

# Early September Cool Air Outbreak Impacting Late Season Crop Development: Potential Impacts in the North Central U.S. September, 2017

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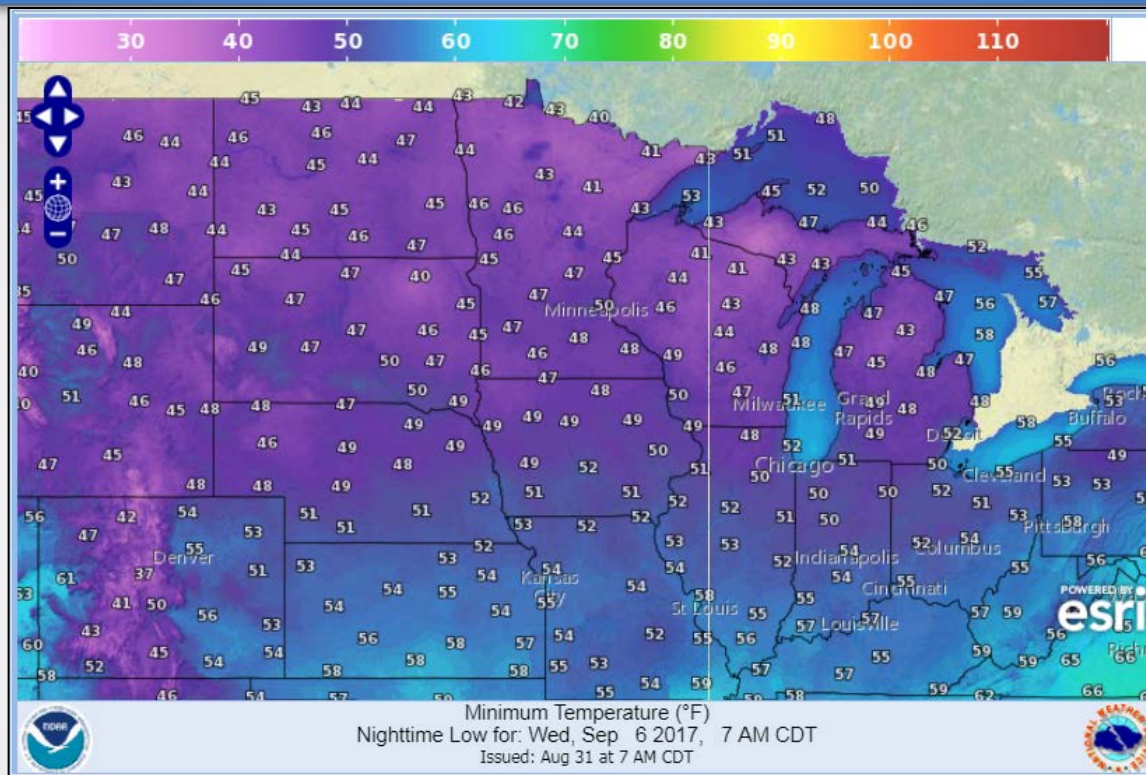
- Below average temperatures continue into mid-September across much of the Corn Belt.
  - Impact: Slow development of corn
- Temperatures in the 30s°F will likely occur in parts of the northern Corn Belt into mid-September.
  - Impacts: Possible damage to sensitive crops or leaf damage to row crops.
  - Freeze risk highest in the Upper Midwest.



Frost damage to Blueberries.  
<https://www.ars.usda.gov/northeast-area/docs/hot-research-topics/mapping-blueberry-genes/>



# Temperatures: September 6

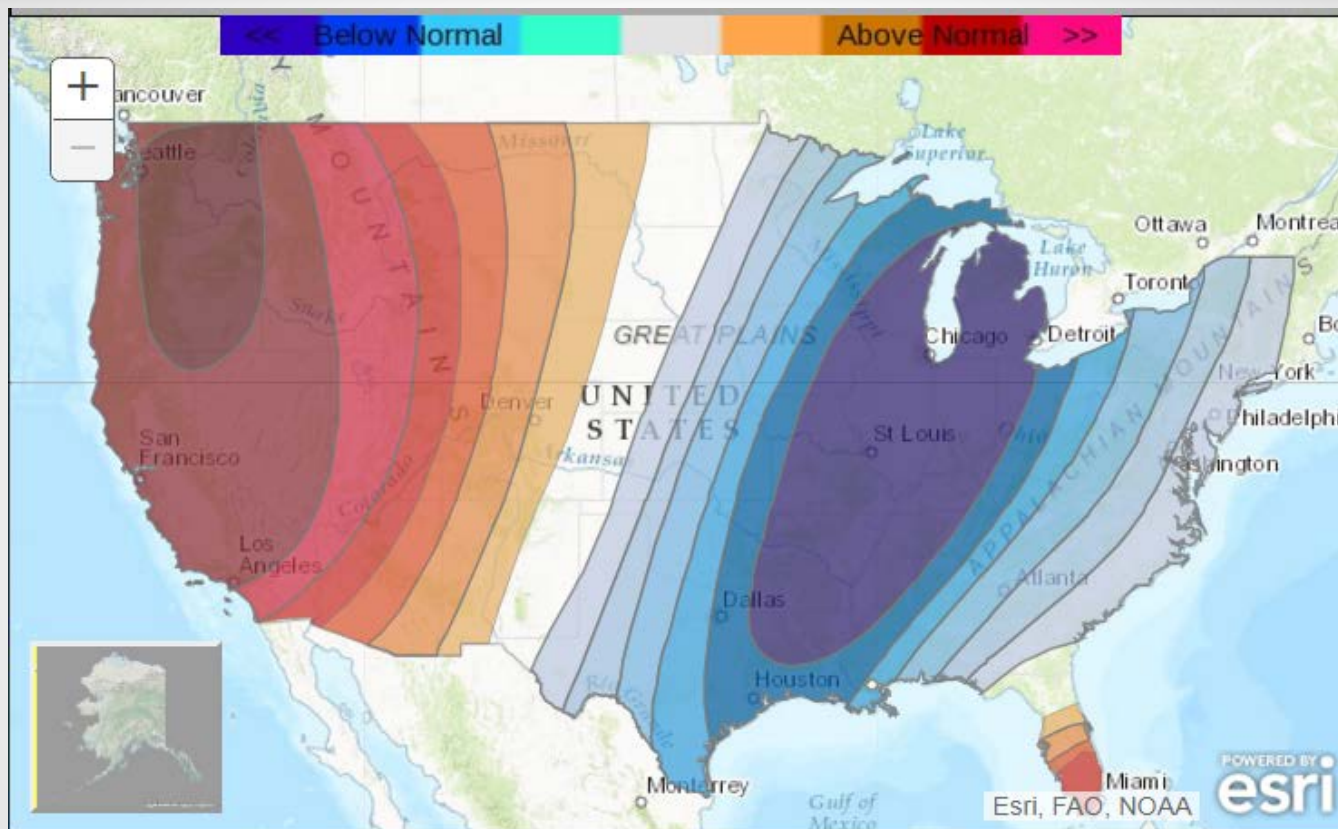


- Low temperatures for Wednesday, September 6 showing cool Canadian air mass settling over the Upper Midwest.
- For local weather updates now through next 7 days: <http://www.weather.gov/>





# 6-10 Day Temperature Outlook: September 6-10, 2017



- Reflects a strong push of cool Canadian air into the central U.S.
- Widespread low temperatures in the 40s across the northern part of the Corn Belt.
- Temperatures in the 30s in spots in the Upper Midwest.

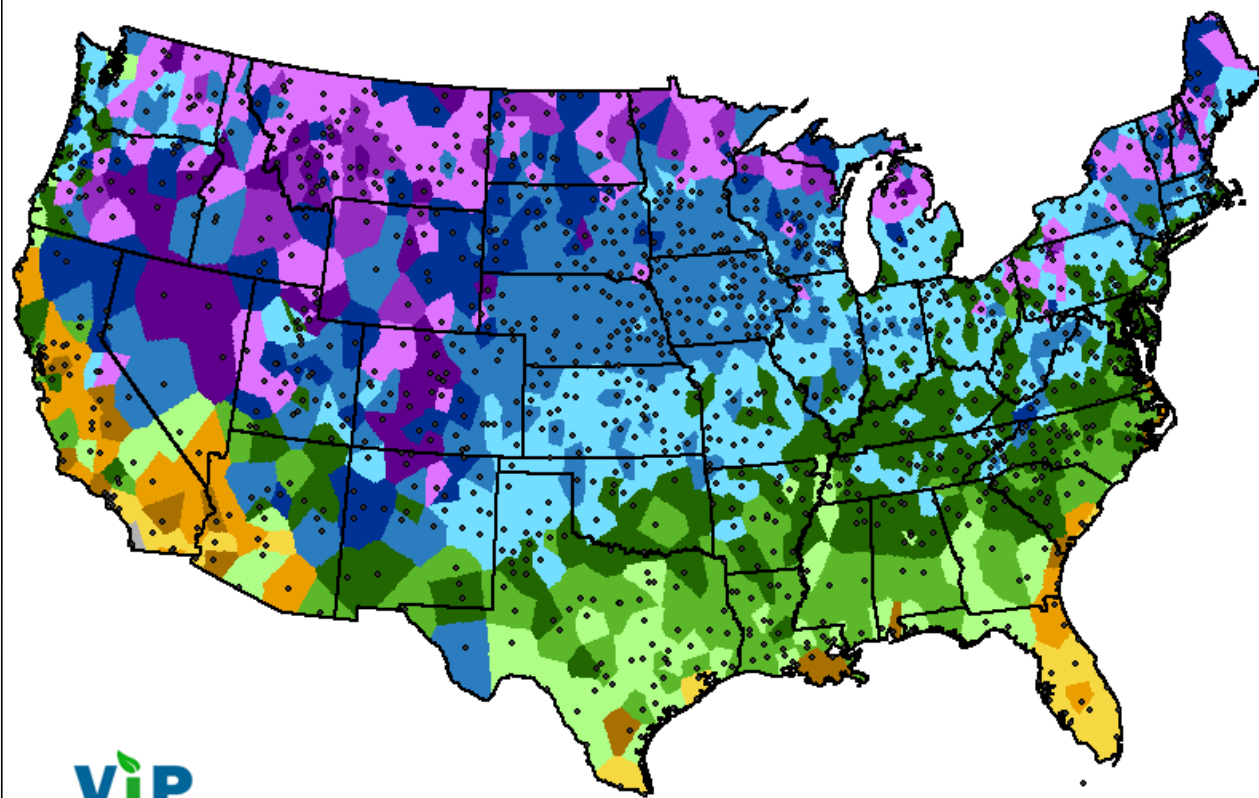
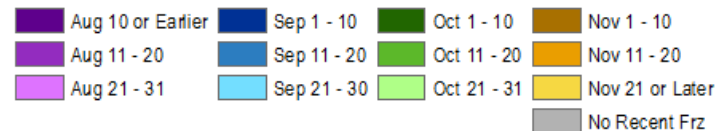




# Earliest Fall Freeze Dates



Climatological Date of Earliest First 32°F Freeze  
For the years from 1980-81 to 2009-10  
Earliest freeze within the 30-year POR



- First 32 °F day in 1980-2010
- Most of the region mid-late September at earliest
- Far north susceptible from early September





Frost injury, soybean field. Photo by David Holshouser, Associate Professor & Extension Agronomist at Virginia Tech.

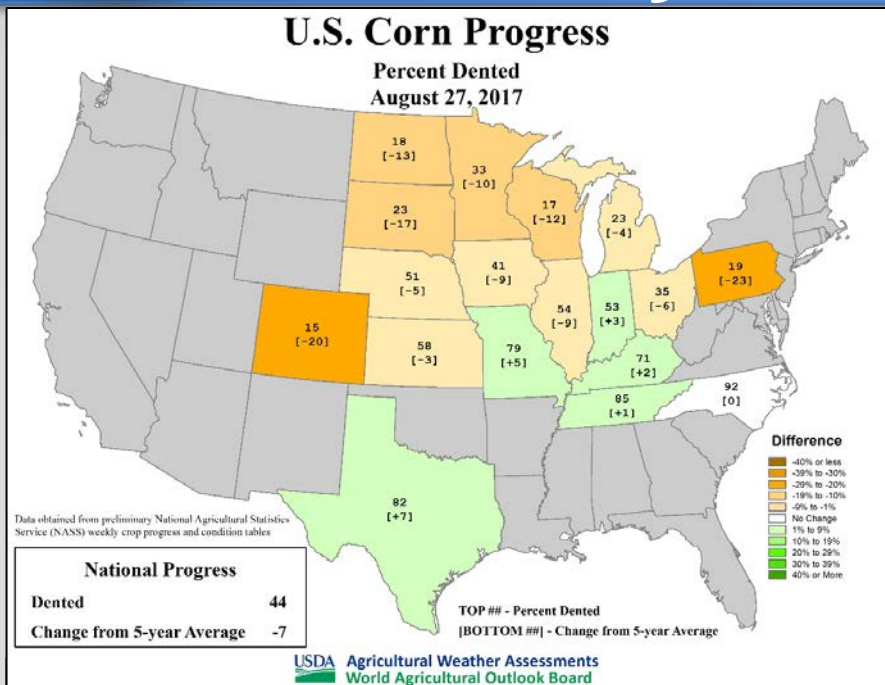
<http://blogs.ext.vt.edu/soybean-update/>

## Temperature:

- Sub-freezing conditions unlikely in most of the Corn Belt
- Near-freezing possible – especially northern states
- Corn Belt at limited freeze risk overall

## Impact:

- Some leaf damage can occur near freezing on soybeans
- Corn less at risk in that regard
- Stressed crops more at risk



## Temperature:

- Cooler temperatures persist into mid-September
- Continued slow crop development (already 1-2+ weeks behind)
- Will need at least near average (or later) freeze date for corn

## Precipitation:

- Generally dry most of the Corn Belt
- Will help crop development assuming less cloudiness



## Freezing conditions:

- Corn at most risk, soybeans less so
- Horticultural/garden plants vulnerable
- Important cloud cover and wind details difficult to assess this far out
- Topography role – low-lying areas more susceptible to early cold
- Can damage parts of crops without going below freezing



Research being conducted on **Regulating Cold Hardiness and Dormancy in Fruit Trees.**

<https://www.ars.usda.gov/northeast-area/kearneysville-wv/appalachian-fruit-research-laboratory/innovative-fruit-production-improvement-and-protection/people/michael-wisniewski/>





# Summary Points



- Cooler than normal temperatures into mid-September will further slow corn development.
- A push of cool Canadian air will create a low risk of a freeze or near-freezing temperatures in the Upper Midwest that could impact row and specialty crops in that area.

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