

MRCC Operational Freeze Guidance Products and Climatologies



- **2007 spring freeze in early April**
 - *\$2 Billion in damages*
 - *Late in season for the southern US*
 - *Not late in Midwest, but followed a warm March*
- **2009 delayed maturity of crops**
 - *Wet spring delayed planting*
 - *Cool summer (especially July) slowed crop maturity*
 - *Late harvest so more susceptible to freeze damage*
- **NWS needs**
 - *Environmental monitoring tools*
 - *Communication between offices*
 - *Communication with vegetation experts*

Analysis of 2007 Freeze event...

- NWS services and communication were good overall
- Recommendations for future:
 - *Base freeze warning / headlines **on potential impacts to agriculture, horticulture, nurseries, and home gardens** rather than calendar dates*
 - *Develop and utilize ties with University Extension, state climatologists, USDA personnel, and other relevant partners to:*
 - Determine when freezing temperatures are a threat
 - Gather quality, detailed post-event impact information for regional reports and even documentation (i.e., storm reports, drought monitor)

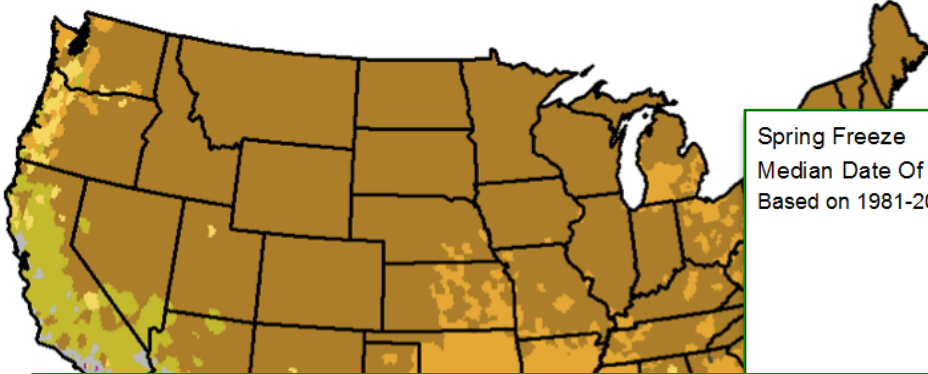
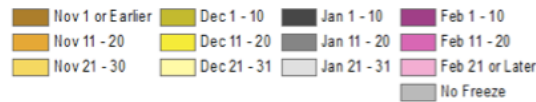
- **Relationship** with NWS, SCs, University Extension, vegetation stakeholders
- **Monitors and Assess** regional climate conditions and their impacts
- **Provides high-quality, operational climate data, tools, resources** for the region and sector
- **“Neutral” party** between partners

A one-stop shop for Frost/Freeze products and forecasts

- Daily Products
 - Many in production and operational or in beta phase
- Incorporate hourly data
 - Duration of freeze at an hourly time step
- Incorporate hourly forecasts
 - View and prepare for upcoming forecasted freezes
- Reporting
 - Along the lines of storm reports and drought monitor
 - Input from NWS, University Extension, etc... on status of crops and susceptibility for a freeze
 - Reports of freeze impacts

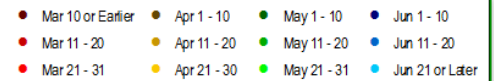
Date of First 28°F Freeze
since 8/1

As of 2/4/2014

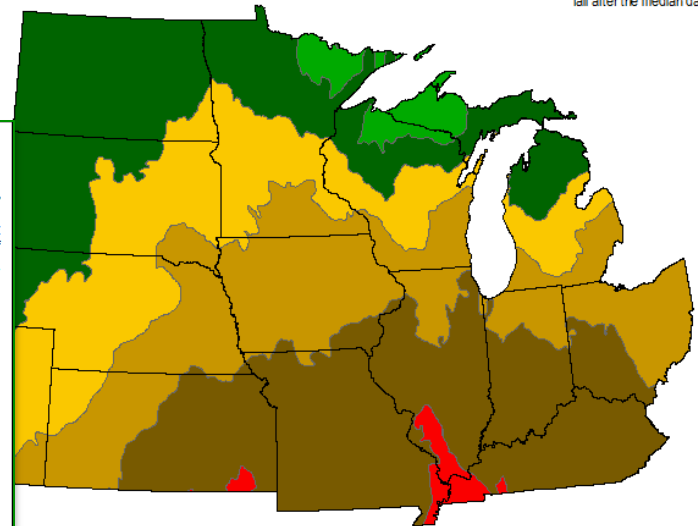


Spring Freeze

Median Date Of Last 28°F Freeze
Based on 1981-2010 Average

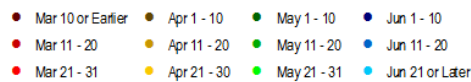


Median date is determined such that
half of all years fall before and half
fall after the median date.

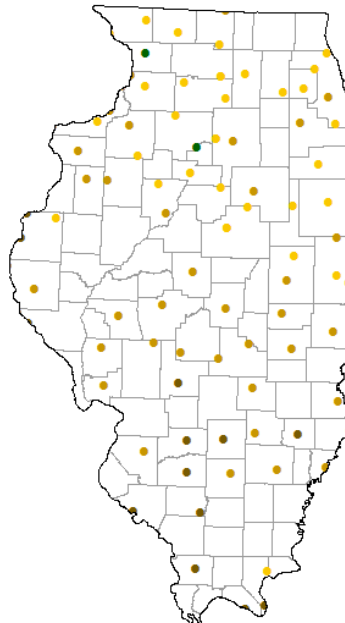


Spring Freeze: Illinois

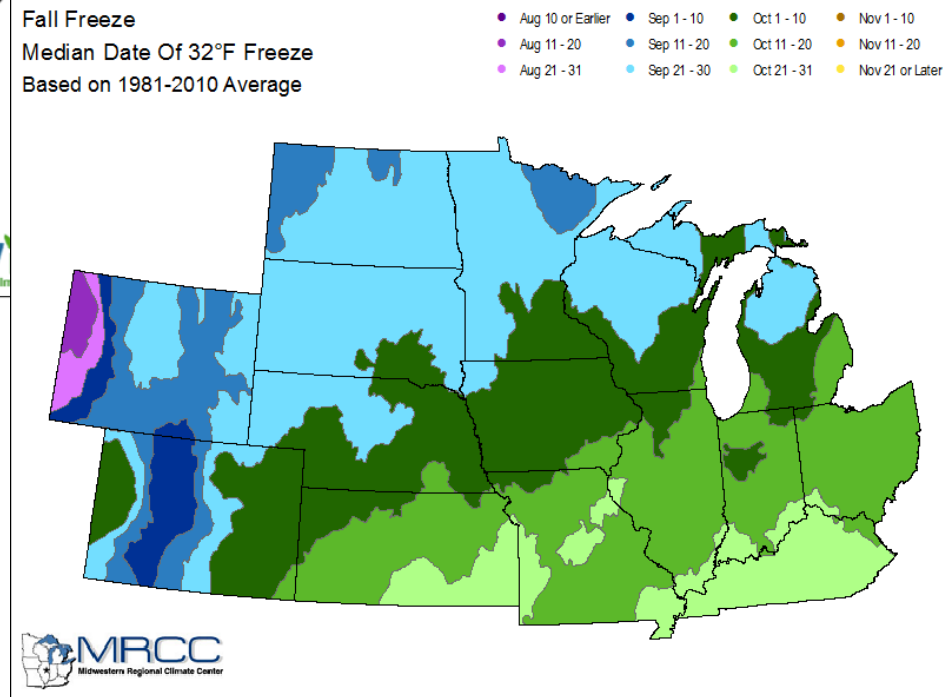
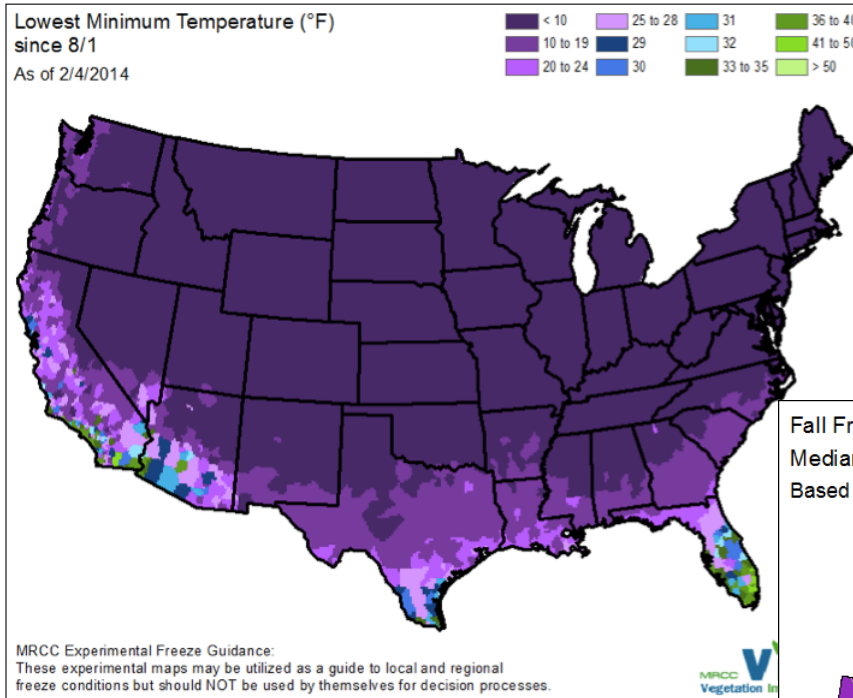
Median Date Of Last 32°F Freeze
Based on 1981-2010 Average



Median date is determined such that
half of all years fall before and half
fall after the median date.



MRCC
The free

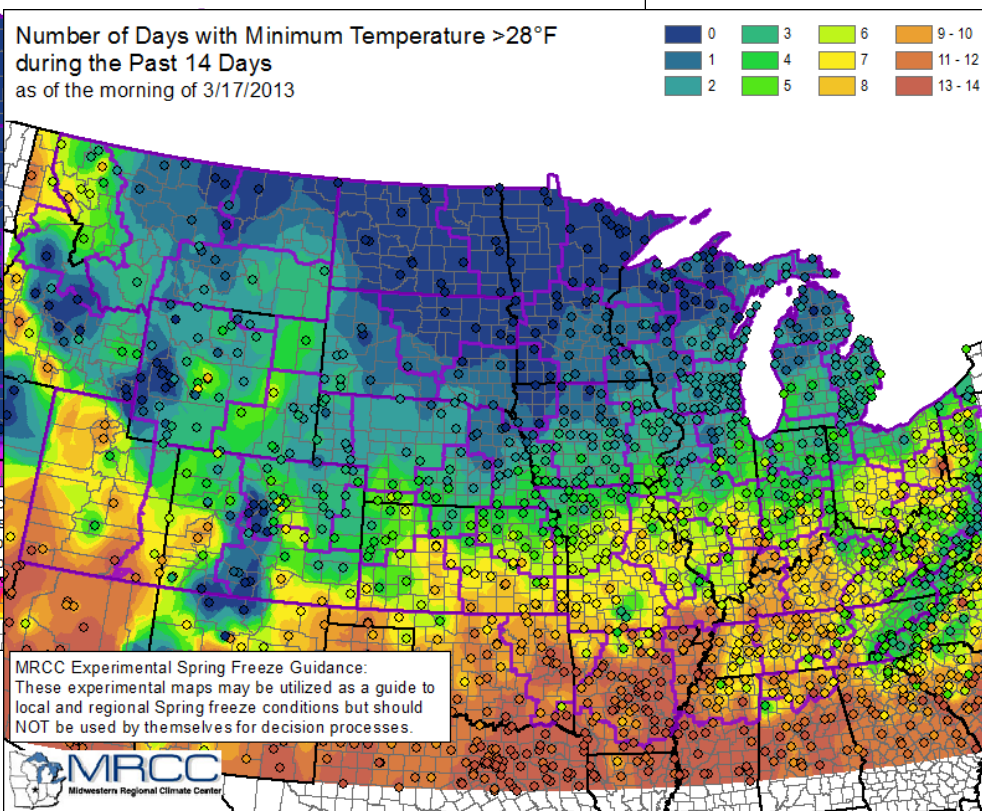
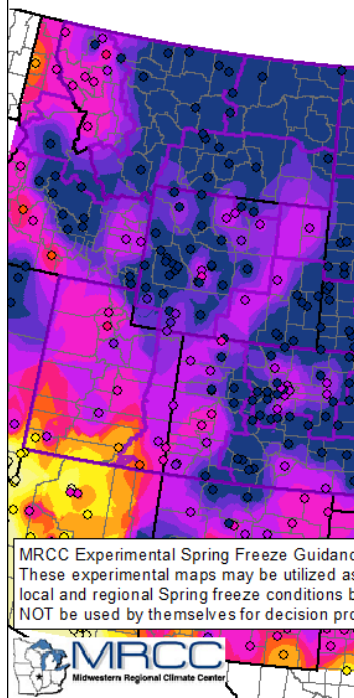


Number of Days since Most Recent 28°F Freeze
as of the morning of 3/17/2013

0	3 - 4	9 - 10	21 - 25
1	5 - 6	11 - 15	26 - 30
2	7 - 8	16 - 20	31 +

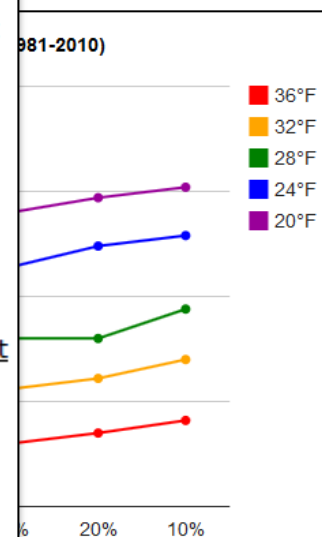
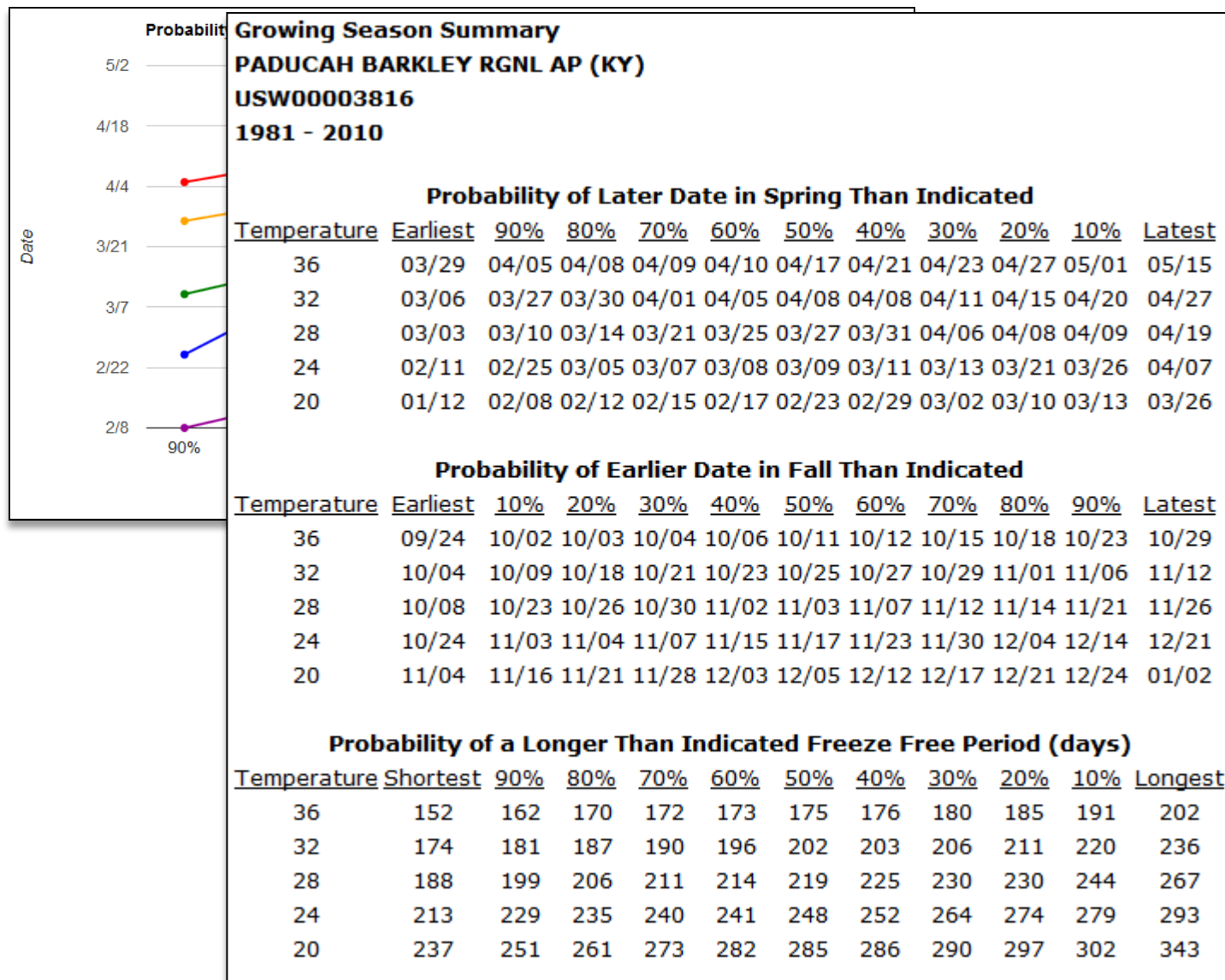
Number of Days with Minimum Temperature >28°F
during the Past 14 Days
as of the morning of 3/17/2013

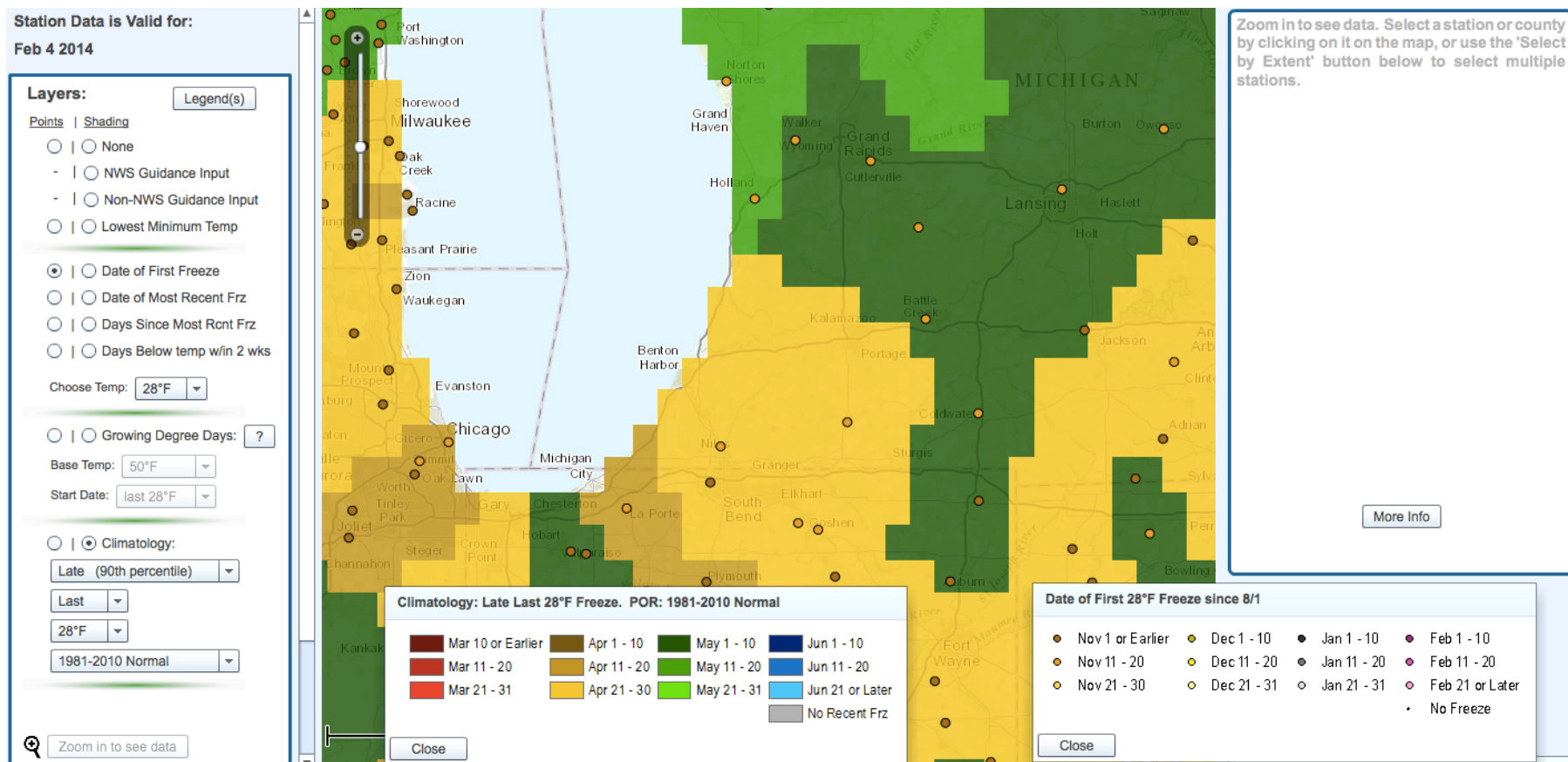
0	3	6	9 - 10
1	4	7	11 - 12
2	5	8	13 - 14



0 - 10	51 - 75	151 - 200	301 - 350
11 - 25	76 - 100	201 - 250	351 - 400
26 - 50	101 - 150	251 - 300	400 +

MRCC Experimental Spring Freeze Guidance:
These experimental maps may be utilized as a guide to local and regional Spring freeze conditions but should NOT be used by themselves for decision processes.

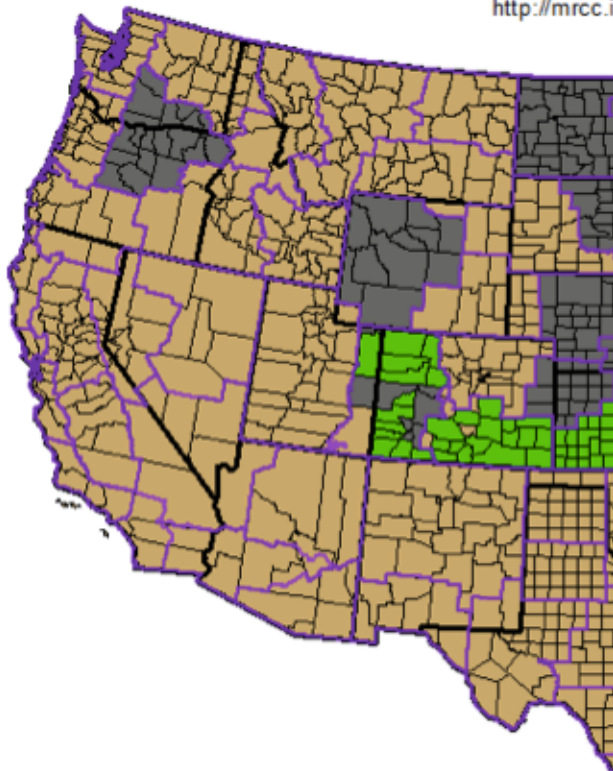




Freeze Advisory Status per NWS input

as of 12:00 PM CST on 2/4/2014

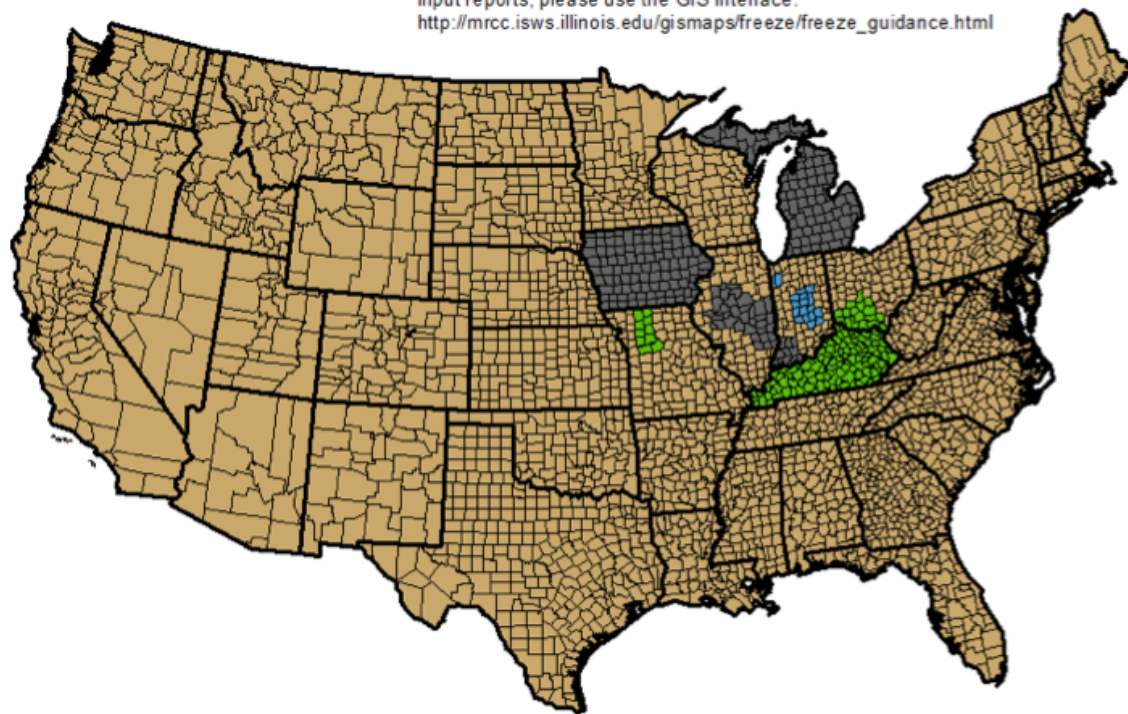
Note: For more
input report:
http://mrcc.isws.illinois.edu/gismaps/freeze/freeze_guidance.html



Freeze Advisory Status per non-NWS input

as of 12:00 PM CST on 2/4/2014

Note: For more detailed information on
input reports, please use the GIS interface:
http://mrcc.isws.illinois.edu/gismaps/freeze/freeze_guidance.html



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Frost/Freeze Portal: Forms

Select Different Area

Return to All Frost/Freeze Products

Freeze Advisory Guidance Form - By Crop Reporting District: KY_10/Purchase

Freeze Advisory Guidance (select one):

- ☐ No freeze advisory needed (no growth)
- ☐ Possible freeze advisory needed (some vegetation susceptible)
- ☐ Yes - Issue freeze advisory (most vegetation susceptible)

Enter rationale for guidance:

Select your user group:

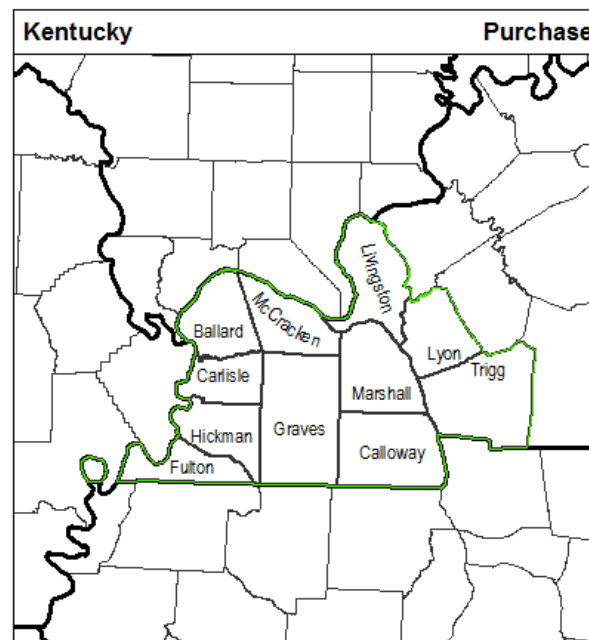
Regional Climate Center

Counties:

Check All

Uncheck All

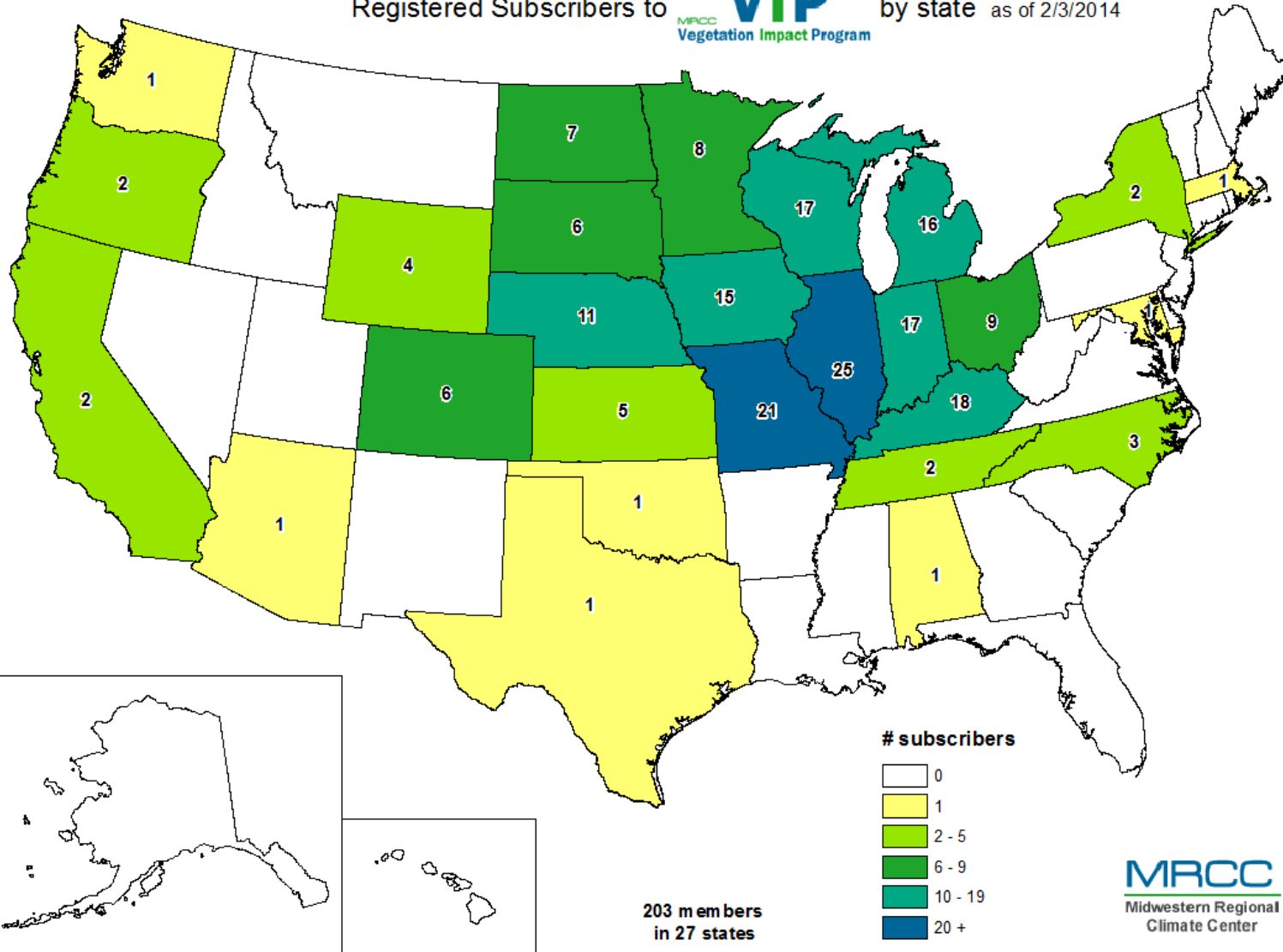
- ☐ Ballard, KY
- ☐ Calloway, KY
- ☐ Carlisle, KY
- ☐ Fulton, KY
- ☐ Graves, KY
- ☐ Hickman, KY
- ☐ Livingston, KY
- ☐ Lyon, KY
- ☐ Marshall, KY
- ☐ McCracken, KY
- ☐ Trigg, KY



- Currently have a listserv populated with 200+ experts
 - *State Climatologists*
 - *NWS Forecasters*
 - *University Extension*
 - *NCDC and the RCCs*
- Ever expanding
 - *Private sector (e.g., Master Gardeners, growers, farmers)*
 - *USDA*

Current Products – Listserv

Registered Subscribers to **ViP** by state as of 2/3/2014
MRCC
Vegetation Impact Program



- **Bigger domain**
 - *Products are now national*
- **Combine spring and fall**
 - *Separate seasons in Midwest but not in South*
- **Incorporate hourly data**
 - *Information about hours below freezing*
- **Integrate digital forecast data**
 - *Map susceptibility vs. Risk*
- **Encourage more plant experts to participate**
- **Determine how to best show impact reports**

- *Demand for more than just frost/freeze monitoring*
- *Partnership with mesonets for more diversified tools*
 - *Disease*
 - *Pests*
 - *High Resolution*
- *Stress Degree-Day Tools; Chilling Hour monitoring*
- **Keetch-Byram Drought Index**
- **VIP – Vegetation Impact Program**
 - *Climate monitoring of vegetation impacts*
 - *Partnership between:*
 - *MRCC / RCC*
 - *NWS*
 - *SCs*
 - *University Extension*
 - *Private Sector*
 - *USDA*

Demand for ...

- *Improved communication between experts*
- *Operational monitoring tools to minimize impacts*
- *High resolution climate and forecast tools*

