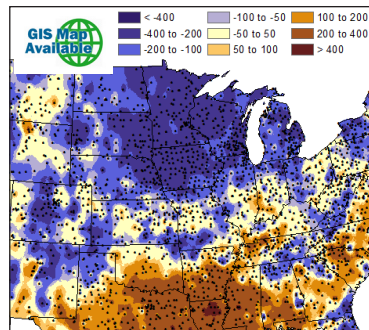


## Keetch-Byram Drought Index

The Keetch-Byram Drought Index (KBDI) is one of the few daily indices used to monitor drought. It is often utilized in the wildfire community, for it can give a real-time indication of the drying potential for the finer fuels such as grasses and shrubs. Since it is one of the only drought monitoring indices that are updated on a daily basis, it also offers the potential for many other vegetation applications. The VIP KBDI product offers static or GIS maps of KBDI daily values and departures.

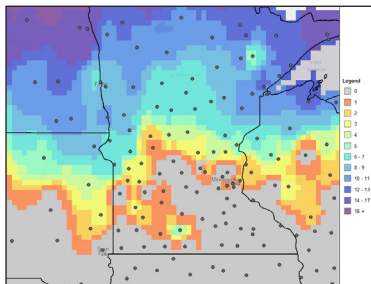


KBDI departure from normal for August 30, 2015

## GIS Interface

Three user-friendly GIS interfaces are offered to view and download maps of the various VIP products.

- **Freeze Map Interface:** provides the various freeze maps, guidance, and impacts from the Frost-Freeze Guidance project
- **Hours at or Below Freezing:** shows the greatest number of consecutive hours at or below 32°F for the last 24 hours, 7 days, or 30 days. Clicking on a station dot will provide the option to view a 24-hour, 7-day, or 30-day chart of station temperatures.
- **GIS Products Map:** one interface that contains maps for the chilling hours, KBDI, and SDD products



Consecutive hours at or below 32°F for the last 24-hours (ending February 28, 2016)

All GIS interfaces allow the user to customize the data and scale they are viewing and the user can easily download the image on their screen by using the "Export" feature.

For questions about VIP, please contact  
[mrcc@purdue.edu](mailto:mrcc@purdue.edu) or call the  
MRCC service office at 765-494-6574.



<https://mrcc.purdue.edu/> • 765-494-6574  
915 W. State St. • West Lafayette, IN 47907

The Midwest Regional Climate Center is a cooperative program of Purdue University and the National Centers for Environmental Information of the National Oceanic and Atmospheric Administration.

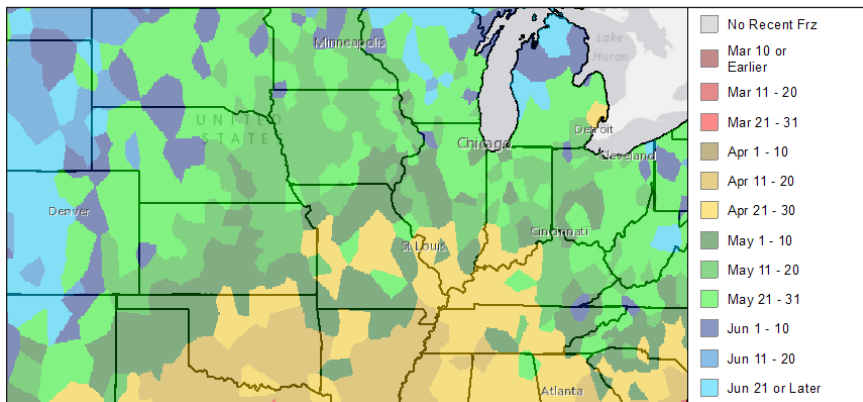


Climate monitoring  
and stakeholder input  
to help minimize negative  
vegetation impacts

<https://mrcc.purdue.edu/VIP>

The Vegetation Impact Program (VIP) is a monitoring, assessment, and networking program hosted by the Midwestern Regional Climate Center. Major impacts on vegetation are often driven by weather and climate conditions. For example, damaging frost events, drought, and even flooding can impact vegetation in areas of agriculture, horticulture, nurseries, or home gardening. Pests and disease are also driven by environmental conditions.

The VIP integrates online climate information, weather and climate outlooks, and stakeholder input to provide a suite of resources that can help minimize negative vegetation impacts, mitigate climate variability effects, and develop adaptation plans to better prepare for extreme and ever-changing environmental conditions.



GIS Interface showing the date of the last spring freeze (32°F)

## EXAMPLES OF VALUE-ADDED PRODUCTS

### Frost-Freeze Guidance

The VIP Frost-Freeze Guidance (FFG) project aims to improve communication about the state of vegetation and its susceptibility to potentially damaging low air temperatures among its subscribers. FFG project subscribers include National Weather Service (NWS) forecasters, University Extension, state climatologists, and other vegetation experts.

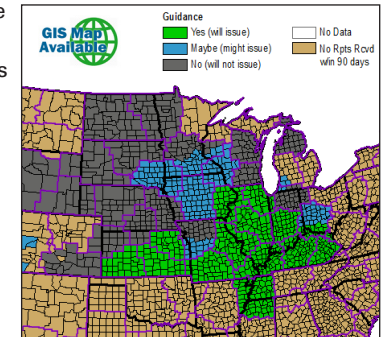
The FFG project offers the following products to determine the susceptibility of vegetation to freezing temperatures and to coordinate communication across the region:

- Current season freeze maps (e.g., days since the most recent 32°F freeze)
- Growing degree day maps (e.g., growing degree days since the most recent 28°F freeze)
- Freeze climatology maps (e.g., date of the median last spring 28°F or 32°F freeze)
- Freeze advisory status maps (see next page)

The *freeze advisory status map* is a unique and crucial part of the FFG project. The map shows guidance from FFG project subscribers on the current susceptibility of vegetation to freezing temperatures and the intention of NWS on issuing frost/freeze headlines (i.e., advisories, watches, or warnings).

A simple 3-category guidance rating is used for communication on the map:

- “No”: issuance of frost/freeze headlines are unnecessary (e.g., due to lack of growth).
- “Maybe”: issuance of frost/freeze headlines could be warranted depending upon vegetation or temperatures.
- “Yes”: issuance of frost/freeze headlines is strongly encouraged due to vegetative growth and stage in the growing cycle.

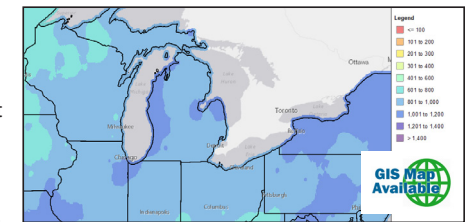


Freeze advisory status map for April 20, 2015

Forecasters or anyone who can provide information on the current state of local vegetation is welcome to subscribe to the project. Please email [mrcc@purdue.edu](mailto:mrcc@purdue.edu) for more information.

### Chilling Hours

Many plants become dormant during the cool season. If the cool season is not cool enough for a sufficient amount of time, many fruit-producing plants have a difficult time knowing when to come out of dormancy. Accumulated chilling hours offer a way to track length of exposure to optimum dormancy temperatures.



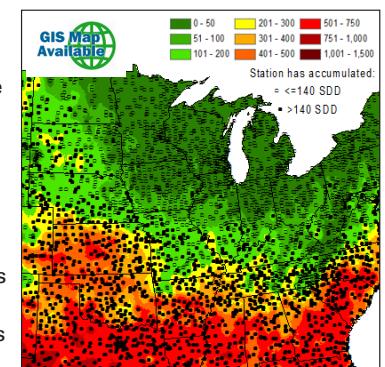
Accumulated chilling hours from October 1, 2015-February 26, 2016

The VIP Chilling Hours Product offers static or GIS maps of accumulated chilling hours and chilling hour departures based upon popular chilling temperature ranges and start dates. More detailed maps are available for regions across the U.S. by clicking on an area in the static maps, or using the GIS interface.

### Stress Degree Days

All plants have an optimum range of temperatures for growth. Temperatures that are too high can cause stress for the plant. Stress degree-days (SDD) are a way of tracking how much stress a type of plant has been subjected to within its growing season.

The VIP SDD product offers static or GIS maps of accumulated SDD values and SDD departures from normal for corn plants. SDD data for a single station are also available through MRCC's Application Tools Environment, cli-MATE (<https://mrcc.purdue.edu/CLIMATE>).



Modified SDD for corn plants (accumulated January 1, 2015-August 19, 2015)