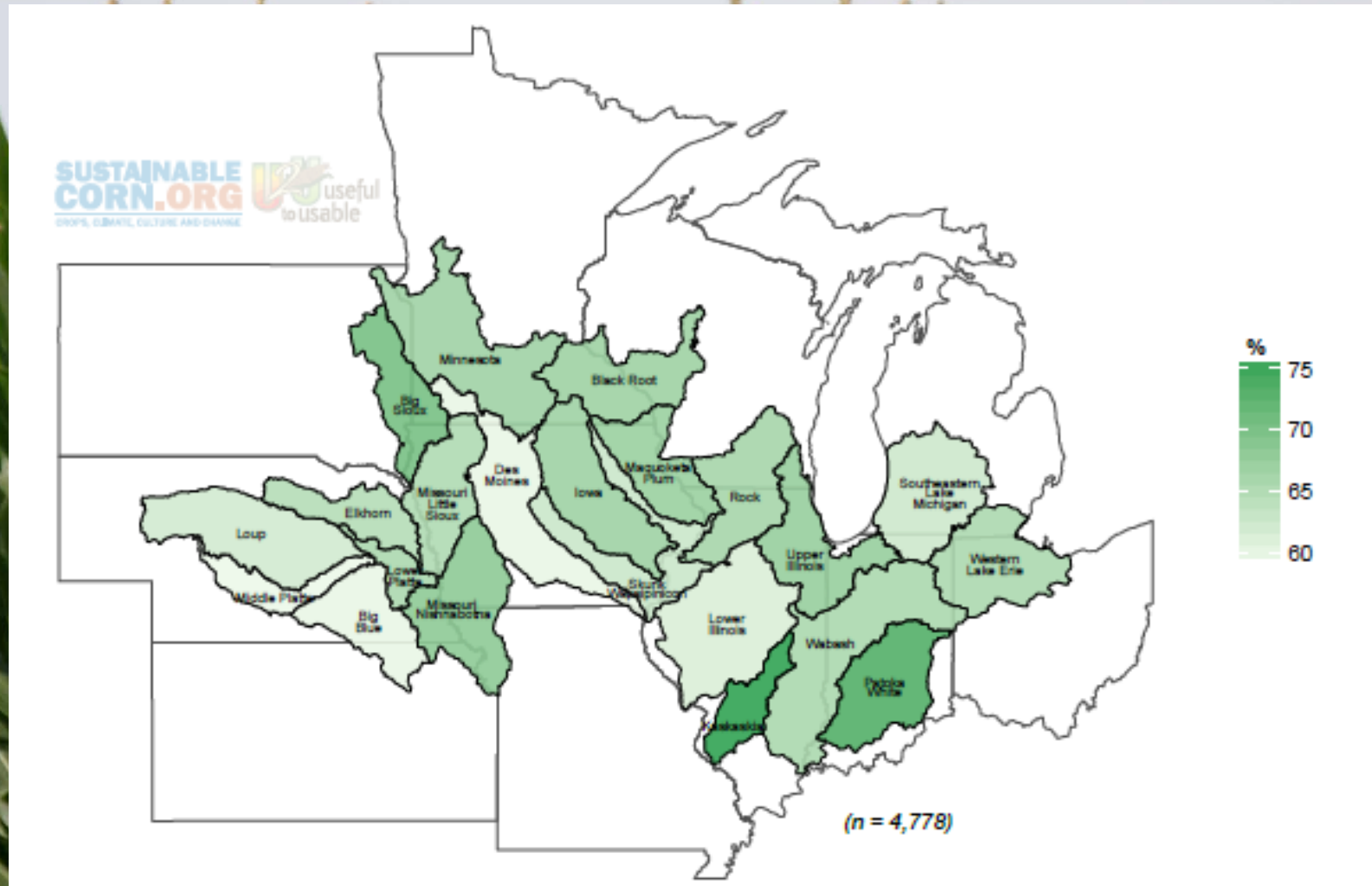
- “Organizations, agencies, and individuals can do a number of things to prepare for or address potential changes in climate. Please provide your opinions on the following statements.”
- Focus on preparing for “increased weather variability”
  - Farmers
  - Government agencies
  - Farm groups
  - Extension
  - Seed companies



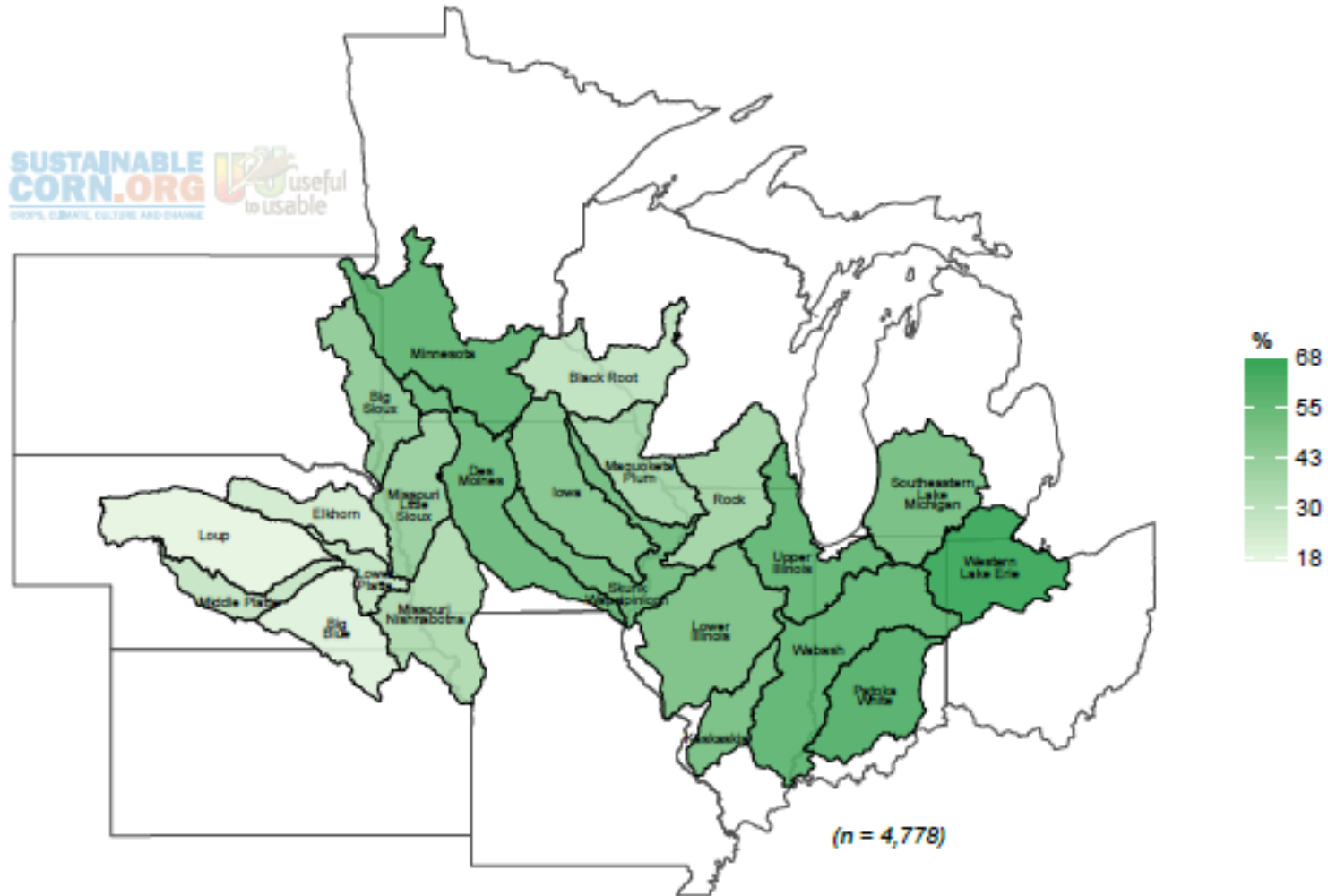
# Support for Action to Prepare for Increased Weather Variability (percent agree or strongly agree)



# Farmers should take additional steps to protect land from increased weather variability (percent agree or strongly agree)

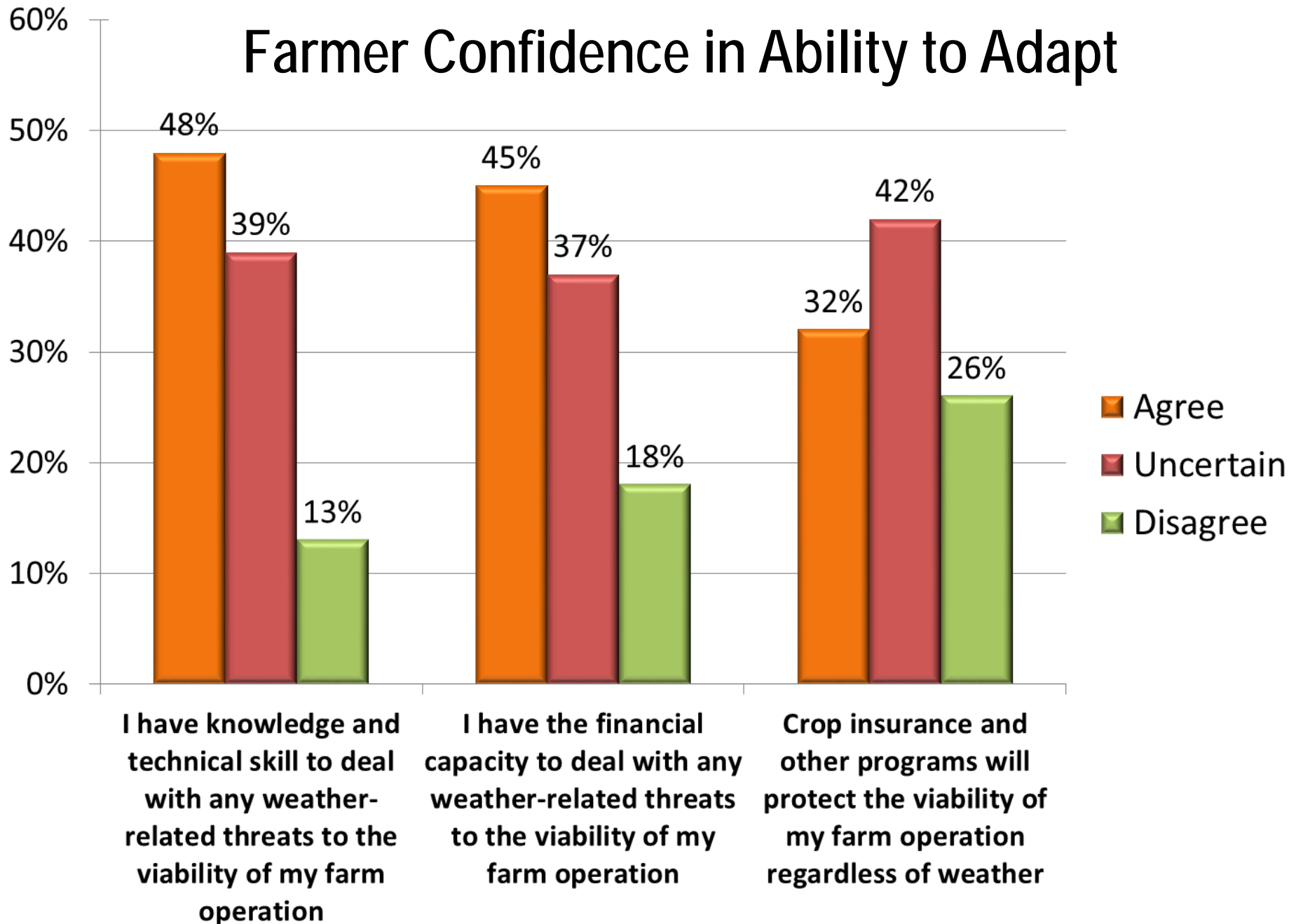


Farmers should invest more in agricultural drainage systems to prepare for increased precipitation  
(percent agree or strongly agree)

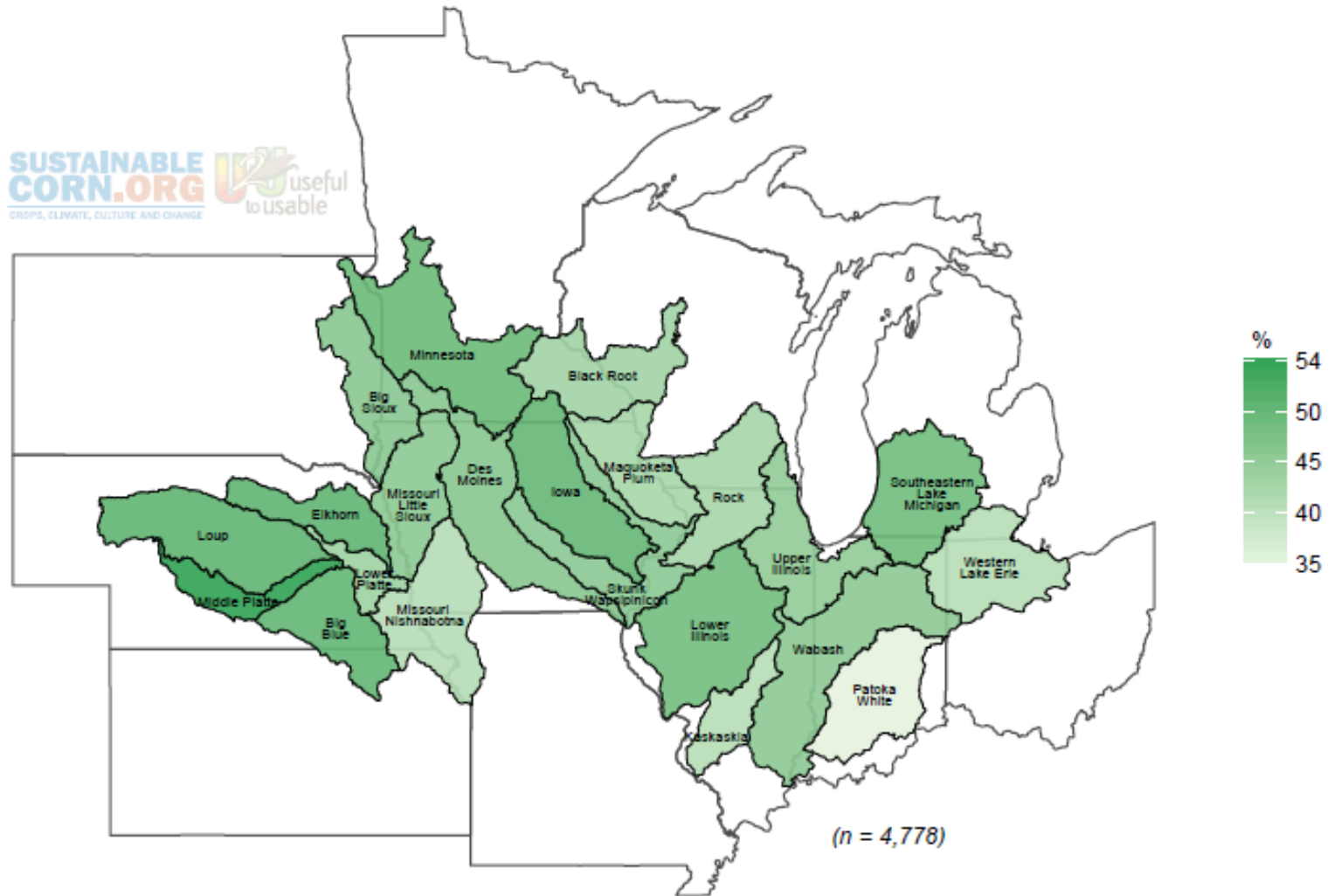




# Farmer Confidence in Ability to Adapt



I have the knowledge and technical skill to deal with any weather-related threats to the viability of my farm operation (percent agree or strongly agree)



# What have we learned from farmers?

- Many farmers are concerned about predicted impacts of climate change
- Most farmers think that they and other farmers should do more to protect the land from increased extremes
- Many farmers would like help, though more supportive of Extension and private sector than state or federal government
- Farmers are confident that they will be able to adapt—that's what farmers do
- However, many are uncertain—extreme weather can overwhelm current systems



# Closing thoughts

- Farmers are adapting, and could use a hand
- Good news: Public agencies and Extension are focusing a lot of resources on helping farmers to incorporate resilience-enhancing practices
- Same practices that increase resilience (no-till, cover crops) also have water quality benefits
- Final note: Important to build/strengthen partnerships between farmers, private ag advisors (retailers, CCAs), and Extension and ag scientific community

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**Thank you!**

**Big thanks to the Sustainable Corn  
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Photo by A. MacDonald. Info on prairie buffer strips available at:  
<http://www.nrem.iastate.edu/research/STRIPs/index.php>

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**Project Web site: [sustainablecorn.org](http://sustainablecorn.org)**

# Climate Change Beliefs

“Please select the statement that best reflects your beliefs about climate change”

Climate change is occurring, and it is caused mostly by human activities	8%
Climate change is occurring, and it is caused more or less equally by natural changes in the environment and human activities	33%
Climate change is occurring, and it is caused mostly by natural changes in the environment	25%
There is not sufficient evidence to know with certainty whether climate change is occurring or not	31%
Climate change is not occurring	4%



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**Climate change is occurring 66%**

**➤ Humans are at least partly responsible 41%**