Issue #8 – June 13, 2025

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From South to North: Indiana's Corn Progress Update

(Jeferson Pimentel, Dan Quinn, Betsy Bower & Bruno Scheffer)

According to the USDA-NASS planting progress report released on June 9, 2025, **97%** of the U.S. corn crop has been planted, a notable increase from **93%** the previous week and at the same pace as the five-year average of **97%** (Interactive Map 1). With just **3%** left, the 2025 corn planting season is nearly complete nationwide.

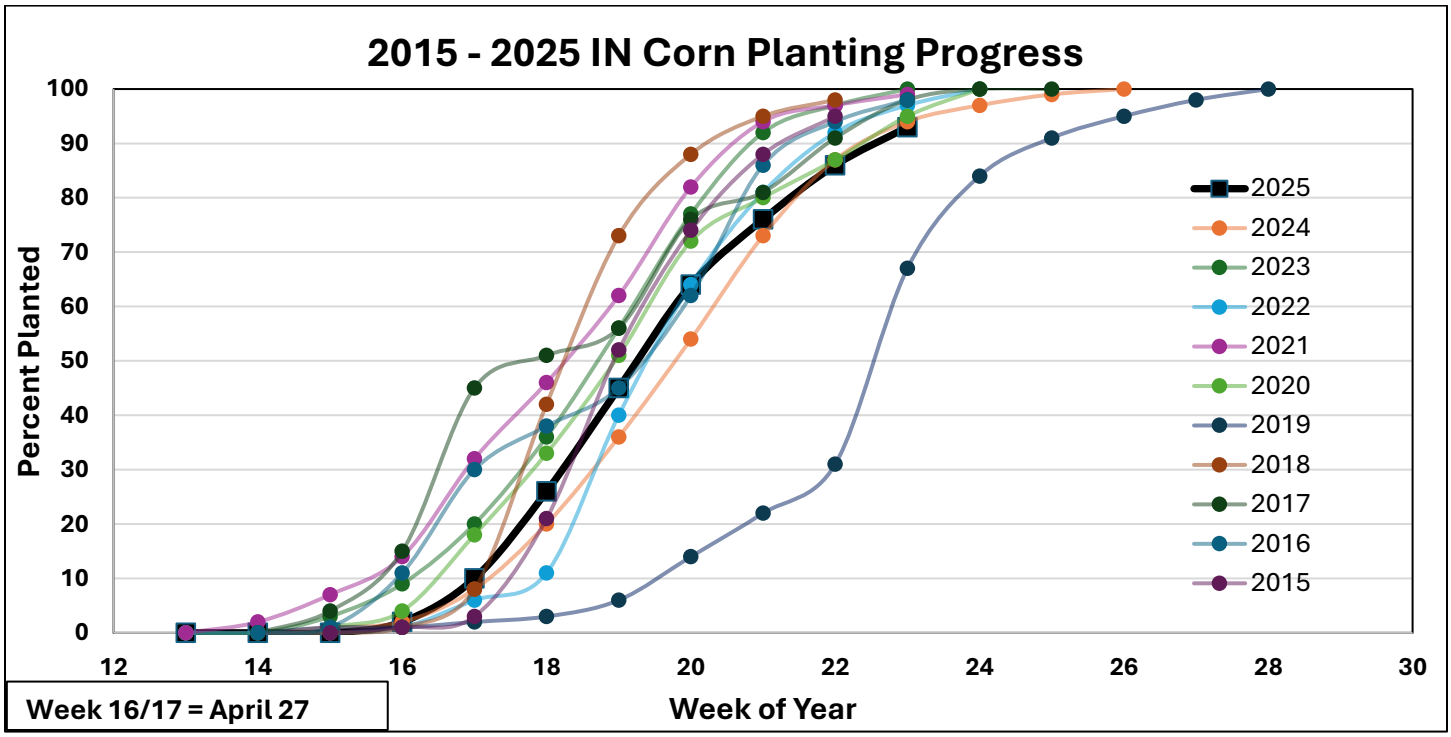

Figure 1. 2015-2025 Indiana corn planting progress by week (USDA-NASS)

In **Interactive Maps 1**, you'll find updated planting progress across central corn-producing states. The Corn Belt is nearly finished with planting, with key states such as **Minnesota, Iowa, Nebraska, and Missouri** all over **98% planted**, signaling the end of planting in much of the region.

Even states that had been slightly behind are catching up fast. **Indiana has now reached 93% planted**, just shy of its five-year average of 96%. **Ohio (89%)** and **Pennsylvania (82%)** remain slightly behind historical norms due to earlier weather delays, while **North Carolina (100%)** and **Texas (97%)** are essentially complete. These numbers indicate that national planting progress is firmly back on track, with most regions either matching or exceeding seasonal expectations as we close out the spring planting season.

In addition to planting, corn emergence is advancing quickly, with **87%** of the crop emerged nationwide, up from **78%** last week, and equal to both **2024's pace** and the **five-year average** of **87%**.

In the Corn Belt: **Iowa (92%)**, **Minnesota (94%)**, and **Nebraska (95%)** are ahead of average. **Indiana now reports 81% emergence**, up from 70% last week, though still slightly below its five-year average of 86%. **Ohio (68%)** and **South Dakota (93%)** are making strong progress, with emergence rates showing early-season development is well underway (**see Interactive Maps 2**).

The USDA-NASS also released the first corn condition report of the season, showing that in **Indiana**, **59%** of the corn crop is rated in **good** condition and **10%** in **excellent** condition. This early-season assessment indicates a promising start for Indiana's corn, especially considering recent gains in planting and emergence progress. See **Interactive Maps 3** for more information across the U.S.

➡ Let us know if we can help.

Interactive Maps 1. U.S. Corn **Planting** Progress (USDA-NASS)
Click on the dates below to see the corn planting progress over time and the average:

Jun 8, 2024	Jun 1, 2025	Jun 8, 2025	Average (2020-2024)

Interactive Maps 2. U.S. Corn **Emerged** Progress (USDA-NASS)
Click on the dates below to see the corn emerged progress over time and the average:

Jun 8, 2024	Jun 1, 2025	Jun 8, 2025	Average (2020-2024)

Interactive Maps 3. U.S. Corn **Condition** (USDA-NASS)
Click on the categories below to see the corn condition at each U.S. state on Jun 8th.

Very Poor	Poor	Fair	Good	Excellent

Purdue Corn Team Research Update

(Bruno Scheffer, Jeferson Pimentel, Dan Quinn & Betsy Bower)

At Purdue's Agronomy Center for Research and Education (ACRE), the corn crop has now reached the timing for **nitrogen (N) sidedress application** (Figure 1). Applying nitrogen as an in-season sidedress application at growth stages V4 to V6 is essential to support the plant's rapid vegetative growth and to apply nitrogen prior to peak nitrogen uptake demand. A timely nitrogen application at this stage enhances **photosynthesis efficiency** and **dry matter accumulation**, setting the foundation for a successful growing season, and can help limit potential nitrogen losses.

Figure 1. Sidedress application at the Corteva trial at ACRE, West Lafayette, IN.

Following sidedress applications, we have been observing an **increase in nitrous oxide (N_2O) emissions** from the soil collars installed for gas monitoring, using the **LI-COR gas analyzer chamber** at Corteva's 2025 nitrogen trial (Figure 2). This is the first year that we are measuring the N_2O emissions on this trial, as you can see in the next section. The goal is to explain better the N_2O behavior across different nitrogen rates, timings, sources, and inhibitor types.

These emissions are primarily driven by **microbial processes**, specifically **nitrification and denitrification**, which are stimulated by the newly available nitrogen. Moist, warm soils further amplify this microbial activity, often resulting in **higher N_2O emissions**, especially as denitrifying bacteria thrive under such conditions and produce N_2O as a byproduct of nitrate reduction.

Understanding these emissions is vital for sustainable farming. **N_2O is a potent greenhouse gas**, with a global warming potential that is far greater than that of carbon dioxide. High emissions contribute to **climate change** and can degrade **air quality**. Therefore, managing nitrogen efficiently is not only important for crop performance but also for **reducing agriculture's environmental footprint**. By optimizing nitrogen timing and application methods, farmers can simultaneously maximize yield and minimize harmful emissions, thereby contributing to more sustainable and climate-resilient farming practices.

Corn Response to Instinct NXTGEN® across N Fertilizer Sources, Rates, and Timings – 2024 Results

Last year's corn nitrogen trial at ACRE was conducted to assess yield response to various nitrogen sources (UAN and urea), application rates (0, 120, and 180 lbs N/ac), and timings (preplant, V3 sidedress, and split applications), with and without the nitrification inhibitor Instinct NXTGEN® from Corteva Agriscience. The study followed a randomized complete block design with thirteen treatments and five replications. Corn Pioneer P1108Q was planted on May 4, 2024, at a population of 32,000 seeds/acre, and no starter nitrogen was applied.

The results showed that the use of Instinct NXTGEN® did not lead to a statistically significant increase in corn grain yield at either the 120 or 180 lbs N/ac rates, nor across different nitrogen sources, with average yields ranging from 236.3 to 256.8 bu/ac depending on treatment. In contrast, the timing of nitrogen application had a greater impact on yield outcomes. In-season V3 sidedress and split applications (preplant + V6) consistently outperformed preplant-only applications. These methods led to yield increases of 33 and 28 bu/ac, respectively, compared to preplant-only treatments. These findings suggest that, under the

dry weather conditions experienced in 2024, when nitrogen losses through leaching or denitrification were minimal, the expected benefits of using a nitrification inhibitor like Instinct NXTGEN® were less pronounced. In such years, optimizing the timing of nitrogen application proved to be a more effective strategy for maximizing corn yield.

Figure 2. Collar for N2O measurements installed at the Corteva's trial after sidedress application at ACRE, West Lafayette, IN.

How the soil looks after a test on planting in wet conditions

In addition to nitrogen sidedress application, a field demonstration was conducted last week at ACRE to highlight the impact of planting corn into wet soil conditions. Excessive moisture can reduce soil aeration, delay germination, and increase the risk of seed rot and seedling diseases such as damping-off, all of which hinder stand establishment. Furthermore, wet soil increases the likelihood of compaction, restricting root development and limiting nutrient and water uptake throughout the season. To avoid these challenges, farmers are encouraged to delay planting until soil conditions are suitable. Implementing cover crops ahead of corn planting can also improve soil structure and infiltration, helping mitigate waterlogging issues and improving planting conditions during wet springs.

Altogether, these trials reinforce the value of precision in nitrogen management and adaptive planting practices. While nitrification may have benefits under specific environmental conditions, this season's data suggests that the timing of nitrogen application has a more consistent and significant impact on yield. As the season continues, the Purdue Corn Team will continue to evaluate these dynamics and provide updated insights to help farmers make informed decisions in their corn production systems.

Figure 3. Demonstration of how the soil looks like after test on planting in wet conditions at ACRE, West Lafayette, IN.

Rapid Growth Syndrome

(Betsy Bower, Jeferson Pimentel, Bruno Scheffer & Dan Quinn)

Last week as I was walking our research fields midweek, I noticed some plants with tightly wrapped whorls that were twisted to one side. They resemble a buggy whip (Figure 1). I thought about our recent growing conditions. The previous two weeks had been cool with nights in the 50's and days only reaching the mid 60's. Several of the days were cloudy. But the most recent days were warmer. A couple of the more recent days had lows in the high 60's and days in the mid to high 80's. We had also received some rainfall after being dry. Our weather had changed tremendously in just a couple of days from cool and dry to warm and wet.

Figure 1. A V6 corn plant showing buggy whipping symptoms after a recent change of weather.

The corn is experiencing rapid growth syndrome. After a rapid change in a weather pattern like cool and dry to warm and wet, the corn is trying to grow more rapidly, and the leaves can get stuck in the whorl. Some hybrids have a greater propensity for rapid growth syndrome than others and growth regulator and acetamide herbicides can also play a part in the whorl twisting and wrapping. Typically, the whorls will unwrap on their own in the next few days (Figure 2). Immediately after unwrapping the whorl area will be yellowish in color but will then become green quickly. In some fields you will notice a plant or several plants with bright yellow leaves or area of leaf that at the emerging out of the whorl. Rapid growth syndrome should have minimal impact on yield.

Figure 2. A V5 corn plant starting to unwrap after rapid growth syndrome.

🌾 Some Quick Tips And Tools To Prepare For Tar Spot In Corn

(Darcy Telenko)

I am already getting questions on tar spot management as we finish planting corn here in Indiana. Here's the list of my 10 points after seven seasons of tar spot and few tips and tools to help make an informed decision on tar spot management.

My 10 Points:

1. Every year has been different –the disease triangle is important, the environmental conditions now through June will determine when the disease gets started in the lower canopy.
2. Scouting is critical – I would start keeping an eye out once corn reaches V7/V8 looking in the lower canopy to see if you can find any small stroma (Figure 1A). You want to catch the disease before severity ramps up. If it's 5% or more in the upper canopy it's too late to spray to slow it down (Figure 1B). Watch the map as we monitor for those first few initial spots!
3. Host resistance is important – if you selected hybrids with some moderate resistance, you'll be ahead of reducing disease in the canopy
4. Fungicides will work, but tar spot shows limitations on residual activity and canopy coverage.
5. Fungicide timing is critical – can be too early or too late. Based on our research data the optimum window for a single fungicide application is between tassel and milk (VT to R3).
6. ROI – understand the numbers on 1x vs. 2x applications. If you trigger an early application, most likely you'll have to come back to make sure coverage makes it to the end of the season.
7. Corn will never be 100% clean at the end of the season – see #4
8. Stewardship is important – let's judicially use our fungicides when we know they will provide both disease management and yield protection.
9. Use the tools (see below)
10. Keep asking new questions to help us drive our next research objectives.

Here are some tools to bookmark:

- Tar spot map: **https://cropprotectionnetwork.org/maps/tar-spot-of-corn** this page also has a handy table on our recommendations when to spray when tar spot is detected.
- Tar spotter and forecasting tools: **https://cropprotectionnetwork.org/crop-disease-forecasting** This is a great new tool to see if environmental conditions have been favorable for tar spot.
- Fungicide efficacy tables on Crop Protection Network **https://cropprotectionnetwork.org/publications/fungicide-efficacy-for-control-of-corn-diseases** There's also a new tool to help sort products **https://cropprotectionnetwork.org/fungicide-efficacy-tool**
- My website will have in-season updates (also weekly updates in Purdue Pest&Crop Newsletter) **https://indianafieldcroppathology.com/**
- The Crop Protection Network has many articles, publications, maps, tools, and more to help with decisions related to protecting field crops **https://cropprotectionnetwork.org/**

In addition, for Indiana growers – with support from Indiana Corn Marketing Council – I will cover any corn disease samples submitted to our **Purdue Plant Pest Diagnostic Lab** (PPDL) to help us track both tar spot and other diseases this season **https://ag.purdue.edu/department/btny/ppdl/**

Please feel free to contact me with any of your Indiana field crop disease questions at dtelenko@purdue.edu

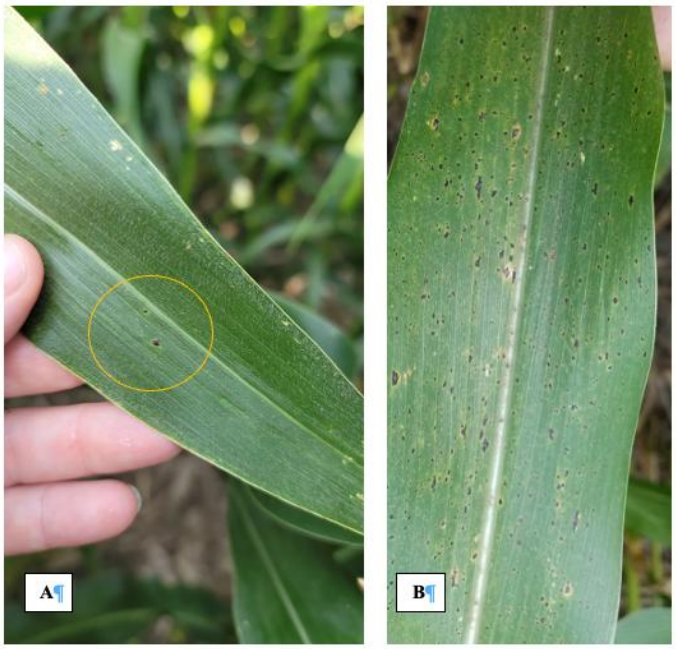

Figure 1. A. Example of two small tar spot stromata (black raised bumps) on a corn leaf in yellow circle. B. A leaf with more than 5% tar spot stromata severity.

Meteorological Summer Has Arrived

(Austin Pearson)

We've made it! Meteorological summer started on June 1, but the official start of summer isn't until June 20. The days are longer, temperatures have risen, and my allergies are in full swing. I let the dogs out last night, and there was still quite a bit of light in the sky just before 10:00 PM EDT, which also makes it hard to get the kids to go to bed at a decent time. Who cares, though? It's summer, right???

June started much cooler than usual, with many areas in central and northern Indiana experiencing temperatures in the mid-30s. Indiana Dunes National Park recorded a low of 34°F on June 2, marking the coldest June temperature ever recorded at this station since records began in 1989. While this record doesn't span that many years, Farmland 5 NNW, located in Randolph County, recorded a low of 35°F, matching the record set on June 1, 1966 (records dating back to 1893). Reports of frost emerged in some locations as a result. However, just two days later, Indiana Dunes National Park reached a high of 89°F. Overall, average temperatures across the state have been near normal to 1-2°F below normal, particularly in northern Indiana. This trend has remained fairly consistent since May 1 and is evident in the modified growing degree day (MGDD) accumulations. Much of the Midwest is 40-80 heating units behind normal since May 1 (Figure 1). This is not a significant deviation and is not expected to cause much delay in crop maturity. Temperatures are rising and will continue to warm this month, as the Climate Prediction Center expects Indiana to end June with above-normal temperatures.

In May, precipitation levels across much of northwestern Indiana fell below normal, leading to the development of abnormally dry (D0) and moderate drought (D1) conditions, according to the US Drought Monitor. However, precipitation increased slightly in June within this region. There was a slight improvement on June 10, with the D1 area decreasing by just over 4 percent (Figure 2). D0 conditions on the eastern edge of D1 improved due to last week's heavy rains. Much of central and southern Indiana received above-normal rainfall, which caused localized ponding and flooded crops. On June 5, many stations reported over 3 inches of rain, with Lagro 3.5 ESE (White County) recording the highest at 3.55 inches. That morning, my CoCoRaHS gauge recorded 2.62 inches in southwestern Howard County, while just a few miles to the east, the total was 3.21 inches. Quite a difference!

In the near term, it looks like we may see continued above-normal rain. The Climate Prediction Center has increased confidence in above-normal precipitation through June 25, although there are equal chances for above-normal or below-normal precipitation this month. Similarly, summer precipitation also presents equal chances, but we should have more information next week when the new outlooks will be released.

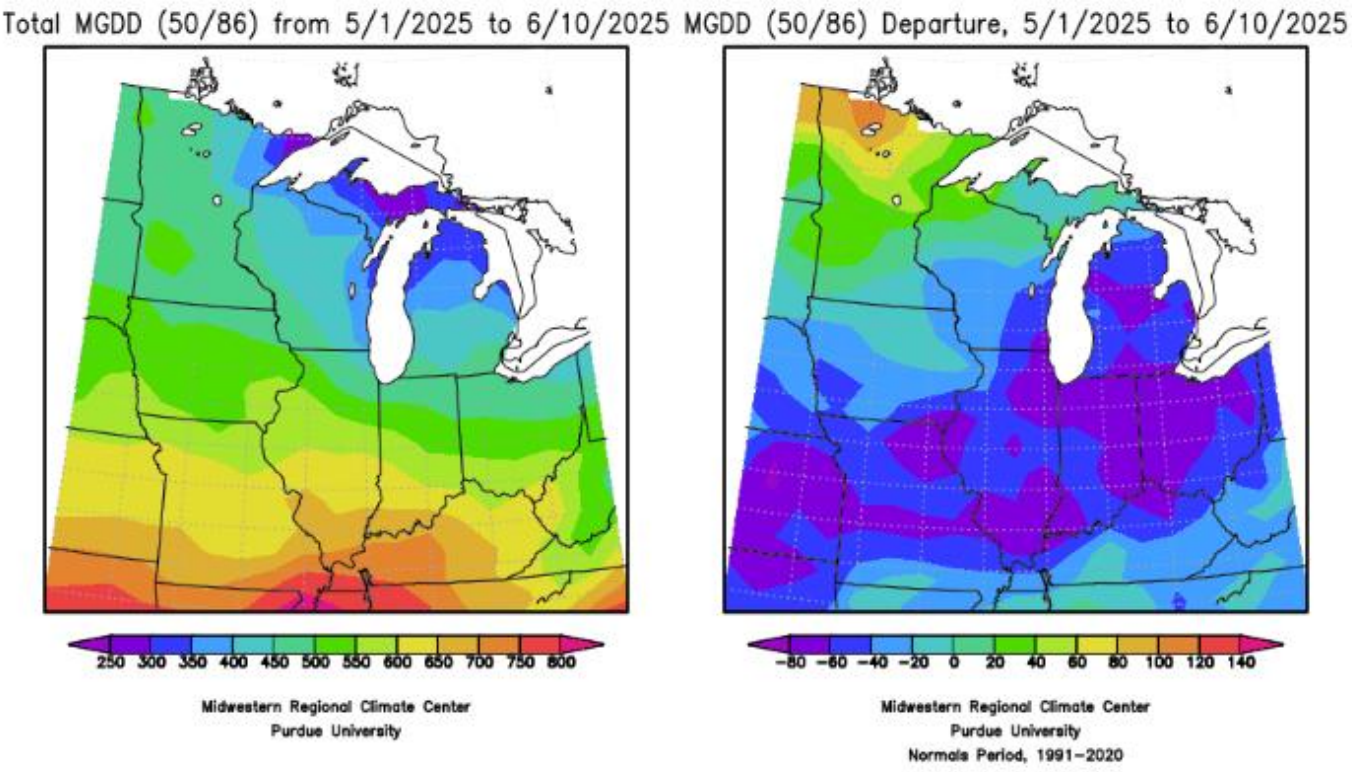

Figure 1. MGDD accumulations and departure from the climatological average for May 1 to June 10, 2025.

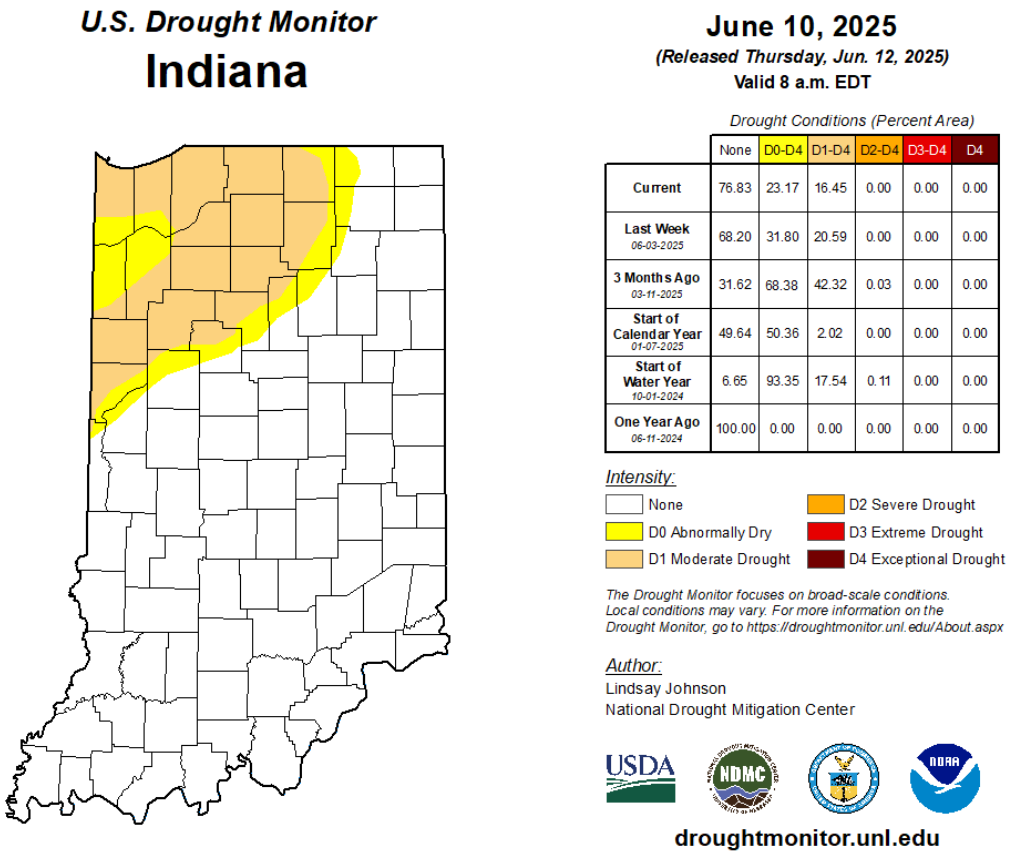

Figure 2. US Drought Monitor Map for June 10, 2025.

Acknowledgments

The authors greatly appreciate the feedback and contributions of all growers, county agents, consultants, and corn industry stakeholders.

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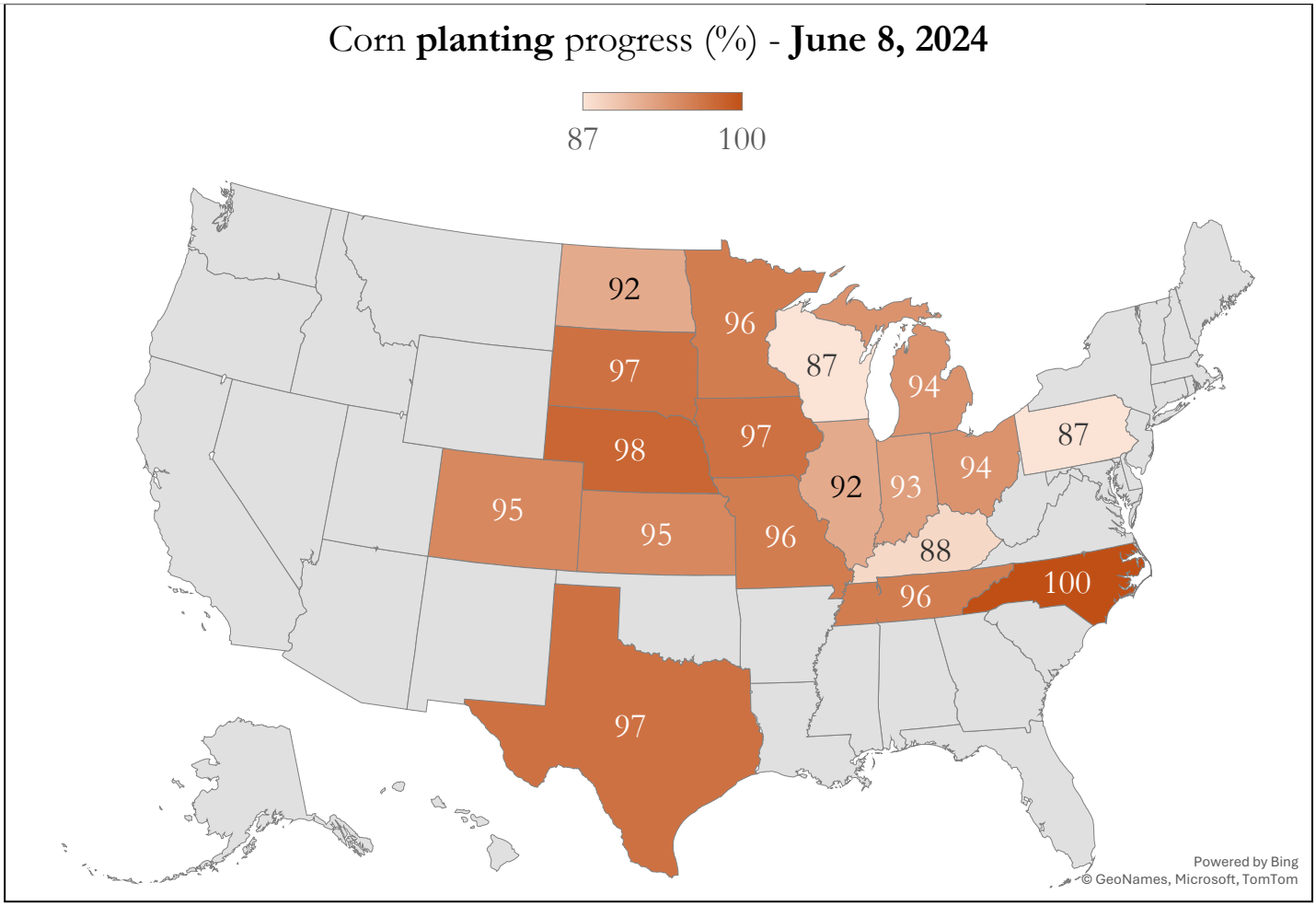

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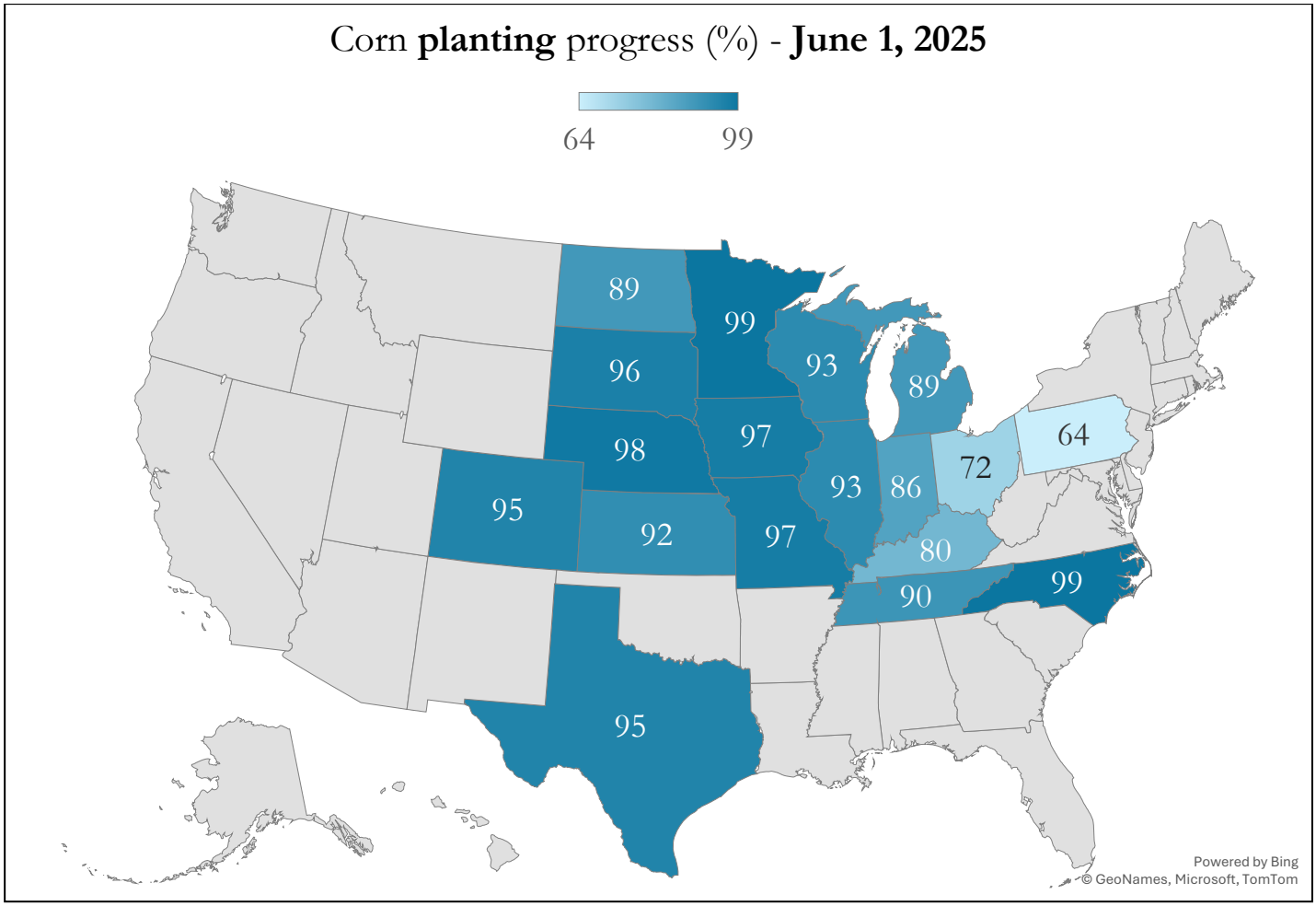

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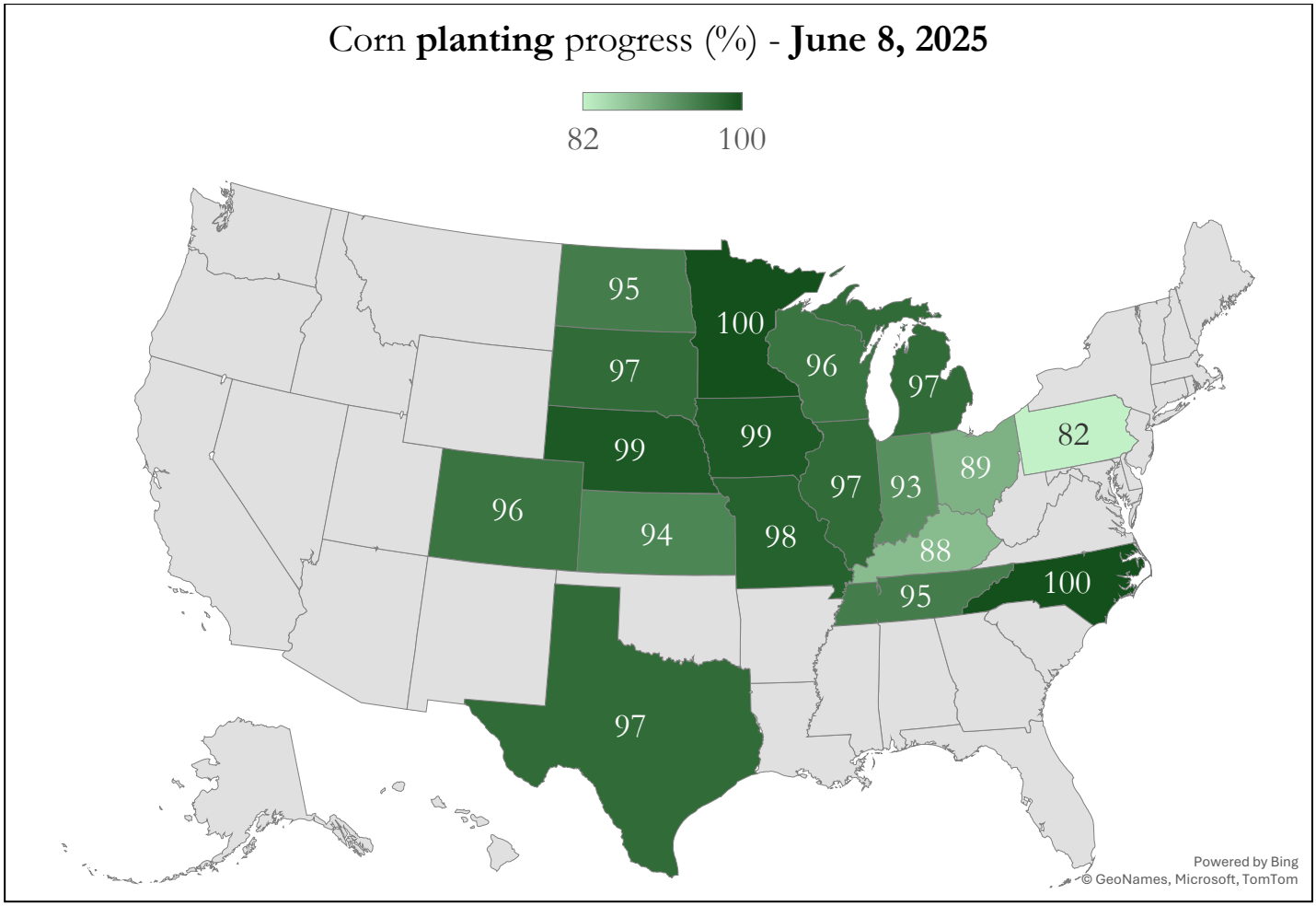

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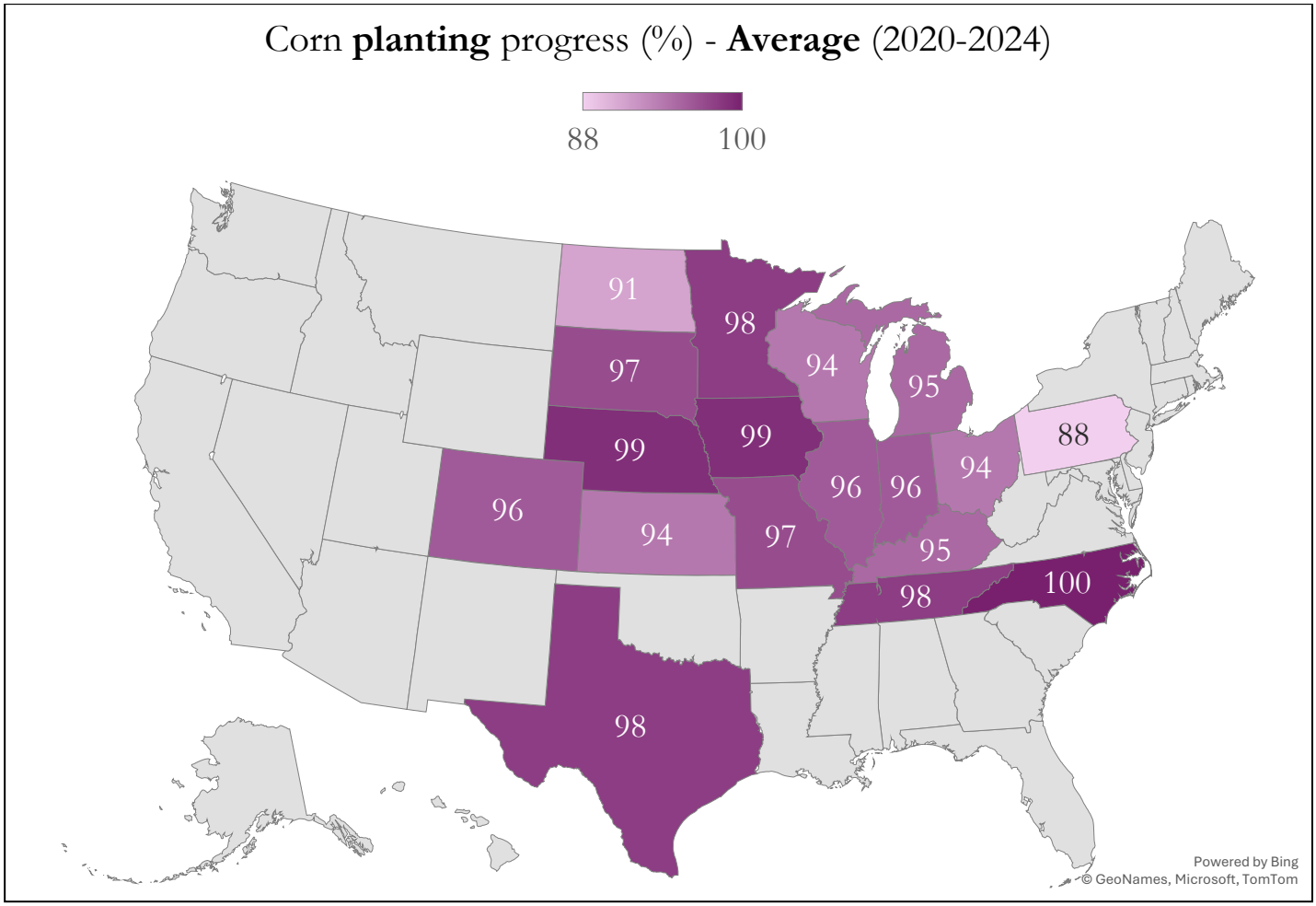

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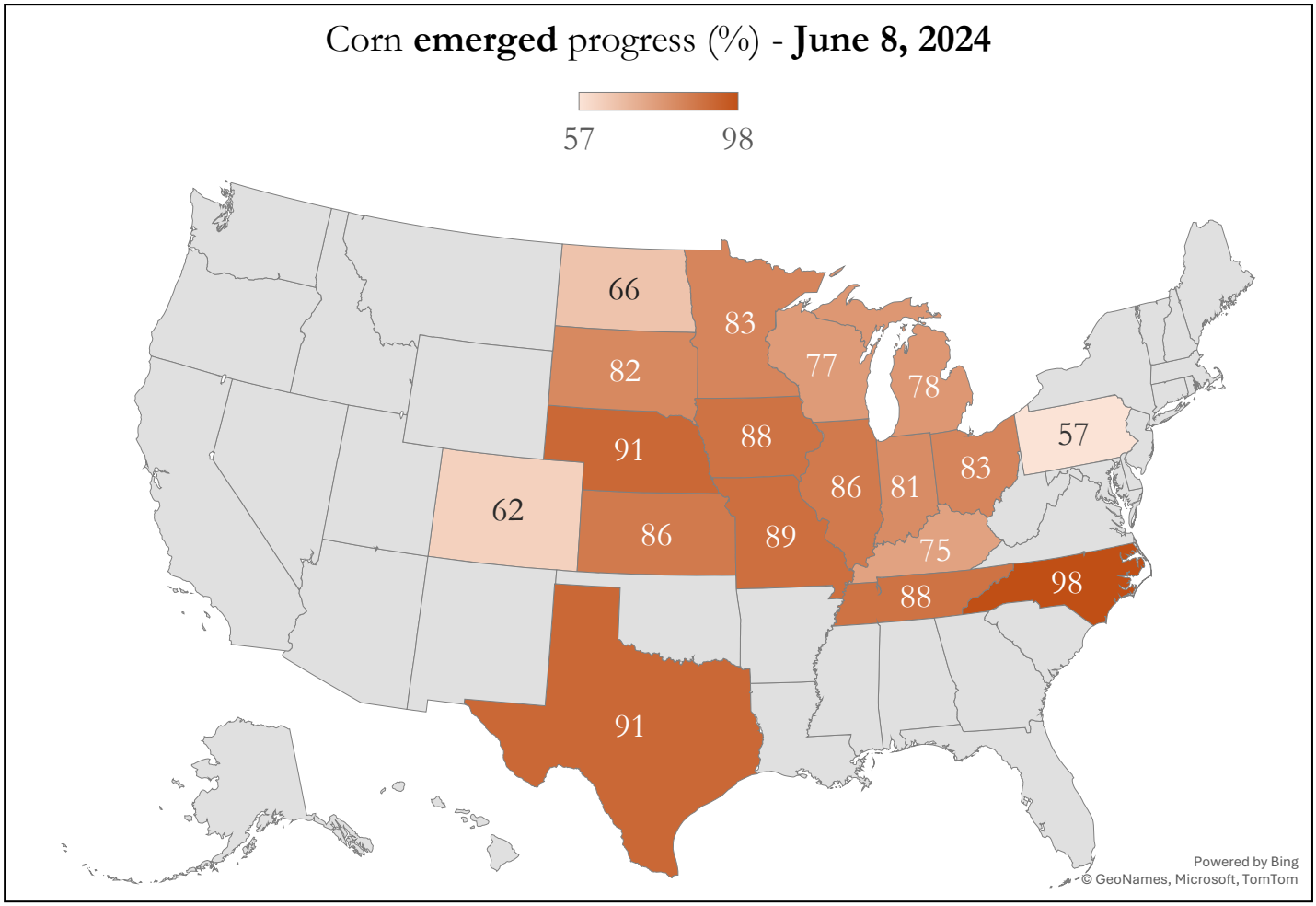

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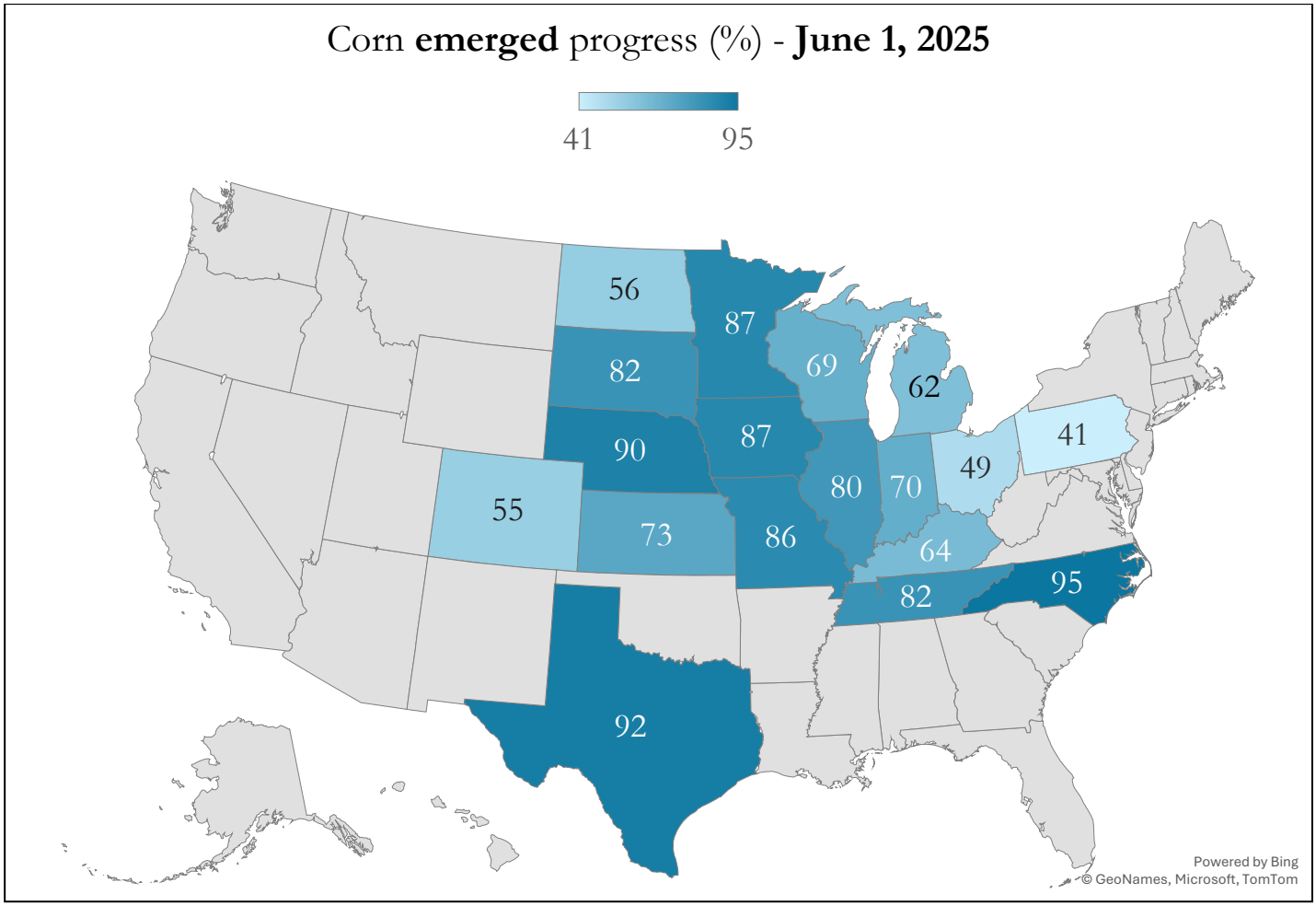

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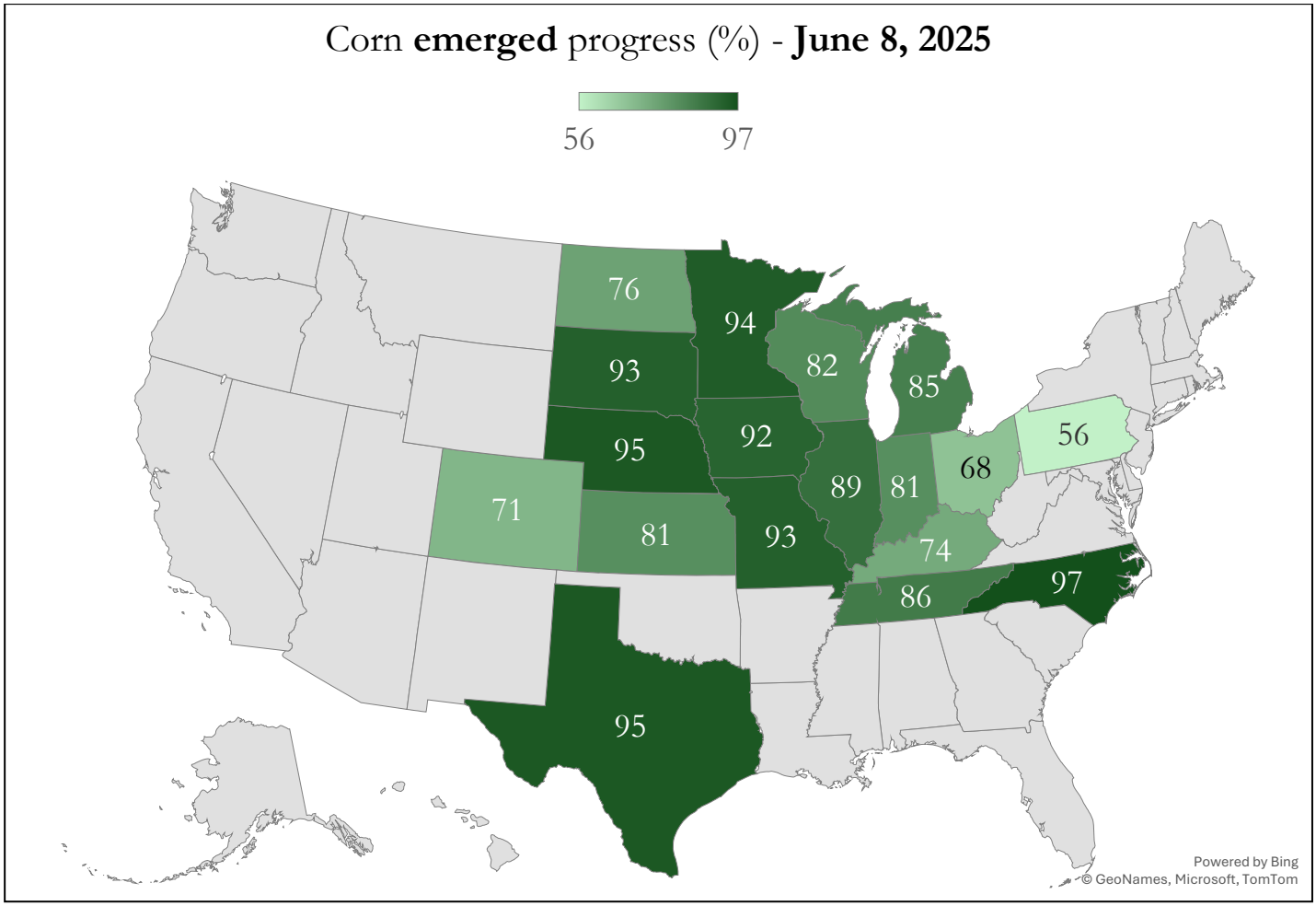

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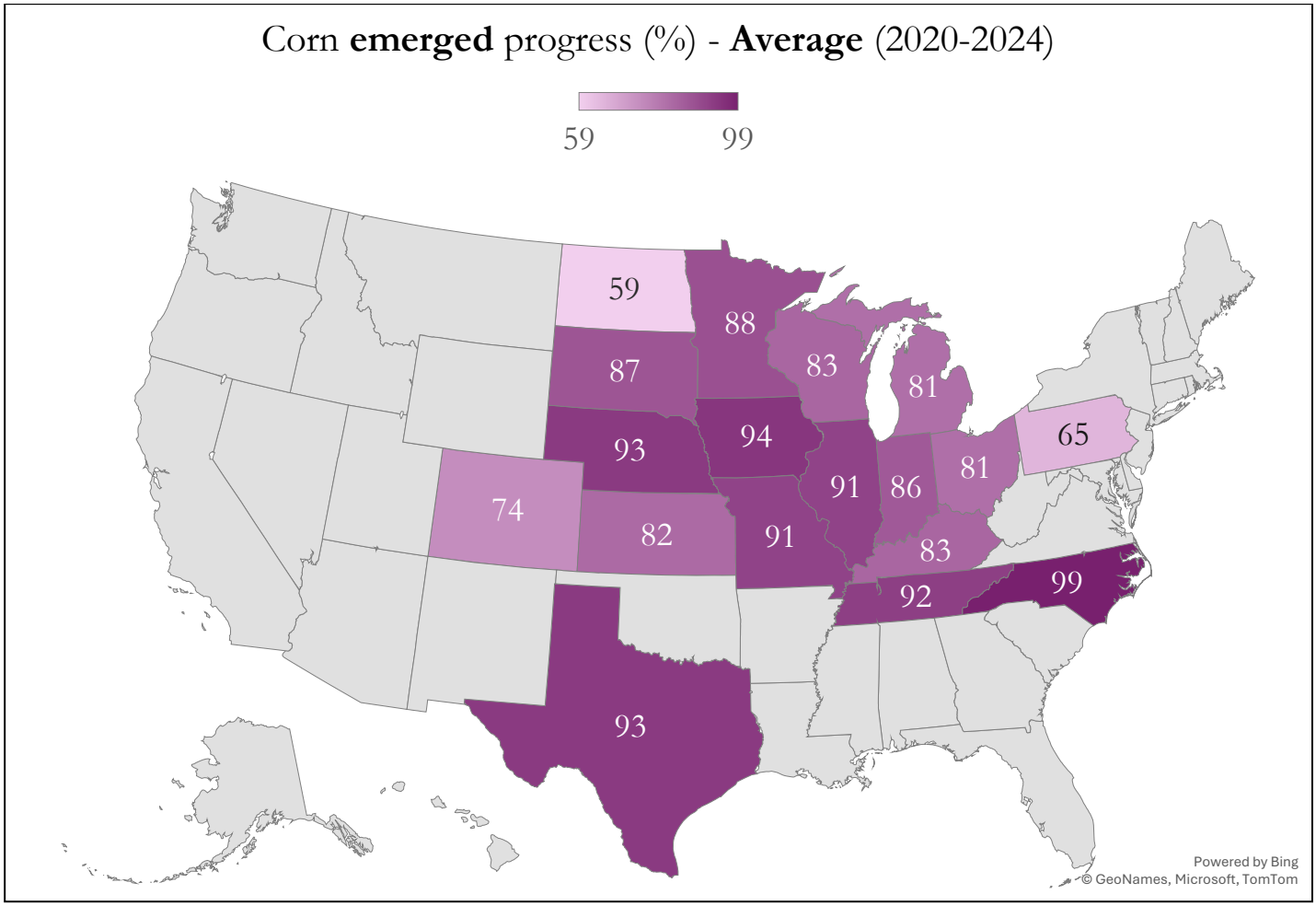

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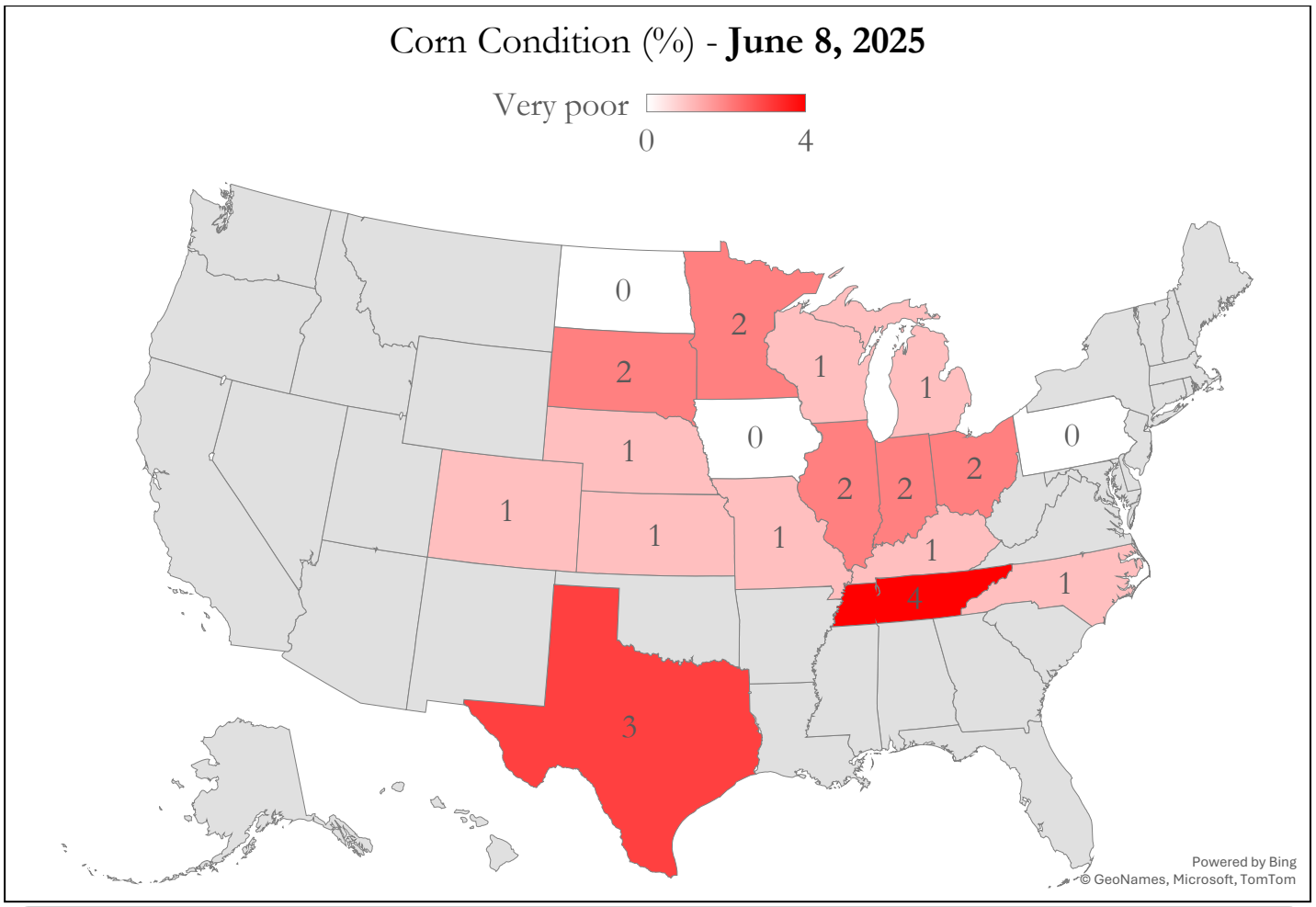

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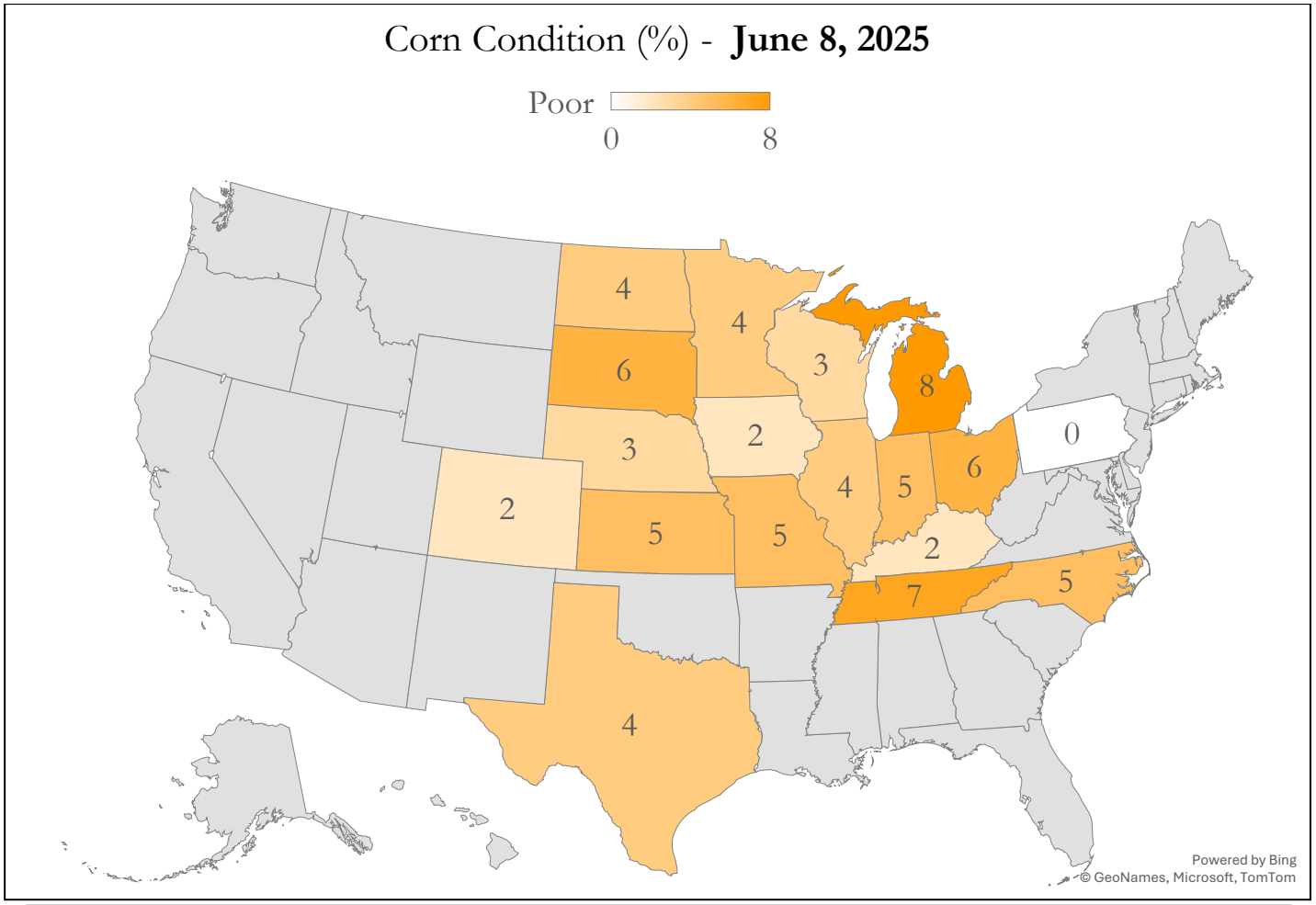

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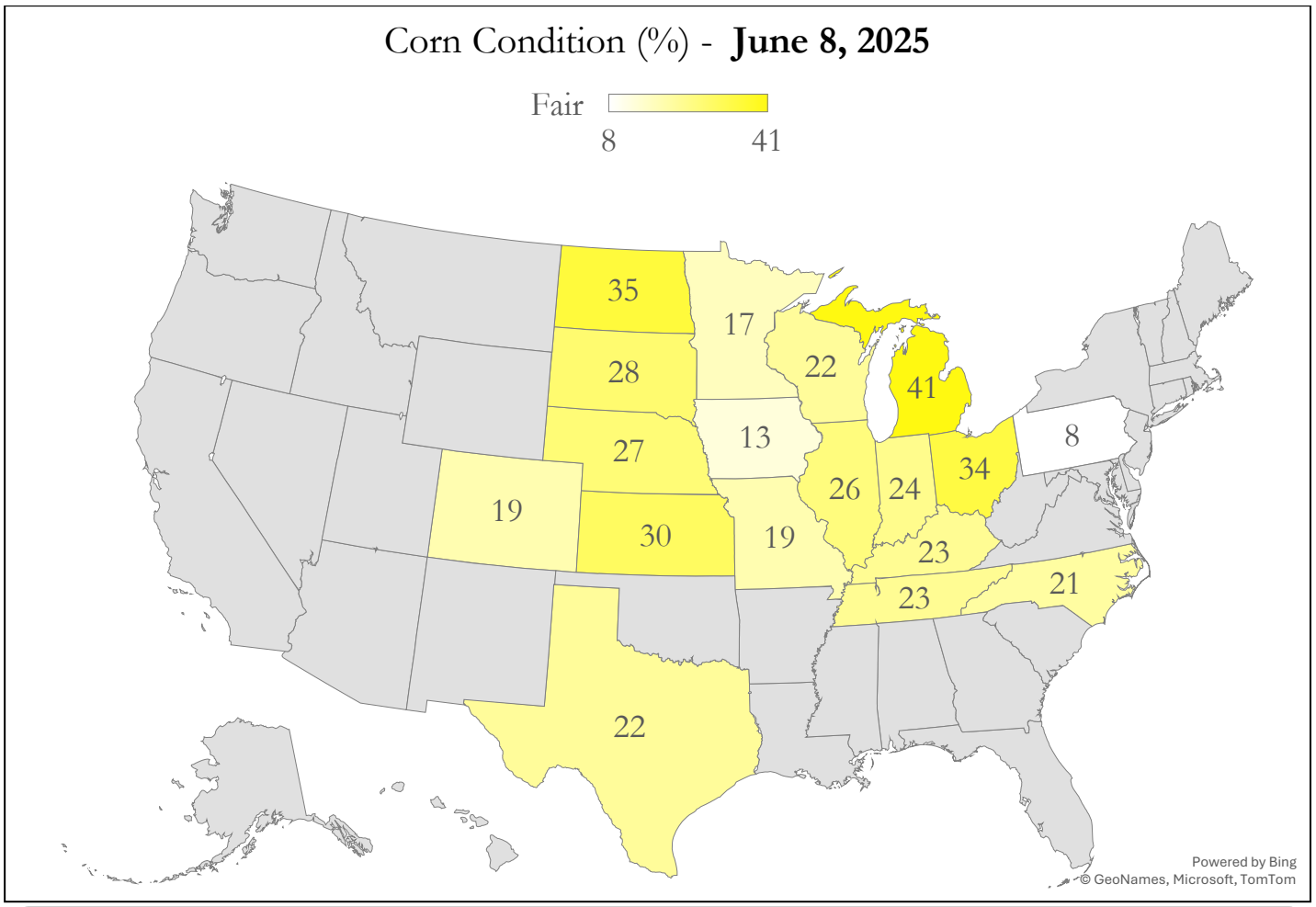

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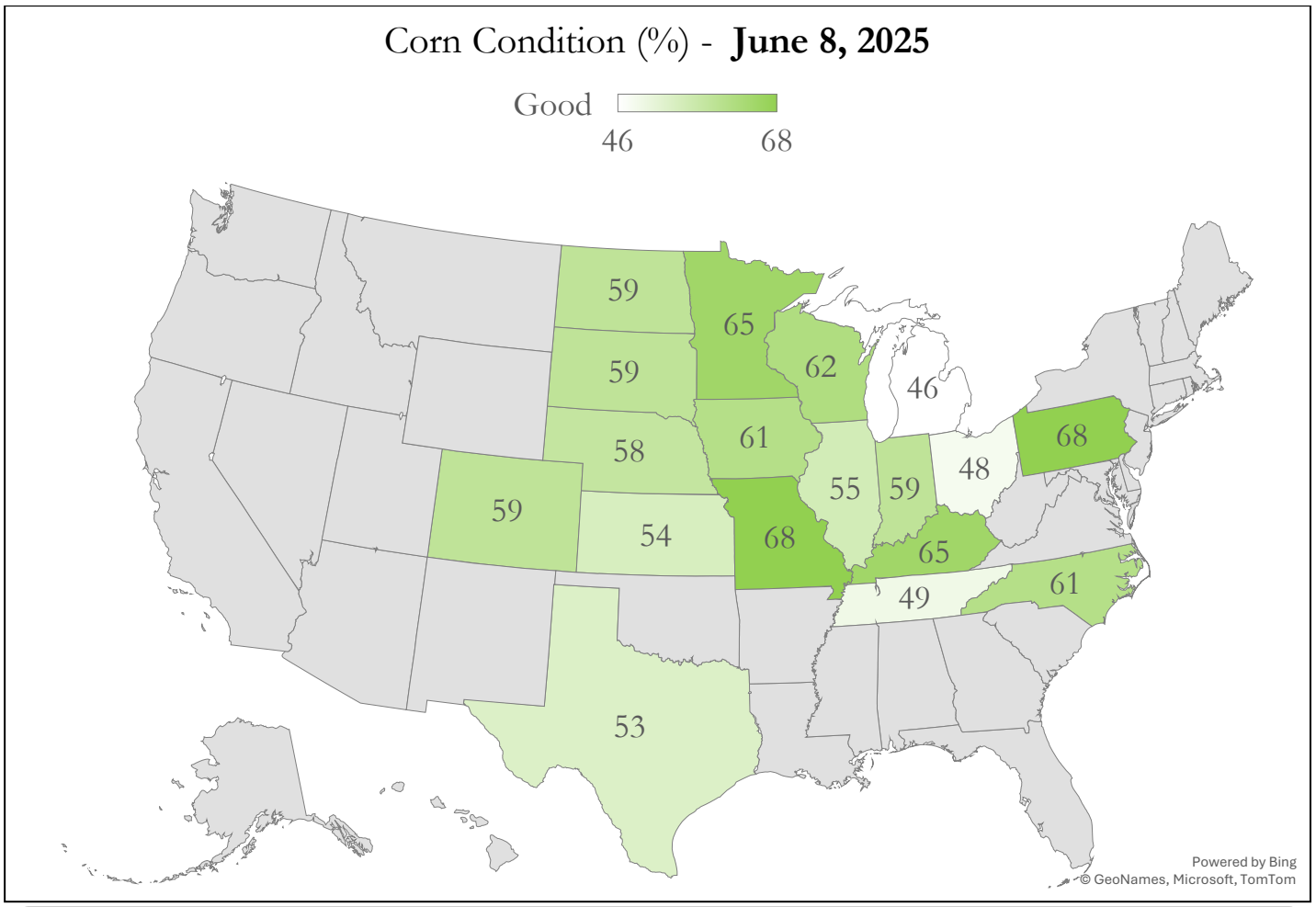

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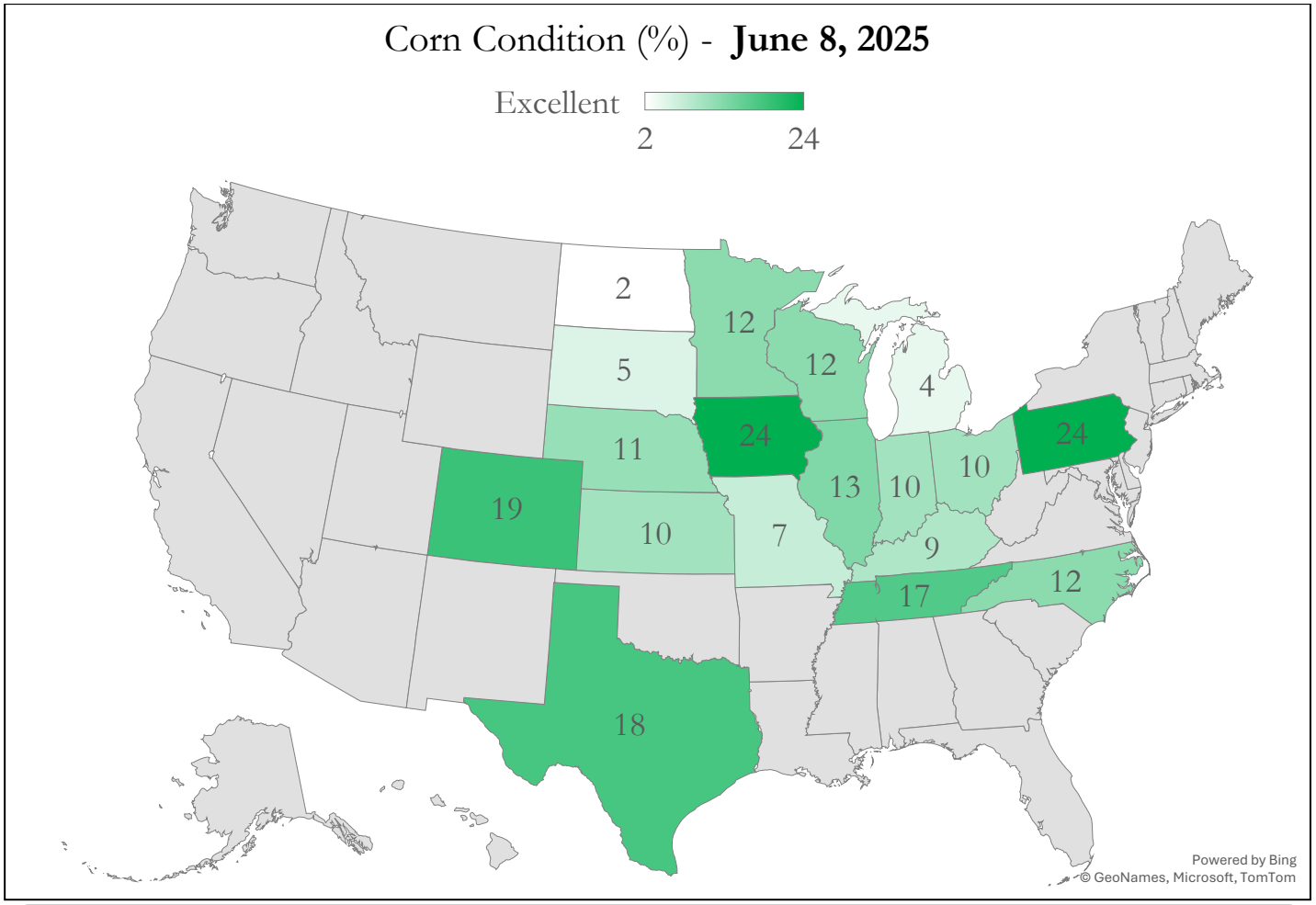

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