Heavy Rain and Record Cold
Forecast and Potential Impacts in the North Central U.S.
September 26 - October 8, 2019

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Much of the central portion of the country is in a wet weather pattern that is likely to remain through the Fall.

The first round of significant rain fell last weekend (September 21-22). A widespread 2 to 4 inches of new rain fell across much of the plains into the upper Mississippi Valley and Great Lakes region.

Thunderstorms with heavy rain will be possible off and on through the week. However, those storms will be more isolated. The next round of heavy rain will be this Friday and Saturday (September 27-28) from northeast Kansas into southern Michigan. With additional rounds of heavy rain in the forecast thereafter.

The expected rain over the next 7 days will have the greatest impacts along the Missouri River downstream of Kansas City with additional rises of 2 to 5 feet possible. Minor to Moderate flooding is expected along the entire reach of the Missouri from Decatur, NE downstream to St. Louis, MO.

Extreme cold seems more likely into week two leading to likely sub-freezing conditions which may impact some immature crops. The best chance for a first freeze appears to be on October 4th in the western corn belt.
First Round of Heavy Rain
How Much Rain Fell Last Weekend and Where?

Rain Amounts: Total rainfall amounts of 1 inch to over 7 inches were noted over much of the northern plains, upper Mississippi Valley, and into the upper Midwest.

Impacts Observed: Flash flooding in North Dakota including Great Falls, also reported in Kansas with water rescues needed.

Interstate 29 closed in portions of ND and IA.

Levee stress.
Current River Levels
Observed Flooding as of Wednesday, September 25, 2019

Moderate to Major Flooding is already occurring on rivers and tributaries.

Expected rainfall over the next two weeks will worsen flooding in these locations.

Locations not currently flooding or that are in Minor Flood Stage could see significant rises over the next two weeks.
Rain Amounts:
Total rainfall will range from **1 inch to over 7 inches** over much of the northern plains, upper Mississippi Valley, and into the upper Midwest.

How Certain:
**High confidence** that there will be heavy rain across this region.

Since thunderstorms will produce the rain, **the final totals will vary**, some locations will get more rain than is shown and some will get less.
Rain Forecast:
A *period of heavy rain continues* beyond the first week (detailed on the previous slide) and persists into the second week of October.

How Certain:
1-2 week forecasts always have a fair amount of uncertainty. However, the chance for heavy rain exists over a broad region through October 8.

The wet weather patterns mean a large portion of the Plains and Upper Midwest has a chance to see heavy rainfall into the second week of October.

Area most likely to see heavy rainfall: October 2 to 4.
A push of abnormally cold air is on its way for early October. **Record Low temperatures are possible** in the areas circled above between October 2nd and 8th.
Impacts - Soils

**Moisture:**
- Flooded/wet fields will limit field access for beginning fall harvest
- Wet fields will produce quicker runoff with even lesser rains
- Soils will dry very slowly in fall conditions

**Risk:**
- Harvest will be slowed/stopped
- Soils will compact more easily leading to additional soil damage

NOAA CPC Soil Moisture Percentile Ranking
Impacts - Crops

**Delays:**

- Extensive crop delays due to late spring planting
- Delays will be further delayed by wet soils and limited field access/slow dry down
- Some crops may not be able to be harvested until soils freeze
- Some flooded crops likely will be total losses

**Freeze:**

- Likely sub-freezing temperature will kill off some immature crops

Corn Crop Progress - Percent Mature (USDA-NASS data Sept. 22). Plains states some of the furthest behind in the country.

Plot Courtesy USDA-OCE
Potential Societal Impacts

Transportation will likely be affected including interstates, highways, rural roads, and river navigation.

Infrastructure impacts include continued levee stress, erosion issues, sewer water discharge, and exposed utilities.

Recreation cancellations and park closures are possible.

Flooding may impact some of the same areas still recovering from the flooding that occurred this spring.

Freezing temperatures may bring an end to the growing season across portions of the northern and high plains.

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