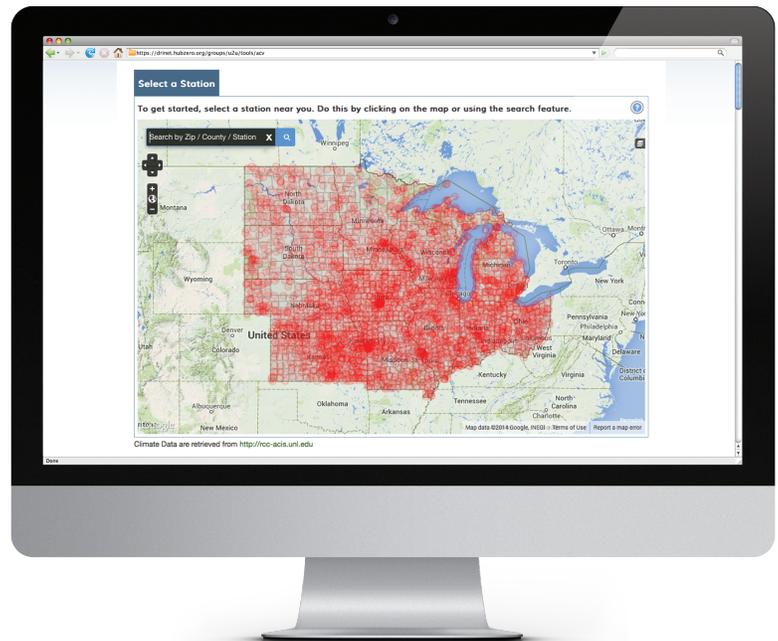# AgClimate View DST

This tool provides easy-to-use historical climate and crop yield data for the Corn Belt.

## Features

- Plot local monthly temperature and precipitation variation back to 1980

- Track county crop yields and trends

- Consider crop yields in the context of monthly temperature, precipitation, growing degree day (GDD50), and stress degree day (SDD90) data



**ACV.AgClimate4U.org**

Used in tandem with other decision resources, AgClimate View DST (ACV) can help you find long-term correlations between climate trends and crop yields, while helping you put your recent crop experience into historical context.

ACV and the related U2U products provide agricultural producers and advisors information that connects agronomic, climatic and economic variables that impact agricultural production and returns. ACV shows that the old adage "rain makes grain" may not always hold true.

ACV combines weather and climate data from the National Oceanic and Atmospheric Administration (NOAA) with crop yield data from the National Agricultural Statistics Service (NASS) of the U.S. Department of Agriculture. Users can explore trends within weather and crop yield data, examine weather and crop data for specific time periods, and compare current conditions to past events.

**Purdue University • Iowa State University • University of Illinois • University of Missouri • University of Wisconsin
University of Michigan • Michigan State University • South Dakota State University • University of Nebraska-Lincoln**

## ACV Data Sources

The weather and climate data are retrieved from the Applied Climate Information System (ACIS), a quality-controlled historical climate database developed and maintained by the NOAA Regional Climate Centers. ACV displays data from all currently active weather stations in ACIS within the 12-state U2U domain (North Central U.S.). All climate stations in ACIS identified as currently collecting data are included in AgClimate View, regardless of the station's length of record or number of missing data points.

Growing Degree Day (GDD) data displayed in ACV are calculated using a base temperature of 50ºF and no upper limit. For corn-specific GDD (86/50), please visit our Corn GDD tool. Stress Degree Day (SDD) data displayed in ACV are calculated using a 90ºF threshold.

The USDA National Agricultural Statistics Service (NASS) Quick Stats Database provides historical data from 1980-2013 for county-level corn and soybean yields. Yield trends are calculated as a straight linear trend of county yield data from 1981-2010. The yield trends are based on these years to align trends with the 30-year historical weather averages, called normals.

## Using ACV in Farming Decisions

The information provided by ACV can help you evaluate farming decisions by giving you a sense of typical and historical weather patterns, the historical chances of extreme climate and crop yield events, and a rough guideline on the relationships among weather variables and crop yields.

- The Climate Data, Climate Average and Custom Chart tabs are great for comparing current weather patterns to historical weather events and showing the range in weather variables since 1981.

- The Yield Trend tab provides information on the variability of yields within your area and can be used to project expected yields for the coming year.

- The Comparison tab allow you to bring the information together in a meaningful way. You can explore how crop yields in your area have responded above or below early season precipitation or growing degree days. You can also assess the historical likelihood of a wet harvest and plan accordingly. Finally, you can see how common or uncommon stress degree days are for your area and examine how those stress days impacted crop yields.
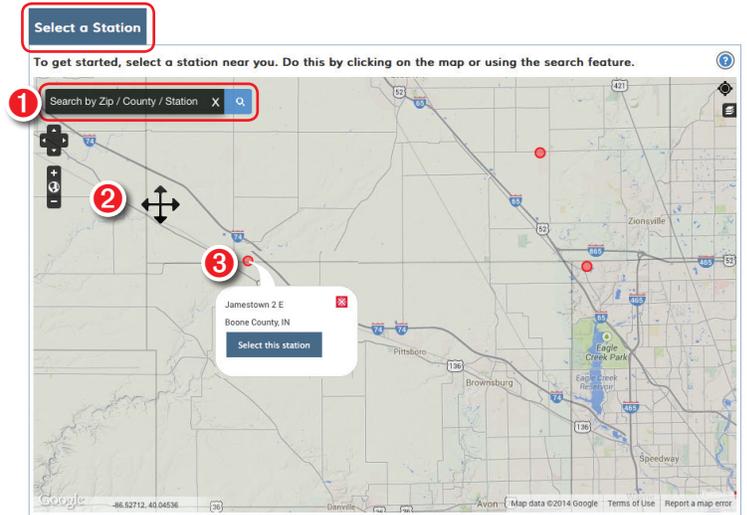
ACV.AgClimate4U.org

# User Guide

To use the ACV tool, follow these simple instructions:

## Select a Station

To start, select a weather station near the area in which you are interested. This can be done in a variety of ways:

❶ Search for data by zip code, county name, or weather station name.

❷ Click and drag the map to your area of interest.
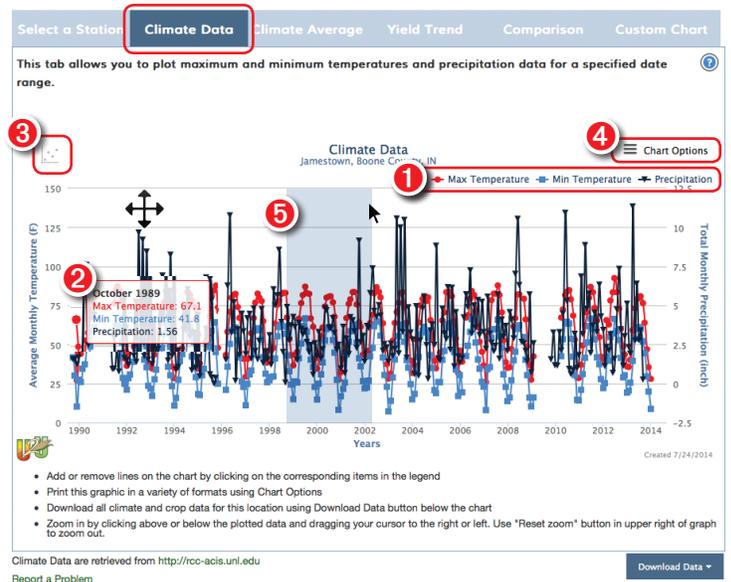
❸ Click on a weather station, indicated by a red dot.

Once you have found the weather station, click the "Select this station" button, which triggers the site to pull the data for your station.



## Climate Data

The "Climate Data" tab will display the monthly average maximum temperature, minimum temperature, and total precipitation for the weather station since 1980.

❶ Click on the legend in the upper right-hand corner above the graph to add/remove variables from the graph.*

❷ Hover the mouse pointer over the graph, a pop-up box will appear displaying a table of the data for the month on that point in the graph.*

❸ Turn the graph into a scatter plot by clicking on the scatter plot icon in the upper left-hand corner of the graph.*

❹ Print or download the graph by clicking on the "Chart Options" icon at the upper right-hand corner of the graph.*

❺ To zoom in on a particular graph feature, click and hold the mouse button and drag the cursor across the feature.*

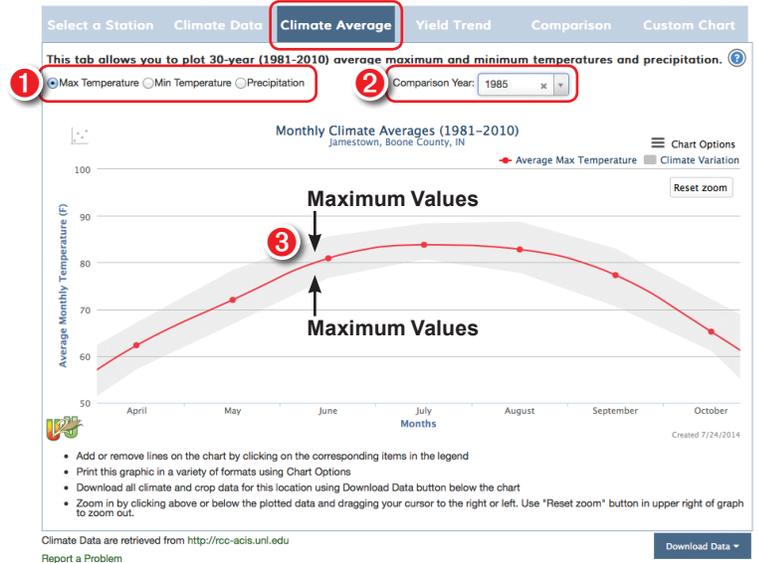

---

* These options are standard across all AgClimate View tabs

## Climate Average

The "Climate Average" tab provides the 30-year averages (called "normals") for monthly average maximum temperature, minimum temperature and total precipitation.
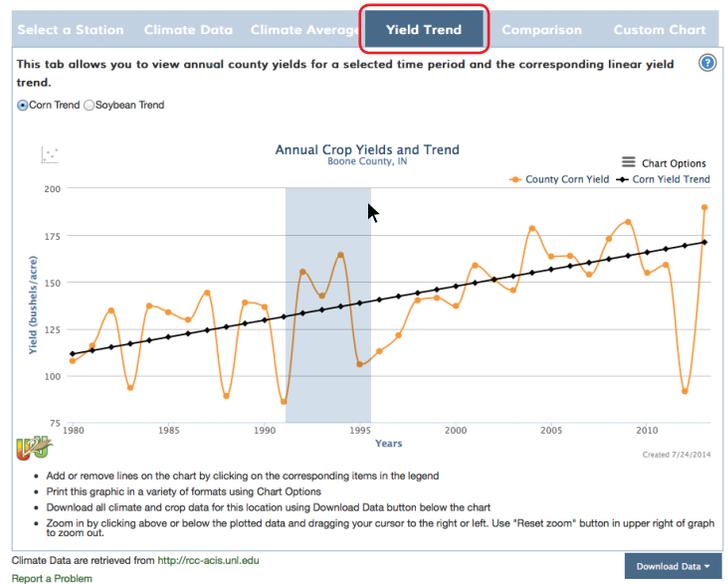
❶ Select the climate variable you wish to plot.

❷ Compare long-term climate averages to conditions for a single year.

❸ The gray area around the red line shows the range of maximum and minimum values observed during the available period of record.

You can customize this graph using the same features described for the "Climate Data" tab.



## Yield Trend

The "Yield Trend" tab displays corn and soybean yields, and yield trends for the county where the weather station is located. To be consistent with the 30-year averages from the weather/climate data, the yield trends are based on the same 30 years from 1981-2010.

## Comparison

The "Comparison" tab allows you to link weather and crop data together for decision analysis.

❶ Select the crop you wish to plot.

❷ Select up to two climate variables (checkboxes). Display either average values or deviations from average (dropdown list).

❸ Show Stress Degree Days

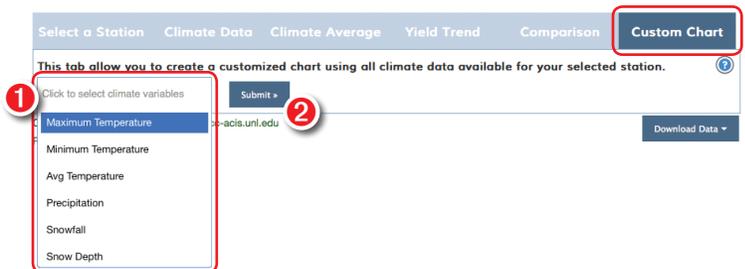❹ Select the range of months and years to be displayed on the chart.

## Custom Chart

The "Custom Chart" tab allows you to customize your own charts with the variables in AgClimate View.

❶ Select climate variables from the scrolling dropdown menu: maximum temperature, minimum temperature, average temperature, precipitation, snowfall, snow depth, cooling degree days (CDD65), heating degree days (HDD65), or growing degree days (GDD50).**

❷ Once you have chosen the variables for the graph, click the "Submit" button and the custom graph appears.

All of the functions for the standard graphs are available for the custom graph as well (printing, downloading, zooming, pop-up box of data, etc.).
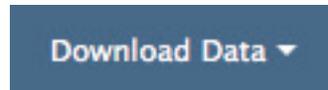
## Download Data Feature

On each page, there is also a "Download Data" button.

**This allows you to:**

• Download the data you see in the graphs, use it for your own purposes or incorporate it into other decision support tools.

• Access the daily data. (You can only view monthly and average data within the tool.)

** Data availability varies by station
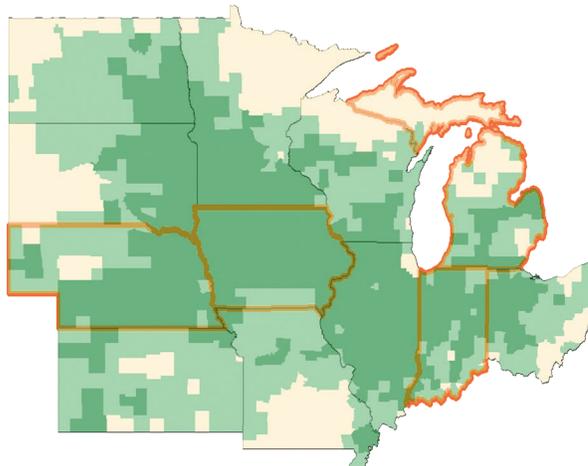
ACV.AgClimate4U.org

# About Useful to Usable (U2U)

U2U is an integrated research and extension project, funded by the USDA, to improve farm resilience and profitability in the North Central U.S. by transforming existing climate data into usable products for the agricultural community. Our goal is to help producers make better long-term plans on what, when and where to plant, and also how to manage crops for maximum yields and minimum environmental damage.

The U2U team includes climatologists, agronomists, social scientists and computer specialists who have come together to create tools to aid in farming decisions. Partners include Purdue University, Iowa State University, Michigan State University, South Dakota State University, University of Illinois, University of Michigan, University of Missouri, University of Nebraska, University of Wisconsin, the High Plains Regional Climate Center, the Midwestern Regional Climate Center, and the National Drought Mitigation Center.

**PROJECT CONTACTS:**

**Linda Prokopy,**
Associate Professor and Project Lead, U2U
Purdue University
765-496-2221
lprokopy@purdue.edu

**Melissa Widhalm,**
Project Manager, U2U
Purdue University
765-494-8191
mwidhalm@purdue.edu

For more information, please visit
AgClimate4U.org

🐦 @AgClimate4U

## U2U Study Region



**Pilot States**
**Major Corn Growing Area**
**Minor Corn Growing Area**

Crop data from National Agricultural Statistics Service (NASS) U.S. 2007 Census of Agriculture

Major corn areas harvested over 60,000 acres of corn

Minor corn areas more than 5,000 acres of corn

Map created by Adam Reimer

**United States Department of Agriculture**
National Institute of Food and Agriculture

**Purdue University • Iowa State University • University of Illinois • University of Missouri • University of Wisconsin**
**University of Michigan • Michigan State University • South Dakota State University • University of Nebraska-Lincoln**