

Assessing the Economic Consequences of the August 2020 Derecho in Iowa

1. August 2020 Midwest derecho

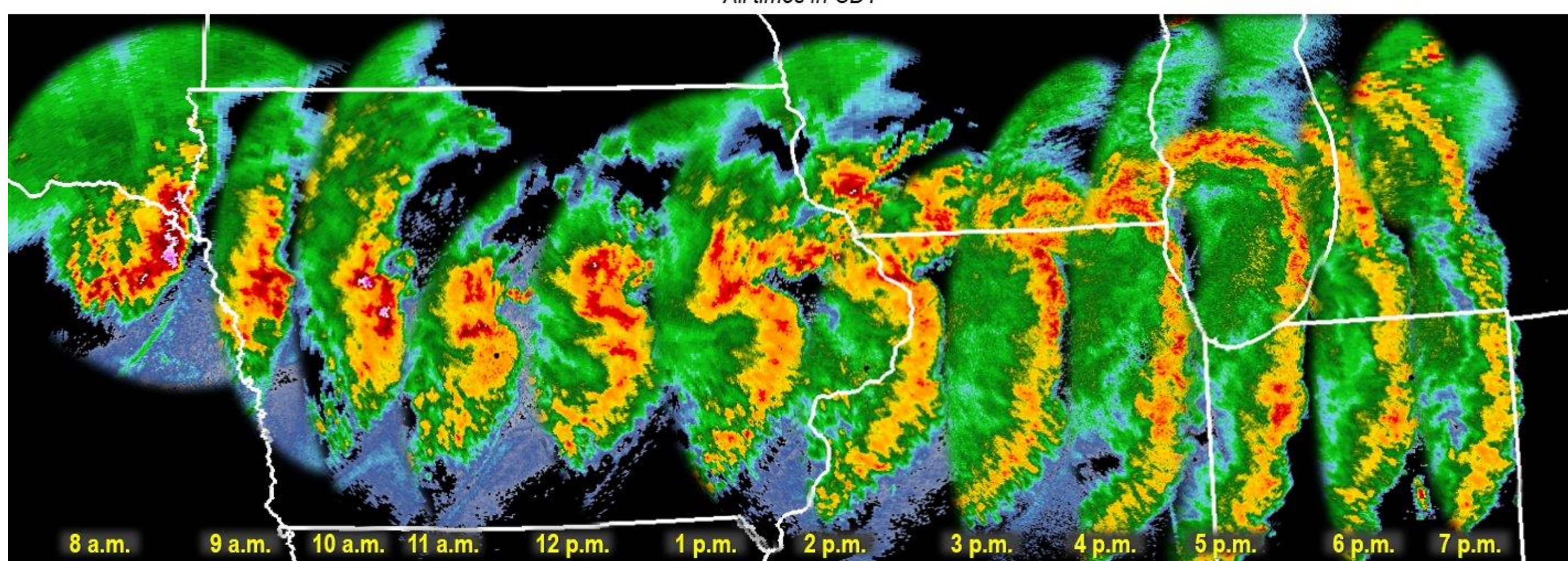
- August 10, powerful storm hit Iowa, eastern Nebraska, Illinois, Wisconsin, and Indiana
- Most significant damage centered in Iowa
- Characterized by high winds and weak tornadoes, some torrential rain and hail reported
- Sustained 70 mph winds, peak wind speed of 140 mph



2. Research methodology

- Research different types of damages and losses from the derecho
- Assess the economic consequences of the derecho in Iowa based on damage reports and data collected from the Bureau of Economic Analysis
- Use an input-output economic model to quantify the direct and indirect production losses in Iowa

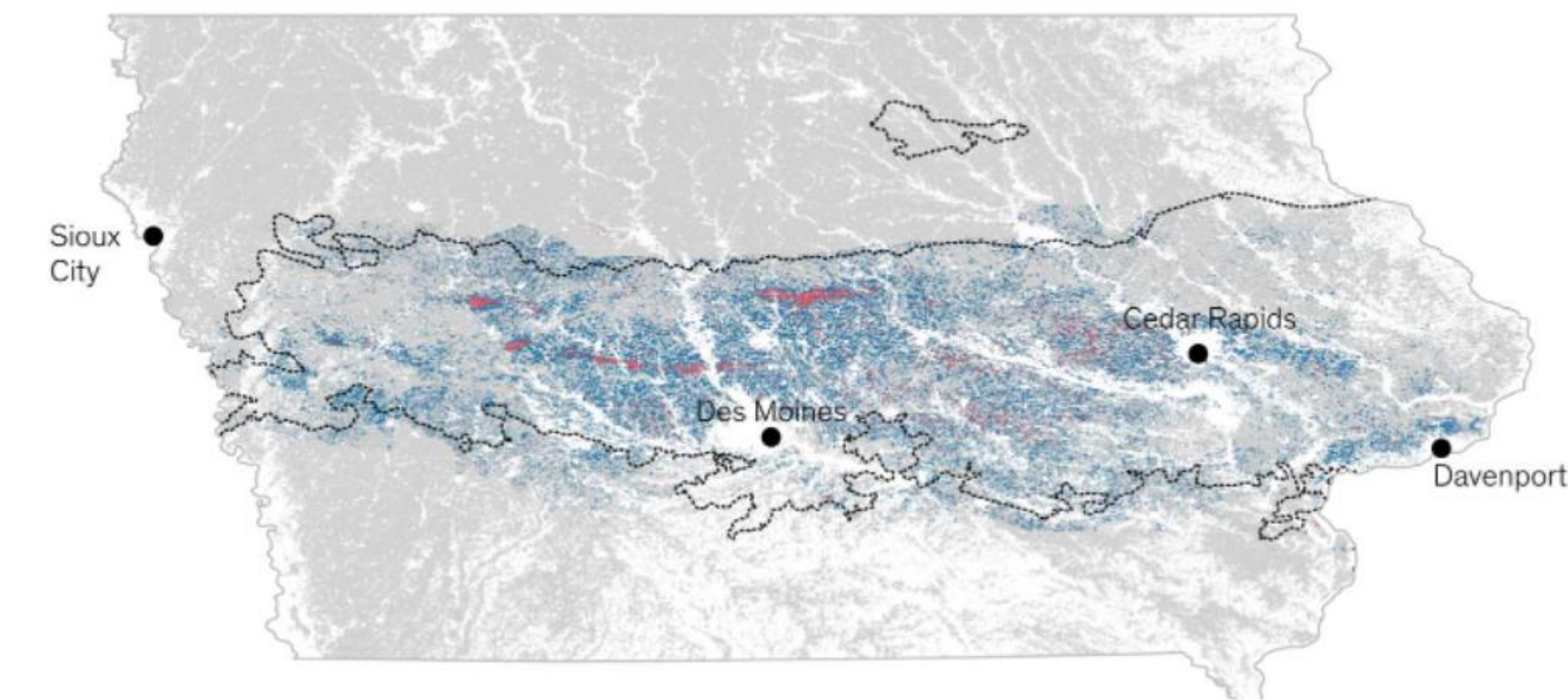
August 10, 2020 Derecho: Lowest Angle NWS Radar Reflectivity at One-Hour Time Steps
All times in CDT



This long-lasting, severe wind thunderstorm complex (known as a derecho) produced hundreds of reports of damage along with likely a few tornadoes.

Soybean and corn crop health impact¹

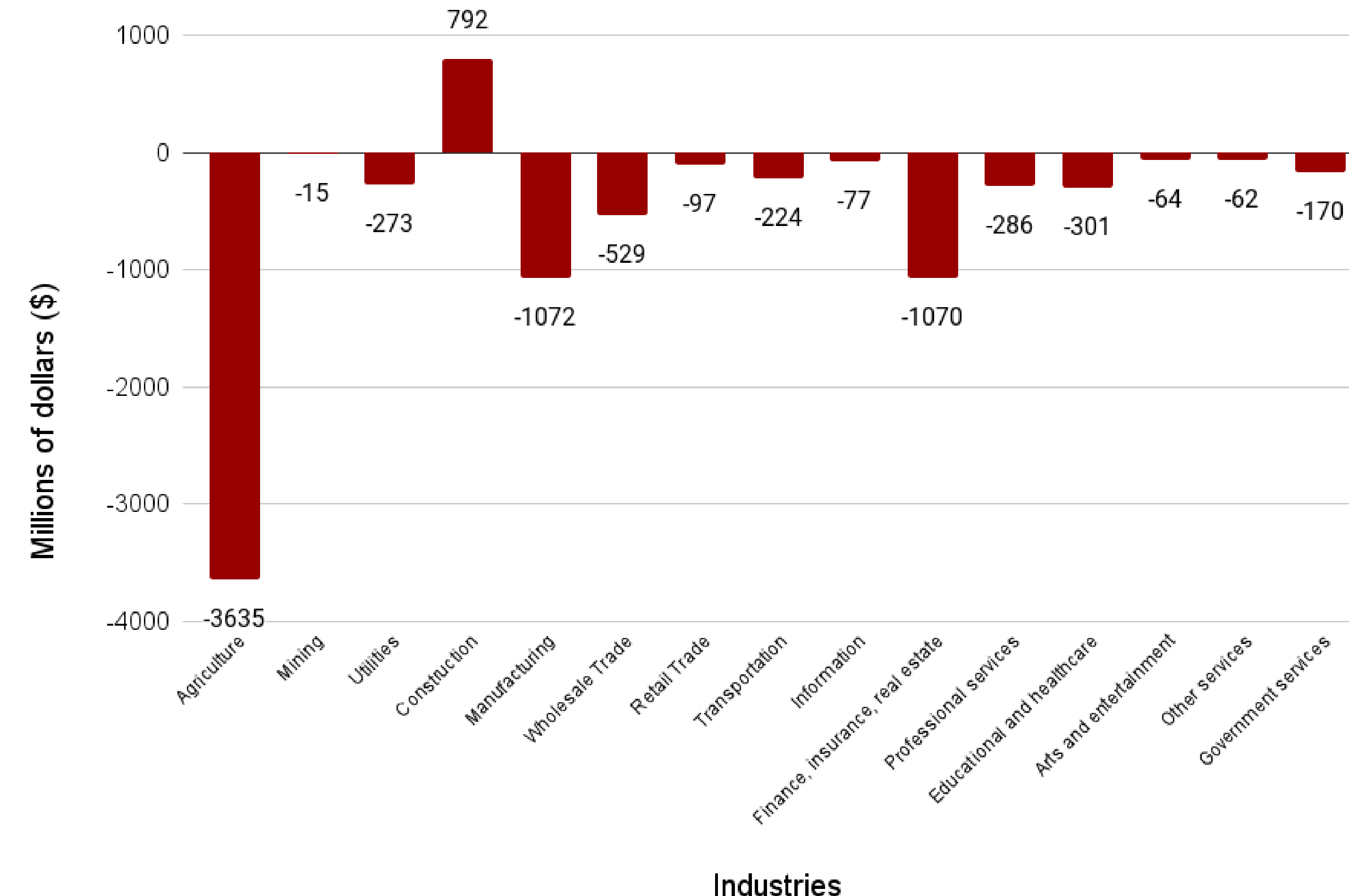
■ No physical impact ■ Production partially lost ■ Production completely lostDerecho trajectory



3. Economic consequences to Iowa industries

- Derecho resulted in wide-scale utility disruptions, residential and commercial property damage, and severe crop damage
- Quantitative data collected on crop damage, electric power outages, and property damage
- Input-output model translates these direct impacts into total production losses in Iowa

Iowa production losses from 2020 derecho categorized across industries

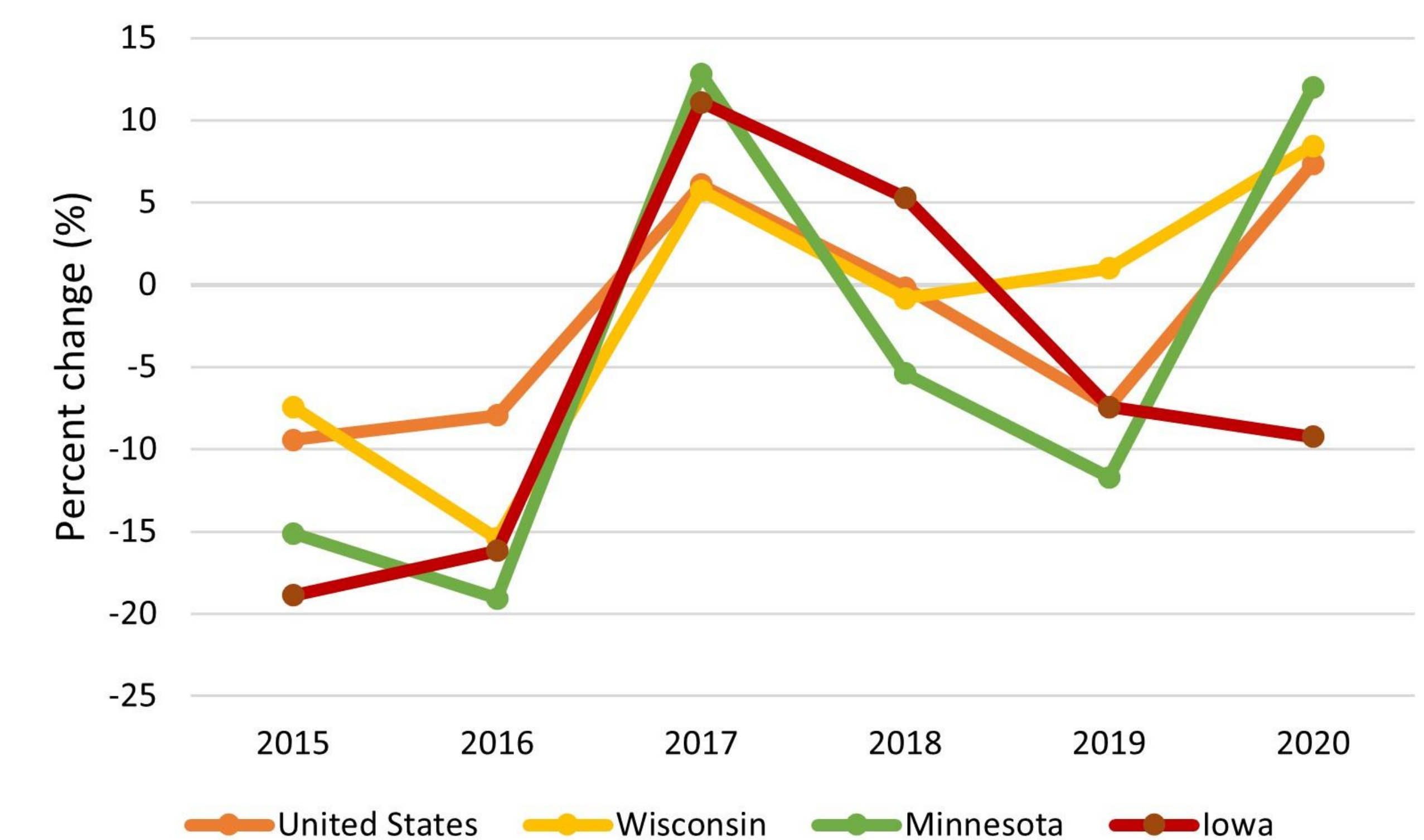


Production losses in Iowa total \$7.08 billion

4. Regional comparison

- Compare industry GDP in 2020 for different states based on data from the Bureau of Economic Analysis
- Use annual percent change in GDP to compare different states
- Agriculture production in Iowa dropped by 9.2% whereas agriculture production in Wisconsin and Minnesota increased by 10% in 2020

Annual change in agriculture production by state



5. Implications of economic calculations

- National Oceanic and Atmospheric Administration estimated economic damage of derecho at \$11-12 billion for all states
- Agricultural suffered the most
 - Damage to crops, arable lands, and property and equipment
 - Economic model suggests \$3.64 billion in production losses
 - GDP comparison suggests \$3.56 billion in losses
- Finance, insurance, and real estate and manufacturing hit hard due to electric power losses and damage to private property
- Industries like construction that benefited from derecho: Demand for services increased as a result of increased need to rebuild