

Impacts of Climate Change on Agriculture in the Eastern Corn Belt

The climate of the Eastern Corn Belt has and will likely continue to warm throughout the 21st century. Changes in daily highs and lows are likely to result in mean temperatures that stretch the upper limits of today's climate. This will continue to increase growing season length, or days where temperatures remain above critical freezing temperatures, leading to additional climate threats on agriculture including:

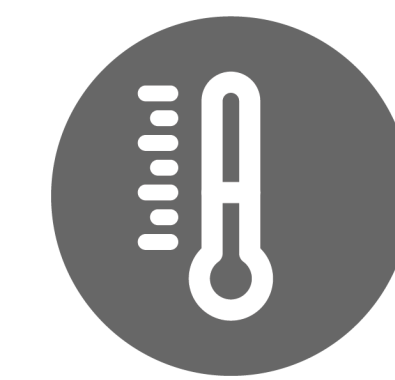
- Heat stress and decreased crop productivity and quality of crops
- Increased weed pressure, insect populations, and potential diseases
- Increased stress on humans and livestock necessitating increased cooling capacity

Precipitation across the Eastern Corn Belt has and will likely continue to increase throughout the 21st century. This includes total precipitation, cooler season precipitation (fall through spring), and intense rainfall amounts. Despite increases in overall precipitation, additional short-lived intense dry periods are likely during the growing season. These changes in precipitation will:

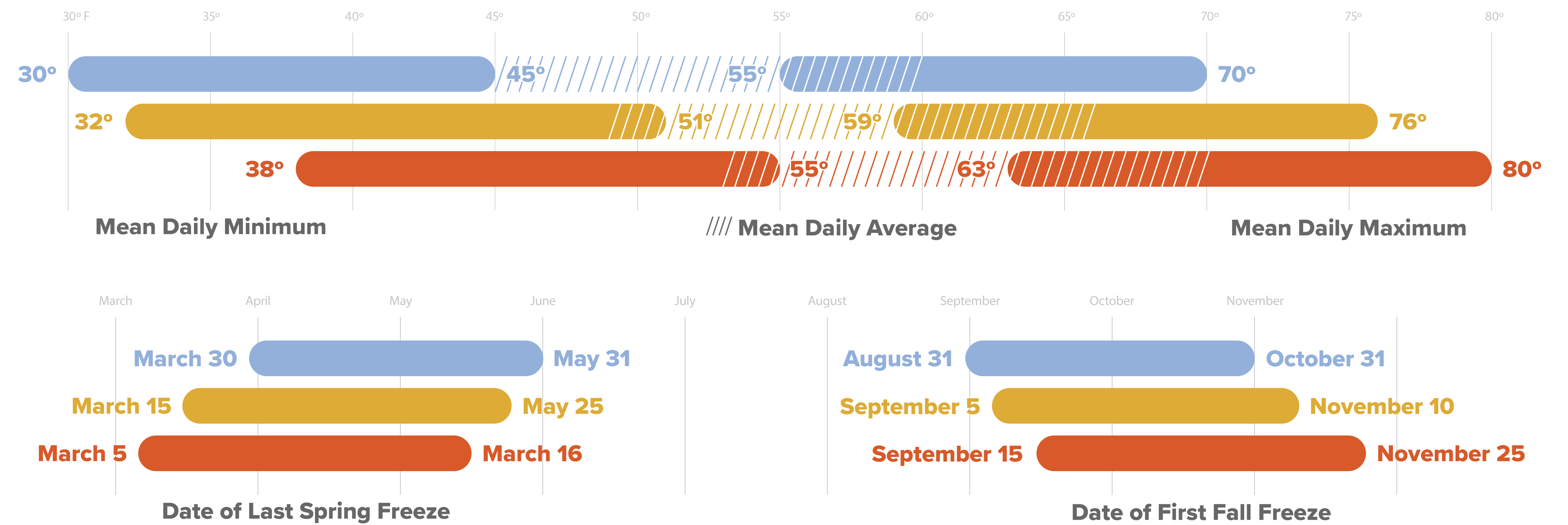
- Increase the risk of flooding, erosion, nutrient loss, and compaction
- Decrease planting and harvesting windows, the number of field work days
- Increase the potential for disease in plants (wetness duration) and livestock (mud)

- Current Range (2019)
- Low Range
- High Range

This work is sponsored by a National Institute of Food and Agriculture – Agriculture and Food Research Initiative grant using regional integrated modeling of farmer adaptations to guide agroecosystem management in a changing climate.



TEMPERATURES



PRECIPITATION

