

# Managing weeds in variable weather: insights from data mining

Marty Williams, USDA-ARS

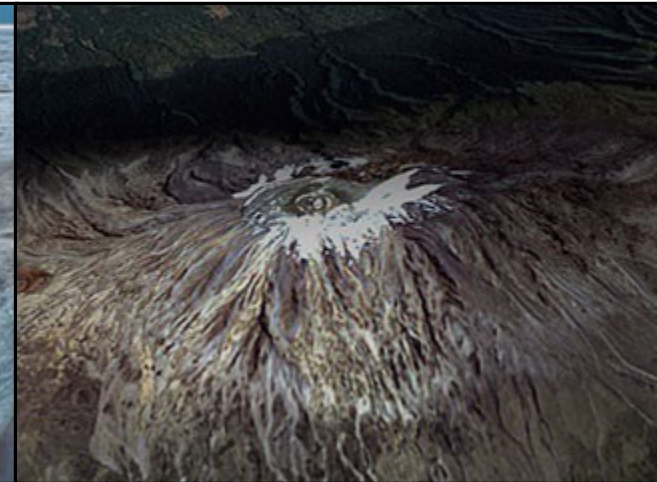
Aaron Hager, UIUC

Chris Landau, ORISE

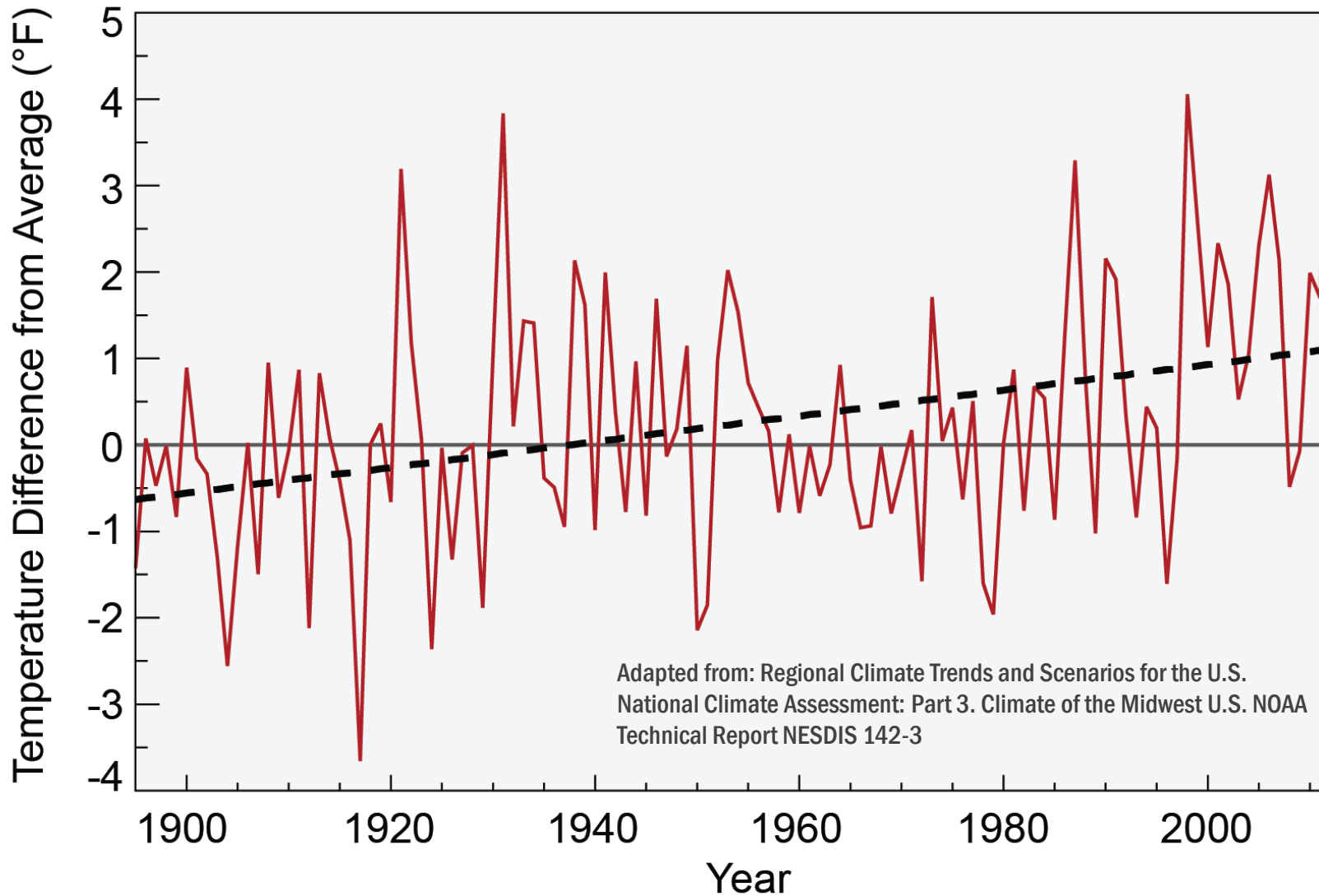




# Global Climate Change

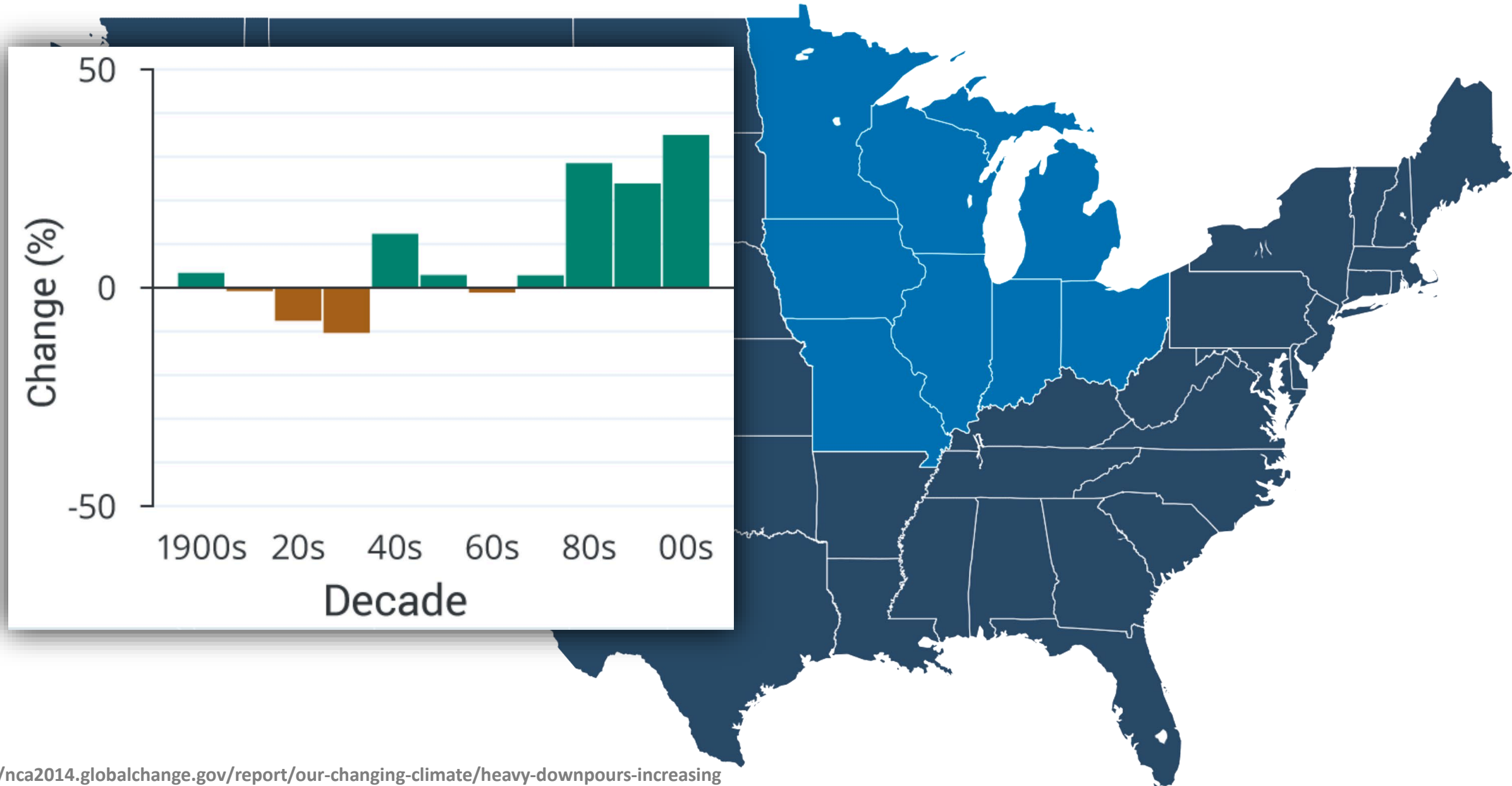


# Temperatures are Rising in the Cornbelt





# Winter/spring precip is up, summer precip is down



# What does climate change mean for weed management?

- How will weeds adapt?
- How will weed emergence patterns change?
- Will future conditions favor growth of some species?
- How will the geographic distribution of species change?
- Which species will become more problematic?
- How will herbicide efficacy be affected?
- Will mechanical control be affected?
- How will crop-weed interactions change?
- Will new opportunities to weed management arise?

# UIUC Herbicide Evaluation Program

- 1992 – present
- Locations throughout the state
- Range of weather conditions
- Weed control on various species
- Crop yield
- >3,000 individual trials
- >50,000 observations

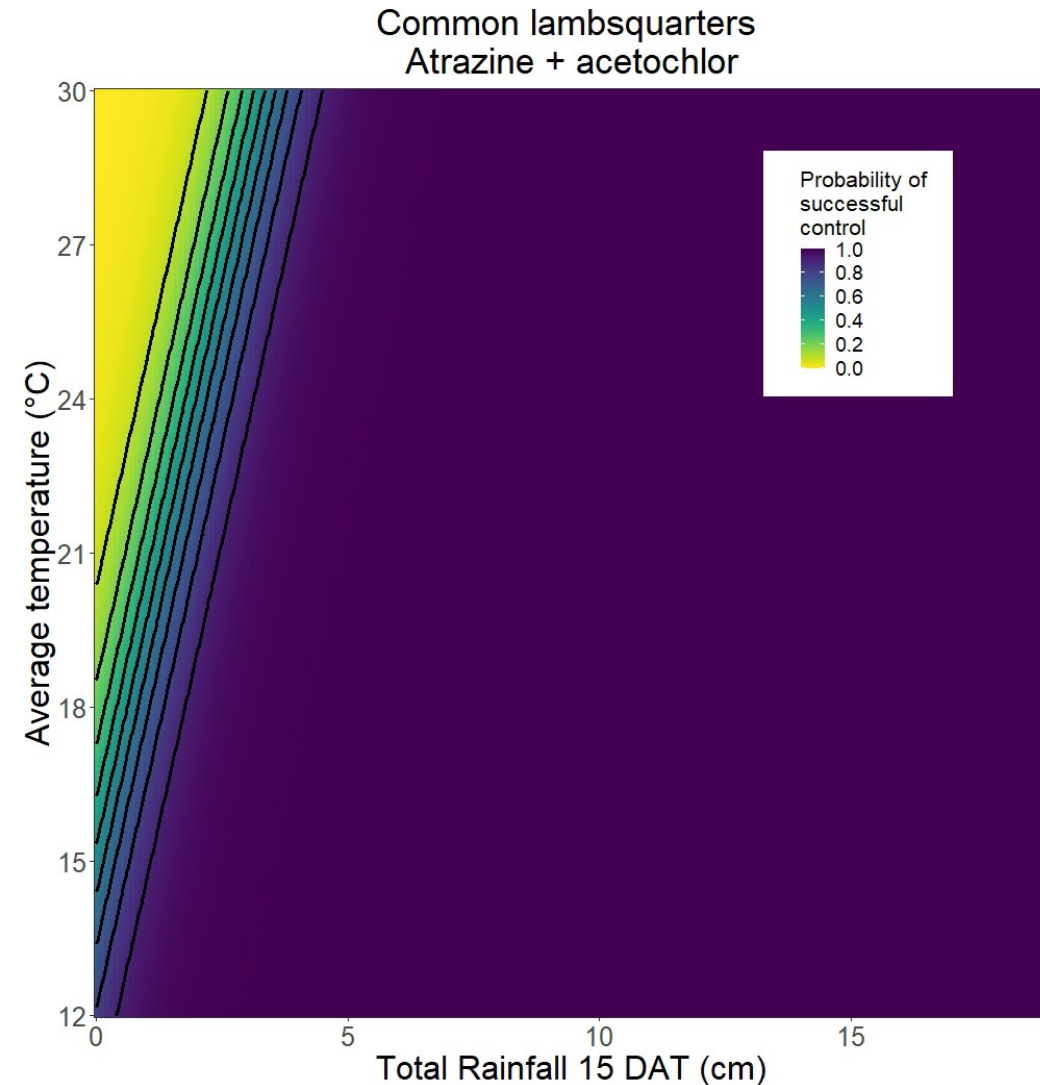




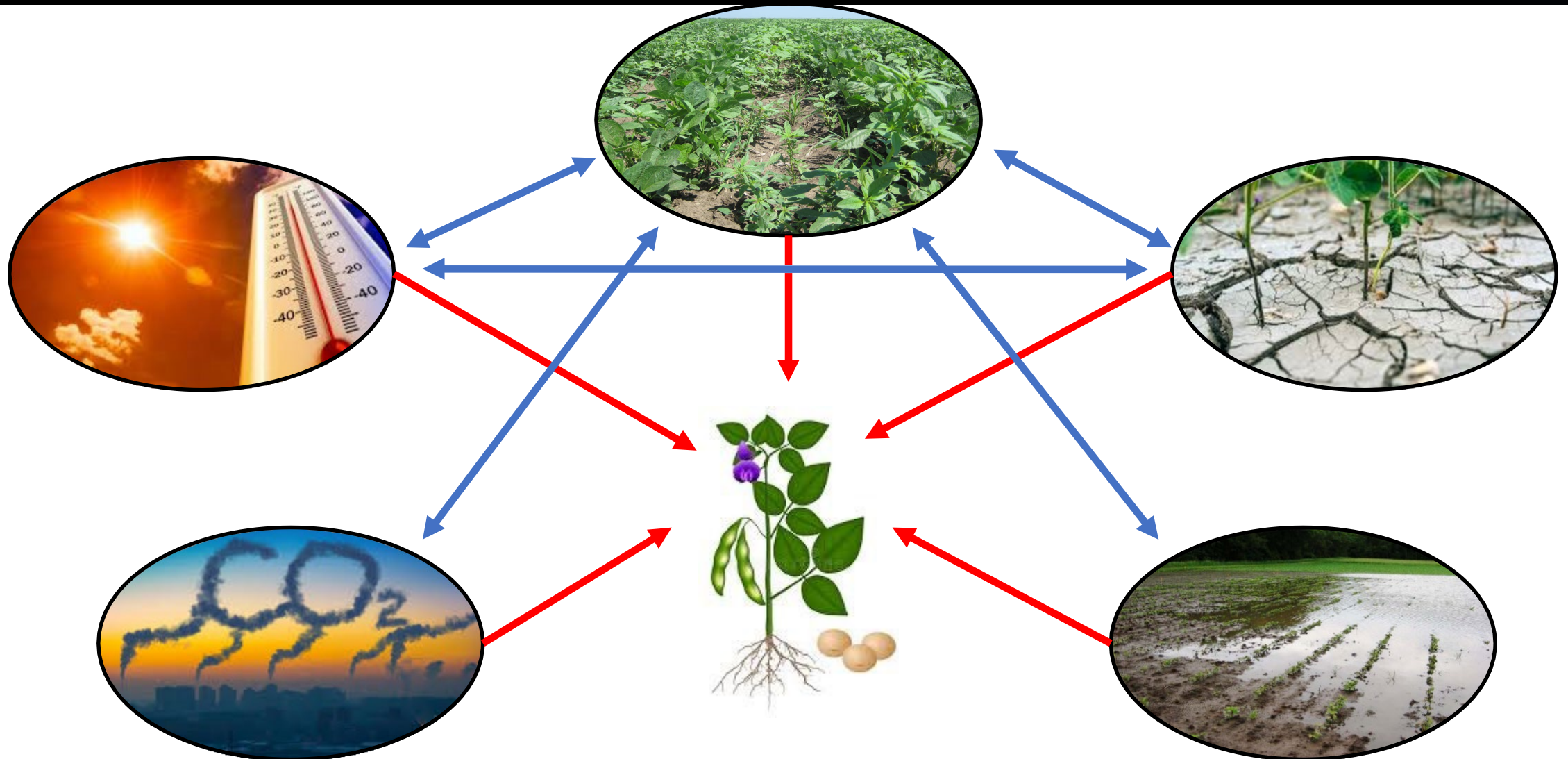
# Lesson #1: Future efficacy of PRE herbicides is threatened by more variable weather



M. Williams, N. Hausman



# Lesson #2: Diminishing weed control exacerbates crop yield loss to adverse weather

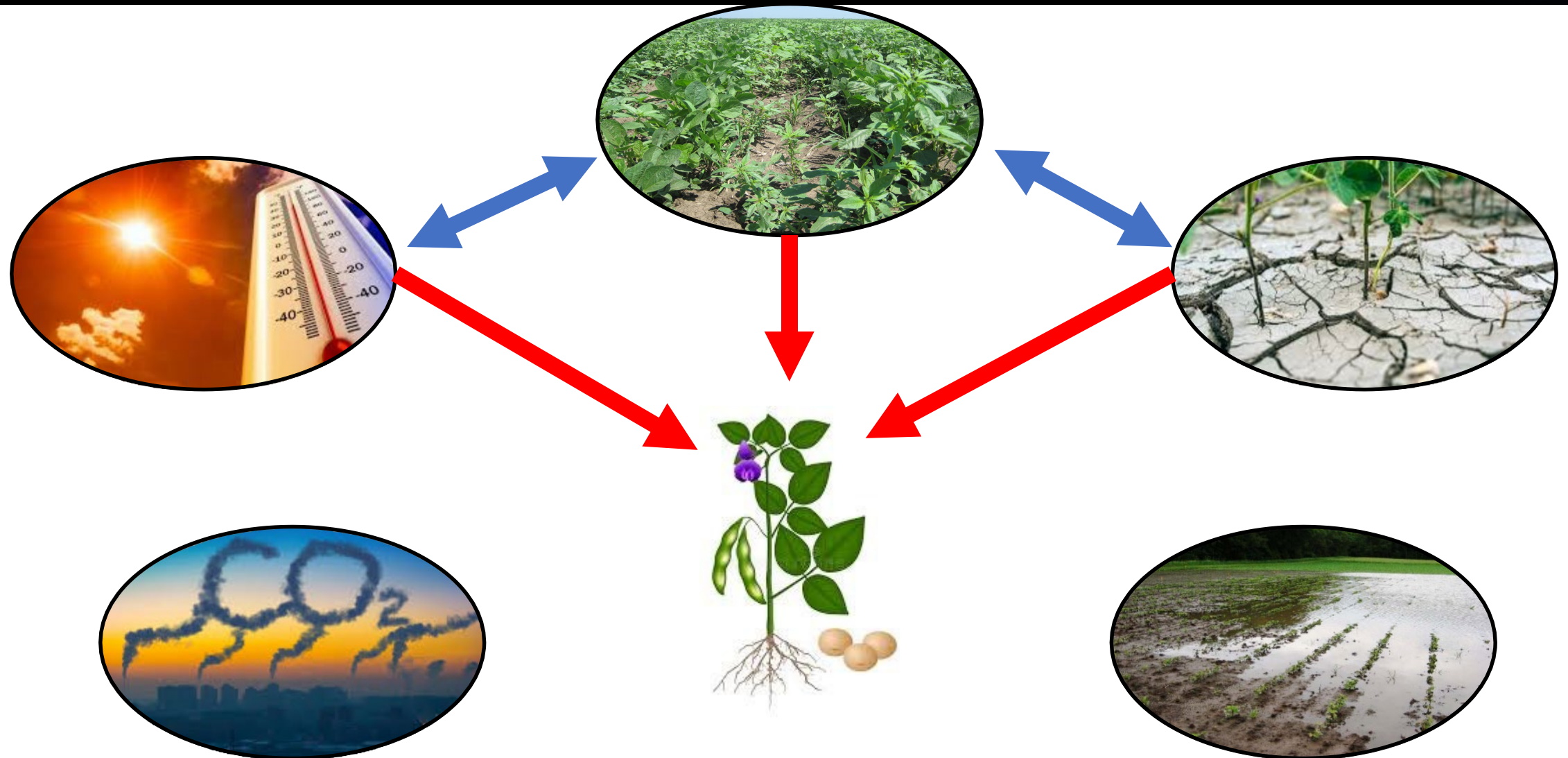




# Lesson #2: Diminishing weed control exacerbates crop yield loss to adverse weather



# Lesson #2: Diminishing weed control exacerbates crop yield loss to adverse weather



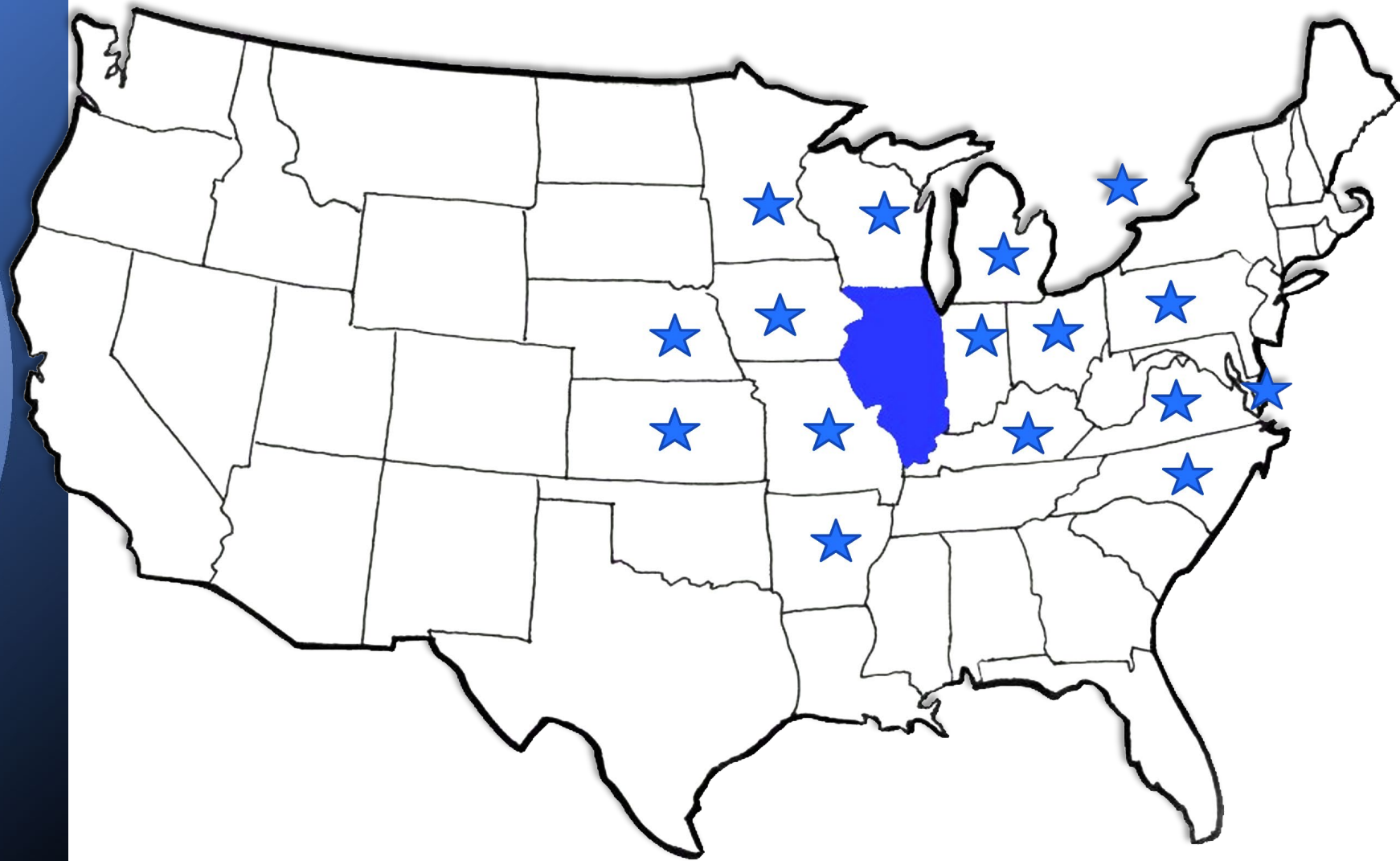




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diversification**



# Future Research





# Thank you!

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The article, “Diminishing weed control exacerbates maize yield loss to adverse weather,” is published in *Global Change Biology* [DOI: [10.1111/gcb.15857](https://doi.org/10.1111/gcb.15857)]



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## October 7: **Is the MRTN Nitrogen Rate for Corn High Enough?**

by Emerson Nafziger and Dan Schaefer

The Maximum Return to Nitrogen (MRTN) is a recommended N rate based on recent N response trials, and is often lower than rates based on expected yields. We'll discuss how much risk this brings, and will introduce a way for producers to check MRTN performance in the field.

## October 14: **Grain returns for 2021 and 2022**

by Bob Rhea, Dale Lattz, and Nick Paulson

Production cost are rising at substantial rates. Here we will summarize grain farm financial statements for farms enrolled in Illinois Farm Business Farm Management, and present projections for the future.

## Newly added to webinar Series

### October 21: **Bringing Clarity to Tax Changes in Agriculture**

*by Bob Rhea, Brad Zwilling, and Krista Swanson*

### October 28: **Factors affecting Farmland Markets**

*by Bruce Sherrick and Gary Schnitkey*

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September 28, 2021

Gary Schnitkey, Nick Paulson, Carl Zulauf, and Krista Swanson

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