Issue #19 – August 29, 2025

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🌾 🚜 From South to North: Indiana's Corn Progress Update

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

Corn Condition

Indiana's crop condition ratings held steady with **52% good**, **11% excellent**, and **26% fair**. Poor-to-very-poor ratings remain at **11%**, unchanged from last week. Iowa maintains one of the strongest profiles (56% good, 28% excellent), while the 18-state average shows **51% good** and **20% excellent**, nearly the same as a week ago. See more in **interactive maps 1.**

Corn Dough

Indiana's crop is now **82% in the dough stage**, a significant increase from 69% last week and in line with its 5-year average of 83%. Illinois (92%) and Iowa (88%) are also progressing steadily, while the 18-state average stands at **83%**, nearly identical to the long-term pace. See more in **interactive maps 2**

Corn Dented

Denting continues to advance quickly. Indiana reached **34% dented**, up sharply from 20% last week and exactly matching its 5-year average. Illinois is at 59% and Iowa at 45%, while southern states such as Tennessee (81%) and Texas (86%) are further ahead. Overall, 18 states average **44% dented**, right on their historical norm. See more in **interactive maps 3**

Corn Maturity

Maturity is beginning in Indiana, which now reports **1% mature**, near its 5-year average of 2%. Illinois is slightly ahead at 3%, while North Carolina (62%) and Texas (71%) continue to lead the way. Across the 18 states, the average maturity is **7%**, consistent with historical progress. See more in **interactive maps 4.**

Overall, Indiana's corn crop is tracking closely with historical averages: silking is complete, dough development is nearly finished, denting is expanding rapidly, and maturity has just begun. Crop conditions remain stable, suggesting that with continued favorable weather, yield potential should hold strong into harvest.

➡️ Let us know if we can help.

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Very Poor	Poor	Fair	Good	Excellent

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🌽 Purdue Corn Team Research Update

(Jeferson Pimentel, Betsy Bower & Daniel Quinn)

Nitrogen and Potassium: A Powerful Combo for Corn

Nitrogen (N) and potassium (K) are the two nutrients corn needs in the largest amounts. Nitrogen drives growth by building proteins and fueling plant metabolism, and it is a key component of **chlorophyll that enables plants to absorb sunlight for photosynthesis.** Meanwhile, potassium is vital for water use in corn and for the movement of sugars and nutrients through the plant. Ideal plant potassium levels improve stalk strength and standability, disease resistance, and higher grain quality. Potassium is extremely important in building the corn plant factory.

Most corn nutrient studies in the U.S. **have focused on nitrogen or potassium separately**; however, less is known about their interaction. A new study spearheaded by **John Jones at the University of Illinois and supported by other Midwest Universities hopes to shed light on the interaction between nitrogen and potassium in corn production.**

This year, we have the Nitrogen by Potassium small plot trial in two Purdue locations. One is located at ACRE, also known as the Purdue Agronomy Farm, and the other is at the Pinney Purdue Ag Center (PPAC) near Wanatah, IN. ACRE is comprised of silty clay and silty clay loam soils, whereas soils at PPAC are sandier in nature. The PPAC soil, due to its sandy nature, has a lower capacity to hold soil nutrients. It will be interesting to see how the differing nitrogen and potassium loads interact to impact corn growth, fullness of canopy, ear size, and overall yield in both trials as they differ in soil type, soil K levels, and environment. In both small plot trials, we have 4 different potassium rates, **0, 100, 200, and 300 lb/A of KCl (potash) broadcast applied at planting, and 6 different nitrogen rates, 0, 50, 100, 150, 200, and 250 lb/A of actual N applied side-dressed with a UAN applicator.** This allows for **24 K × N combinations**, which we are replicating four times.

As an example of some of the differences we are finding. See the pictures below from our PPAC trail. **Picture 1 shows the plot with no potassium applied, with 150 lb/A of actual N applied side-dressed.** You can see corn that is lighter in color, with visible potassium deficiency symptoms (yellowing of the outer margins of the lower leaves) and a more open canopy.

Figure 1. Research Plot with 0 Ibs of potassium and 150 Ibs of nitrogen applied per acre in the PPAC research station.

In picture 2, we have applied the same nitrogen rate of 150 lb/A actual N and 60 lb/A of KCl. The corn in this picture is dark green in color, with a fuller canopy, and shows no visual signs of potassium deficiency. At PPAC, it is important to note that the soil K level ranges from 40 to 80 ppm K within the field.

Figure 2. Research Plot with 60 Ibs of potassium and 150 Ibs of nitrogen applied per acre in the PPAC research station.

Managing Plant and Ear Height in Short- and Full-stature Corn: Does More Nitrogen Mean Taller Corn?

(Bruno Scheffer & Daniel Quinn)

To maximize grain yield, plant characteristics, such as plant and ear height, can significantly influence overall success. Understanding the factors that drive these traits is crucial for making informed management decisions that impact harvestability, lodging resistance, and ultimately, profitability. Recent research provides valuable insights into the roles of hybrid selection and nitrogen (N) fertilization rates in determining corn plant and ear height. The key takeaway from this data is clear: **hybrid genetics exert the primary control over corn plant and ear height, while N plays a secondary, but still important, role.**

Figure 1: Full-stature (right) and short-stature (left) at the growth stage R5. At the 2025 Purdue-NRCS trial, at West Lafayette, IN.

Our analysis focuses on two distinct corn hybrids(Figure 1), DKC62-70 (full-stature) and PR111-20SSC (short-stature), grown under varying N sidedress application rates (0, 20, 80, 140, and 200 lb/a). Except the zero N, all plots received 40 lb/a of N starter. By examining the resulting plant and ear heights, we can dissect the relative contributions of genetics and nutrient availability.

The Dominant Influence of Hybrid Genetics:

When comparing the two hybrids across all N rates, a striking difference emerges (Figure 2 & 3). DKC62-70 consistently exhibited significantly greater plant height and higher ear placement compared to PR111-20SSC. For instance, the average plant height for DKC62-70 was around 8.6 feet, whereas PR111-20SSC averaged closer to 6.7 feet. Similarly, ear height followed this trend, with DKC62-70 consistently having ears positioned higher on the stalk.

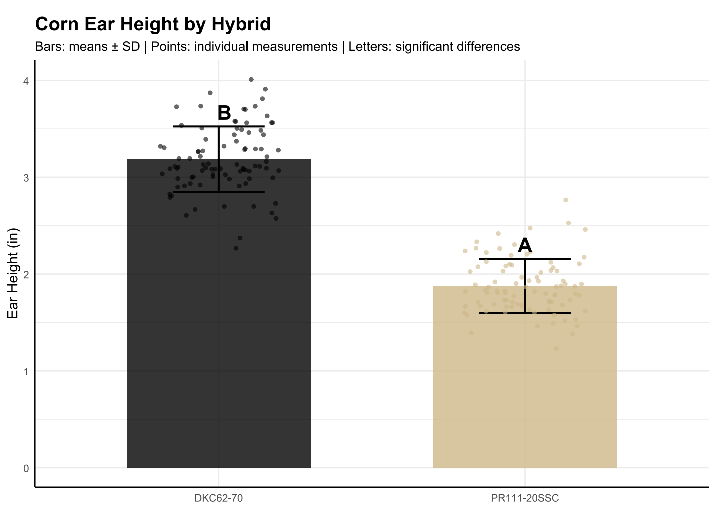


Figure 2: Corn ear height by hybrid: full- (left) and short-stature (right). Data from the 2025 Purdue-NRCS trial, at West Lafayette, IN

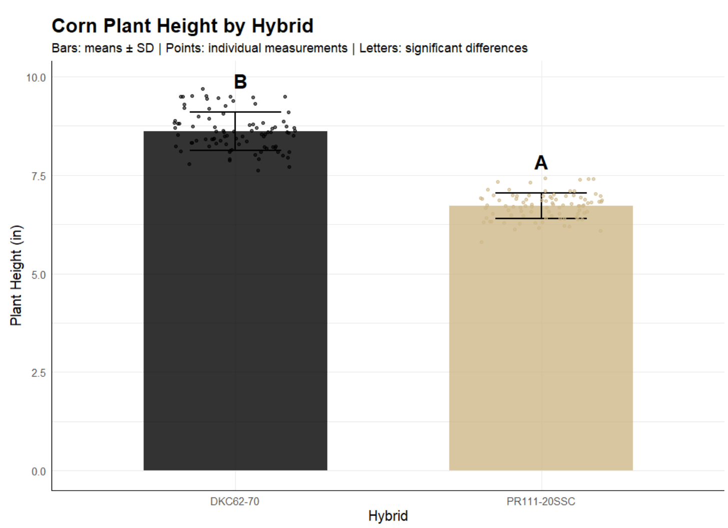


Figure 3: Corn plant height by hybrid: full- (left) and short-stature (right). Data from the 2025 Purdue-NRCS trial, at West Lafayette, IN

This stark contrast underscores the power of genetic selection. Therefore, if a grower prefers a shorter plant with lower ear placement to potentially reduce lodging risks or facilitate specific harvesting practices, selecting a short-stature hybrid like PR111-20SSC would be the more impactful decision.

Nitrogen's Modulating Effect:

While genetics lay the foundation, N fertilization does influence plant and ear height to a certain extent (Figure 4 & 5). For the 2025 Purdue-NRCS trial, generally, increasing N rates did not promote taller plants and higher ear placement. However, the relationship was not always linear.

For DKC62-70 plant height, the peak appeared to occur at intermediate N rates (around 20-80 lb/a), with a minor decrease at the highest rate (200 lb/a). This suggests that beyond a certain threshold, additional N don't contribute to further height increases and could potentially divert resources to other growth processes as the plant is N satisfied.

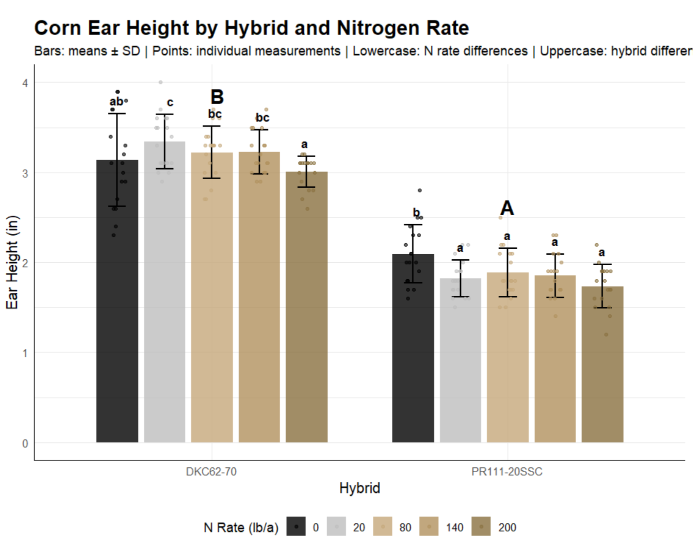
The effect of N on ear height in DKC62-70 seemed more consistent, showing a general decrease in ear height with increasing N. In contrast, PR111-20SSC showed less pronounced changes in both plant and ear height in response to varying N levels, further reinforcing the idea that the genetic potential of the hybrid dictates its responsiveness to nutrient inputs.

Nevertheless, for the zero N tratment, both ear and plat height were heighter than any other N rate.

Practical Implications for Corn Growers:

Understanding the interplay between hybrid genetics and N fertilization has several important implications for corn production management:

1. **Hybrid Selection is Paramount:** Growers should prioritize hybrid selection based on their specific goals and field conditions. If lodging is a significant concern, choosing a shorter hybrid with lower ear placement, even if it has a slightly lower yield potential, might be a prudent decision.
2. **Nitrogen Management for Height is Secondary:** While N is crucial for overall plant growth and yield, relying on excessive N application to drastically alter plant height is not a recommended strategy. The genetic predisposition of the hybrid will largely determine the height. Focus on optimizing N rates based on yield goals, soil testing, and other nutrient management best practices to ensure efficient nutrient utilization and minimize environmental impacts.
3. **Consider Lodging Risk Holistically:** Plant height and ear placement are just two factors influencing lodging. Stalk strength, plant



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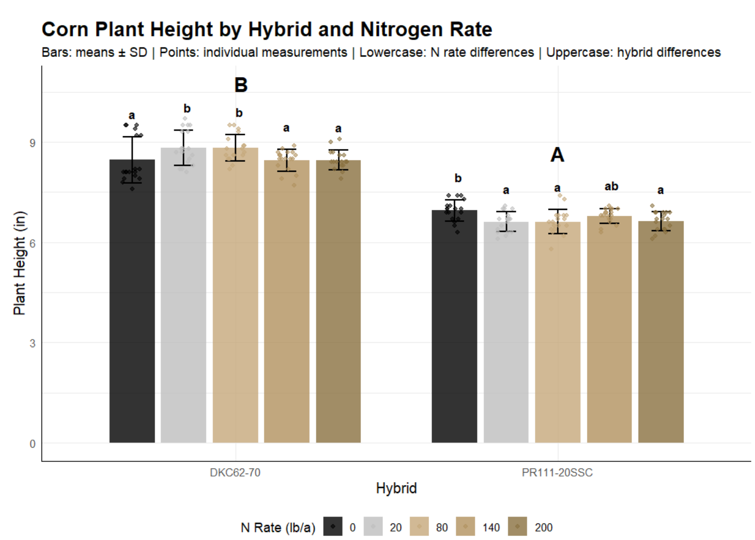

Figure 5: Corn ear height by hybrid: full- (left) and short-stature (right). Data from the 2025 Purdue-NRCS trial, at West Lafayette, IN.

population, row spacing, and environmental conditions (e.g., high winds) also play significant roles. Growers with taller hybrids should consider integrated management strategies to mitigate lodging risks, such as planting at appropriate densities, ensuring balanced nutrient availability (including potassium and micronutrients).

4. **Integrate with Yield Data:** The height data presented here should be considered in conjunction with grain yield information. The ideal scenario is to select a high-yielding hybrid with desirable plant architecture for your specific environment. Understanding how different N rates affect both height and yield for your chosen hybrid is essential for maximizing economic returns.

Hybrid genetics are the primary driver of corn plant and ear height. Besides, since N has a secondary influence, growers should select hybrids for their desired plant structure and manage N for yield without worrying too much about plant or ear height, especially for short-stature corn.

Will 90°F Temperatures Return: A History of Late-Season Heat in Indiana

(Jacob Dolinger)

Cooler temperatures are here to stay, for now. Low temperatures have bottomed out in the low to mid-50s across northern Indiana in recent days, with isolated pockets of temperatures in the 40s. That's 5-10°F below normal for low temperatures across the northern half of the state. High temperatures have also been below normal, with highs staying in the 70s just in time for Labor Day Weekend, despite normal high temperatures for much of the state usually still in the low 80s.

That's welcome news for anyone who has struggled with what has been one of Indiana's most humid summers on record. In Lafayette, the dew point temperatures rose to 75°F or above for 122 hours so far this year, the fifth most of any summer since dew point observations began in 1996. In Terre Haute, dew point temperatures at or above 75°F were observed for 464 hours—the most of any summer since records began there in 1996. The reason 75°F is chosen as a benchmark is that it is when humidity is considered oppressive.

So, after this summer of humidity, it's worth getting a little excited about fall weather. Some folks may be wondering, though: is that all? What's the chance of more summer heat? It's certainly not unheard of. While oppressive dew points become considerably less likely in September and October, the actual air temperature can rise well into the 80s and even 90s in early Autumn. Indianapolis observed 90°F+ temperatures on September 19 and September 21, 2024—just in time for the astronomical Fall. In 2019, temperatures rose to 92°F from September 30 to October 2 in Indianapolis. Even as far north as South Bend, temperatures at or above 90°F have been observed in September in 18 of the past 25 years, and once in October in 2019. It's essential to note that many of these 90°F observations in September have occurred right around or just after the Autumnal Equinox (usually September 22), which leaves plenty of time this year for such heat to occur.

Even with all of these historical data in mind, just because the temperature doesn't reach 90°F doesn't mean it won't feel hot heading through September and October. The threshold that constitutes above normal temperatures—aka "heat"—changes heading into the Fall. Since the normal high temperatures in the state fall below 80°F for much of September, it only takes a few days of temperatures a few degrees above 80°F and a dew point temperature around 70°F for it to feel summery. For the folks hoping for a final stretch of summery weather, you may be in luck: the National Weather Service's Climate Prediction Center (CPC) has a likely chance of above normal temperatures from September 6-19.

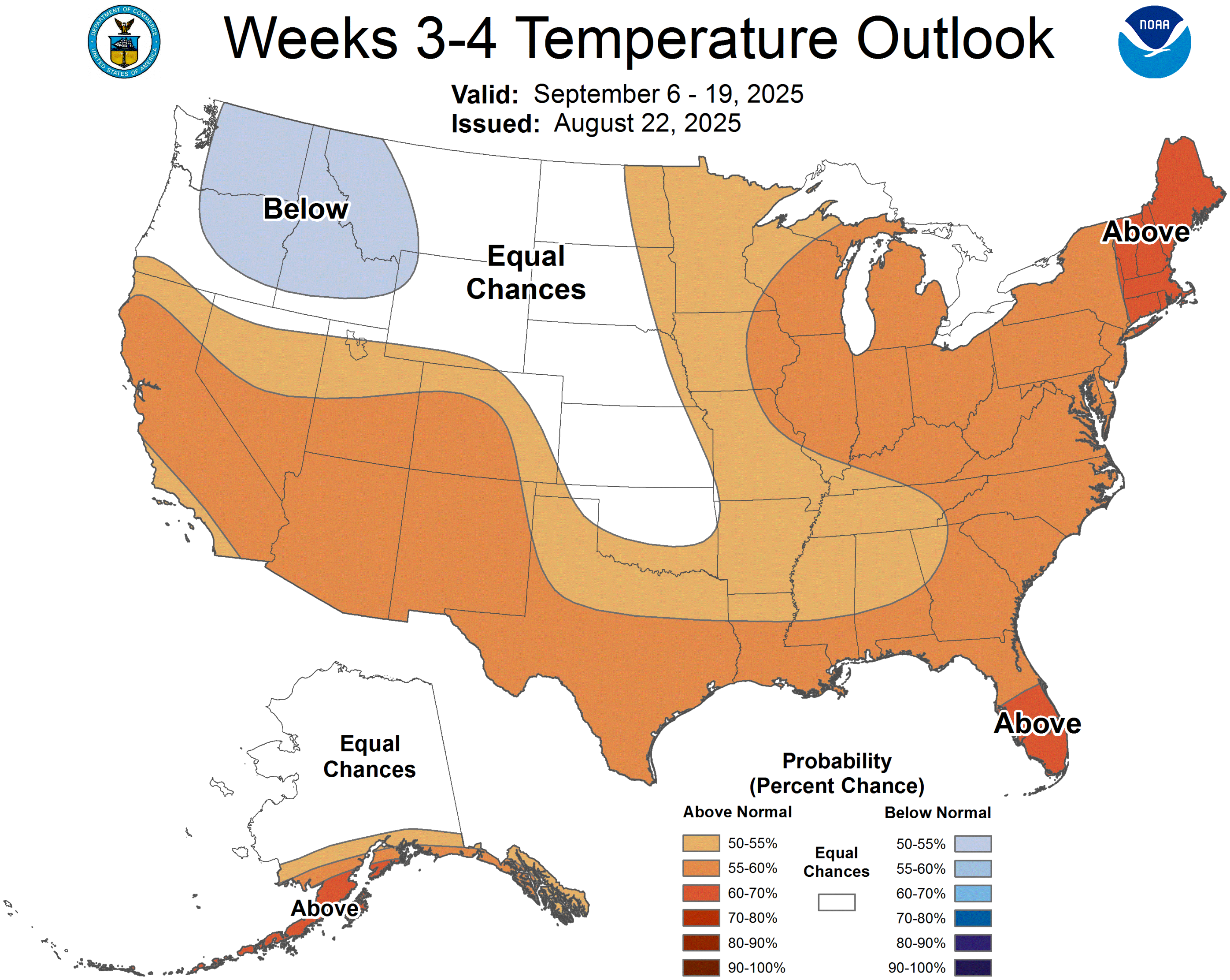

Figure 3. The CPC displays a 55-60% chance of above normal temperatures for much of the eastern and southern U.S. heading through mid-September.

Acknowledgments

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

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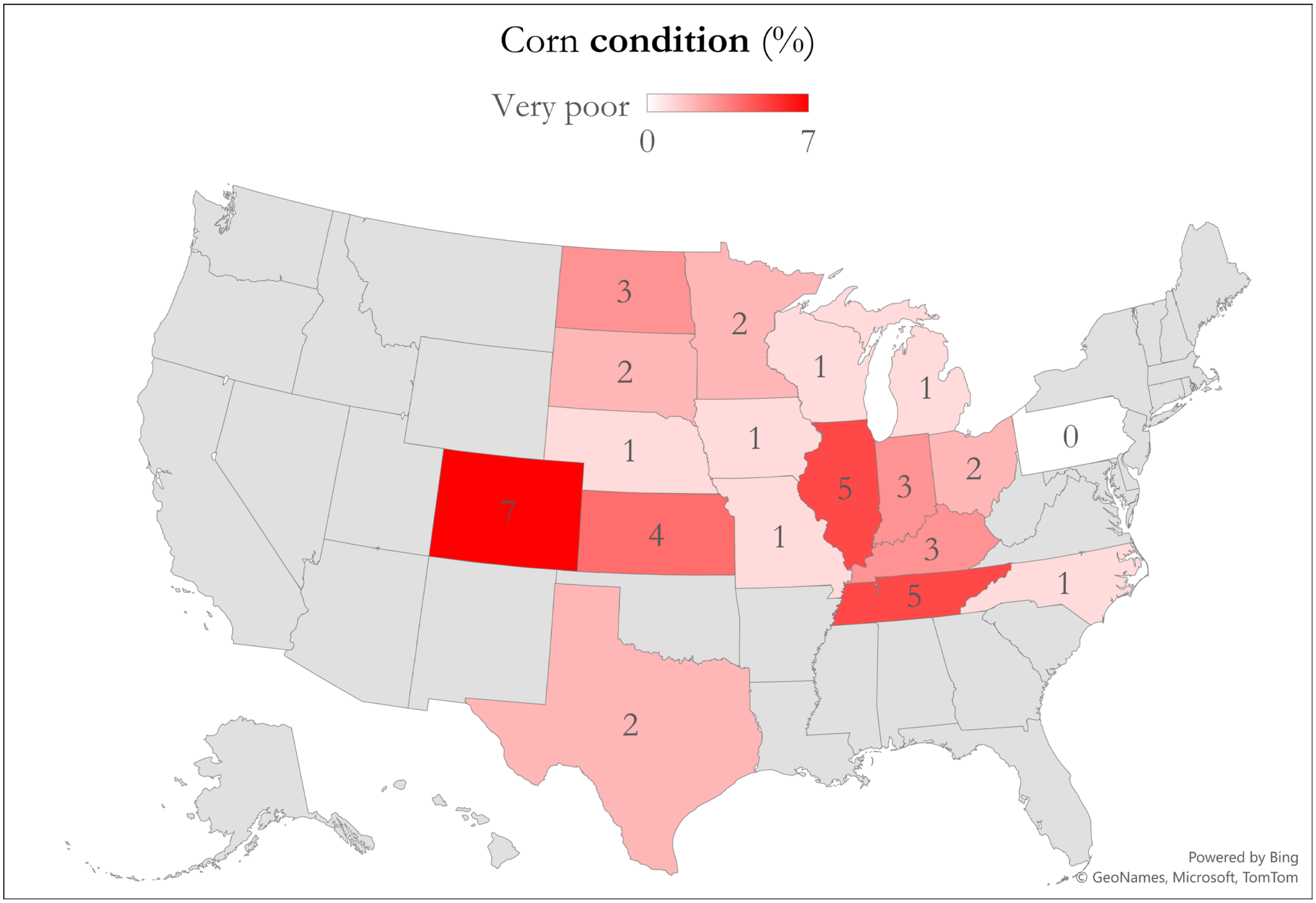

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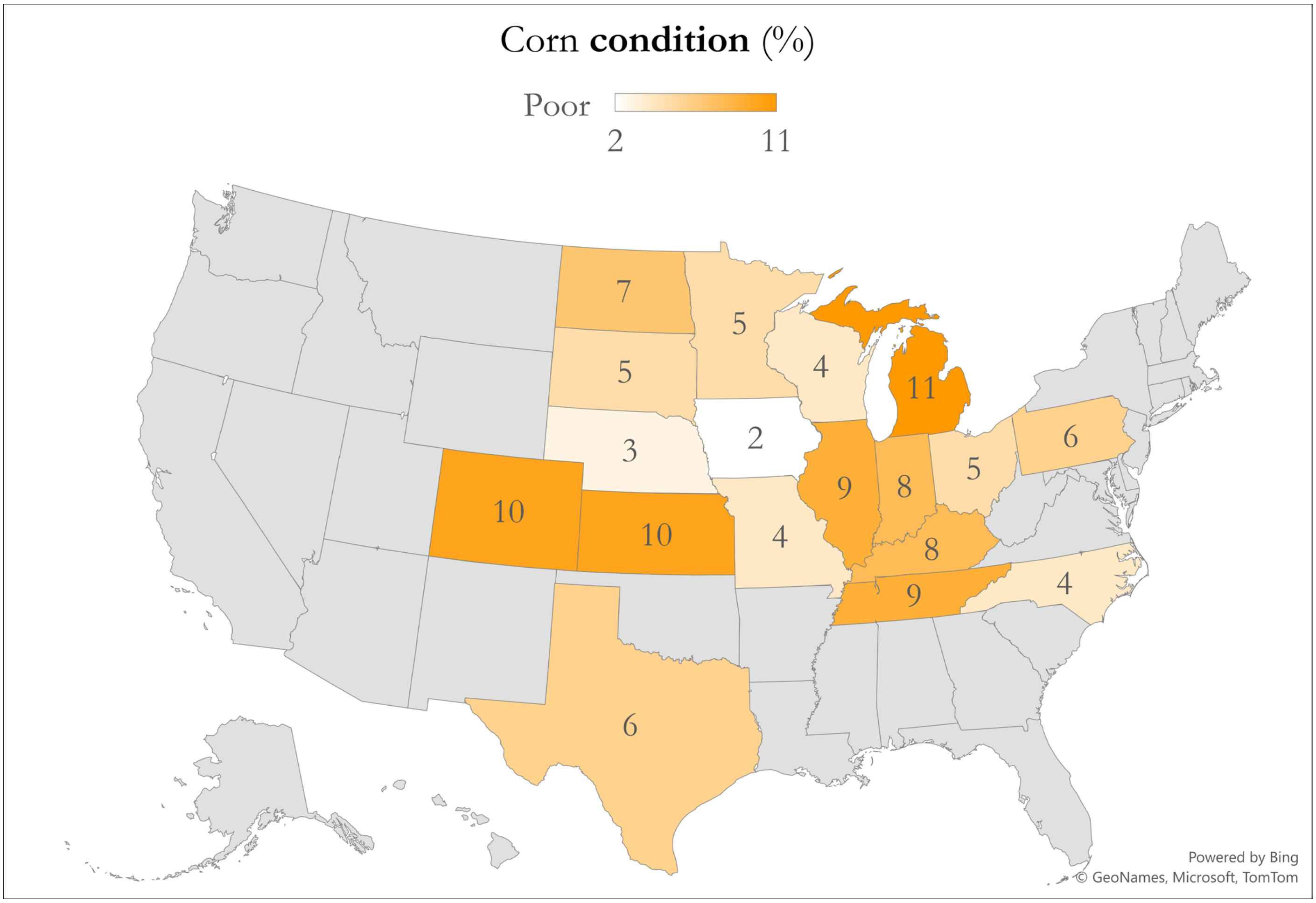
Very Poor | Poor | Fair | Good | Excellent | Back to page 2



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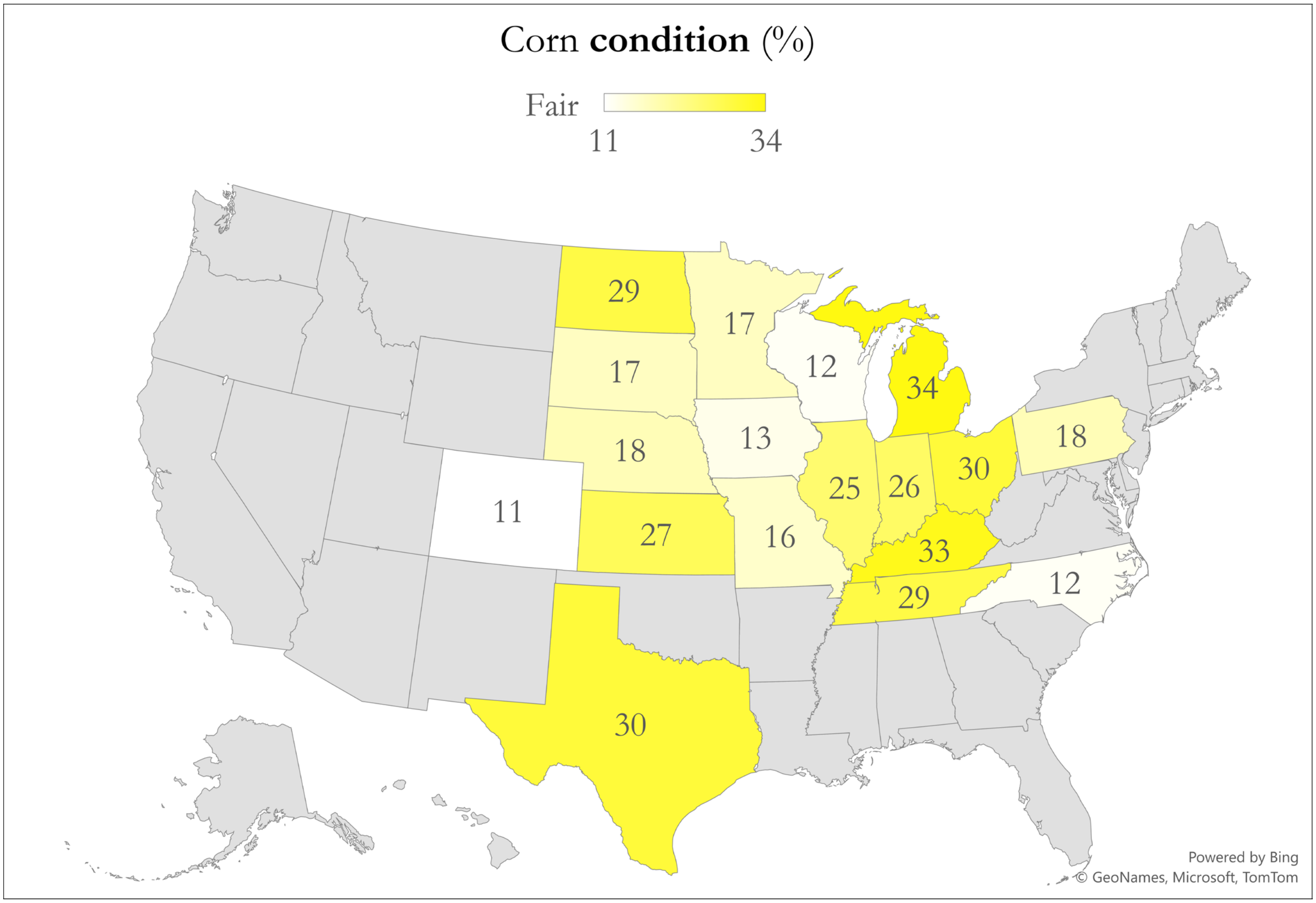

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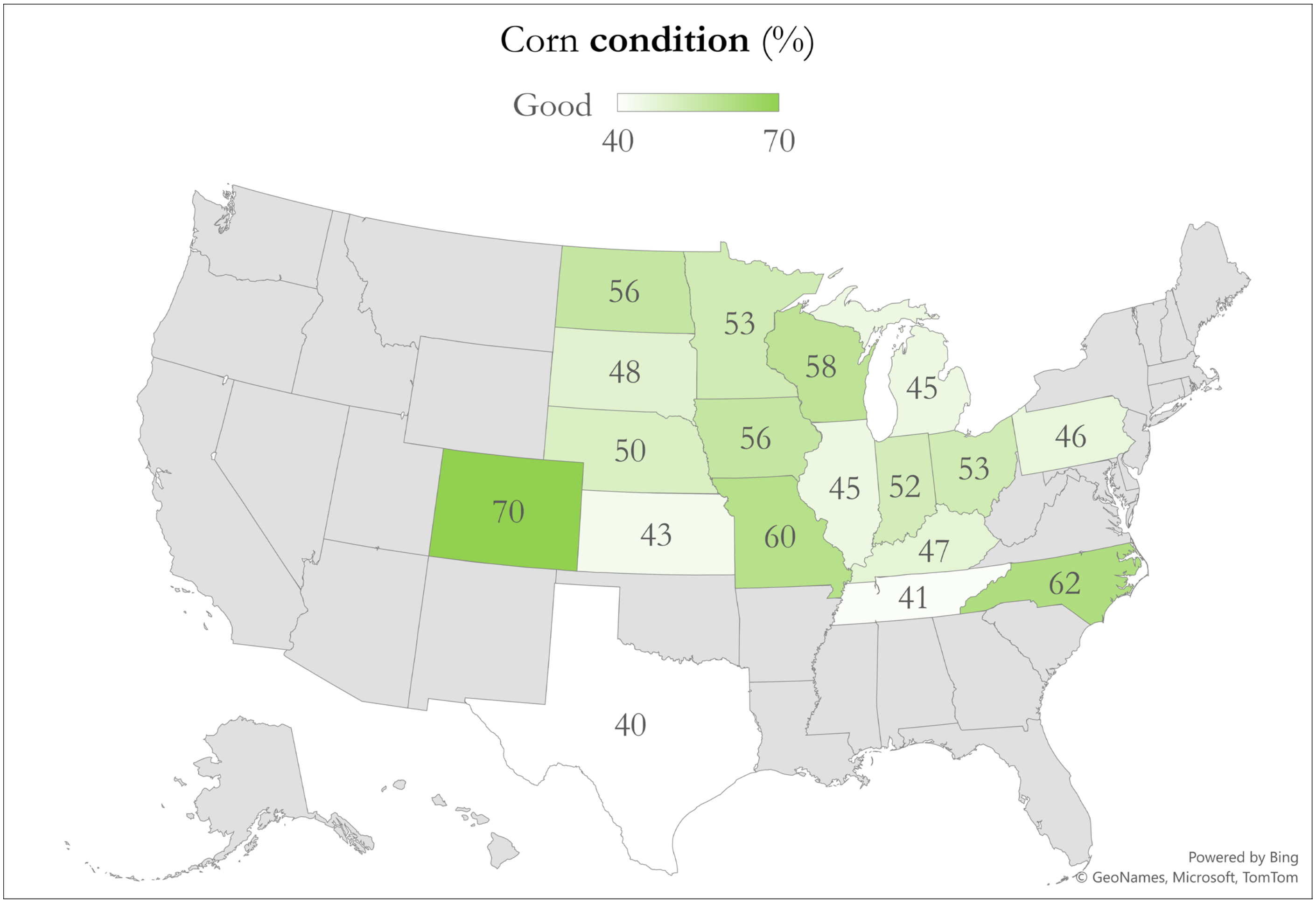

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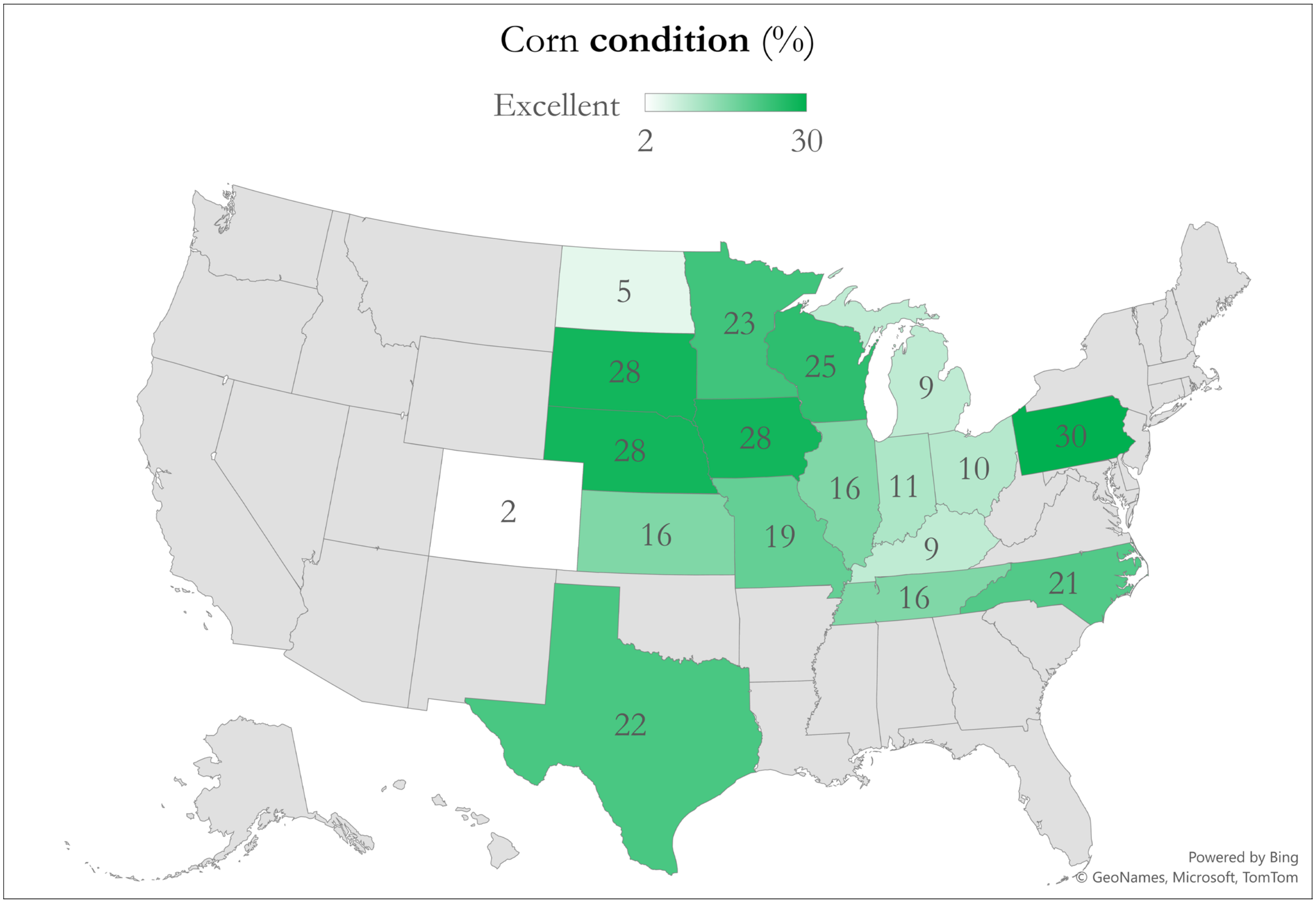

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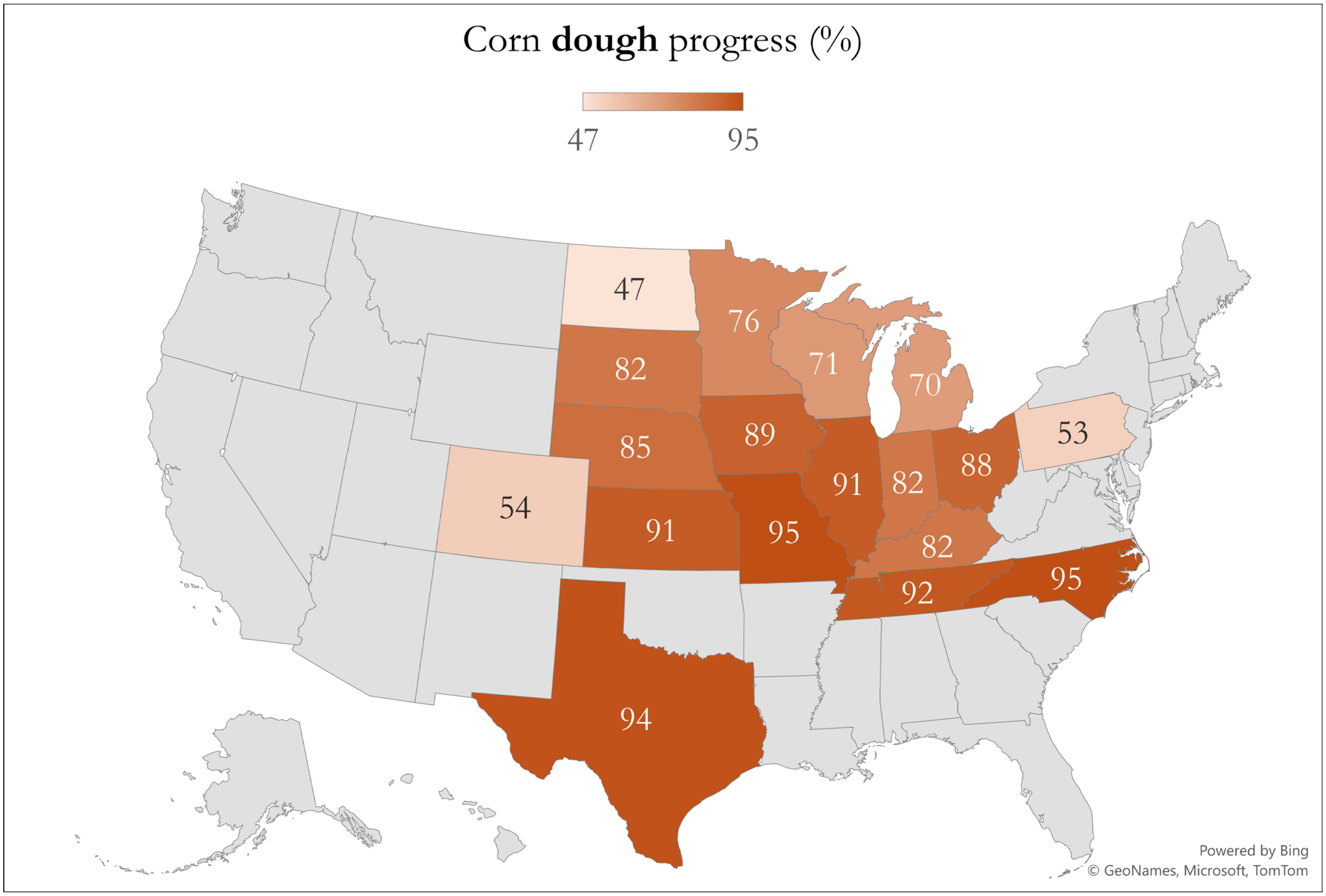

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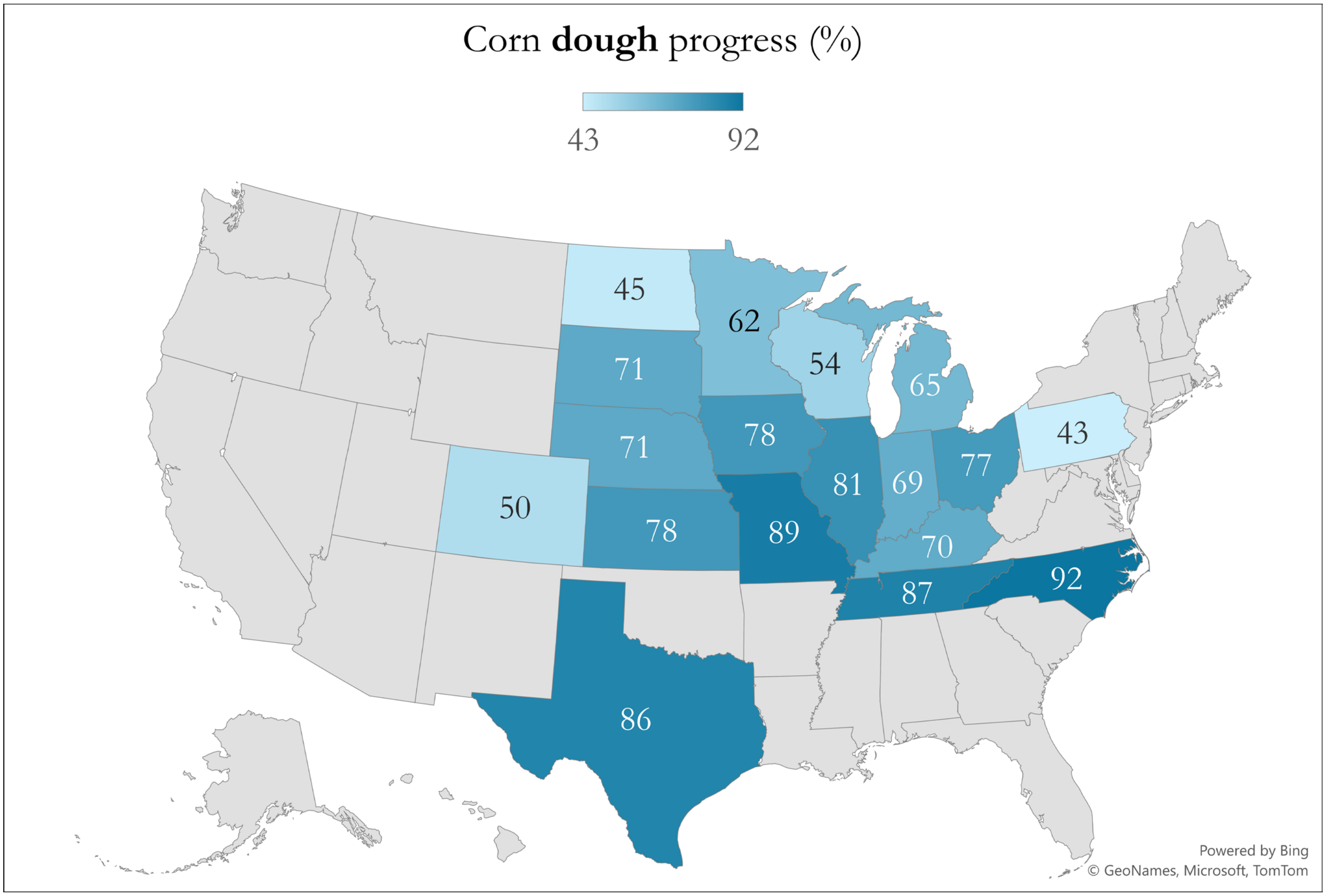

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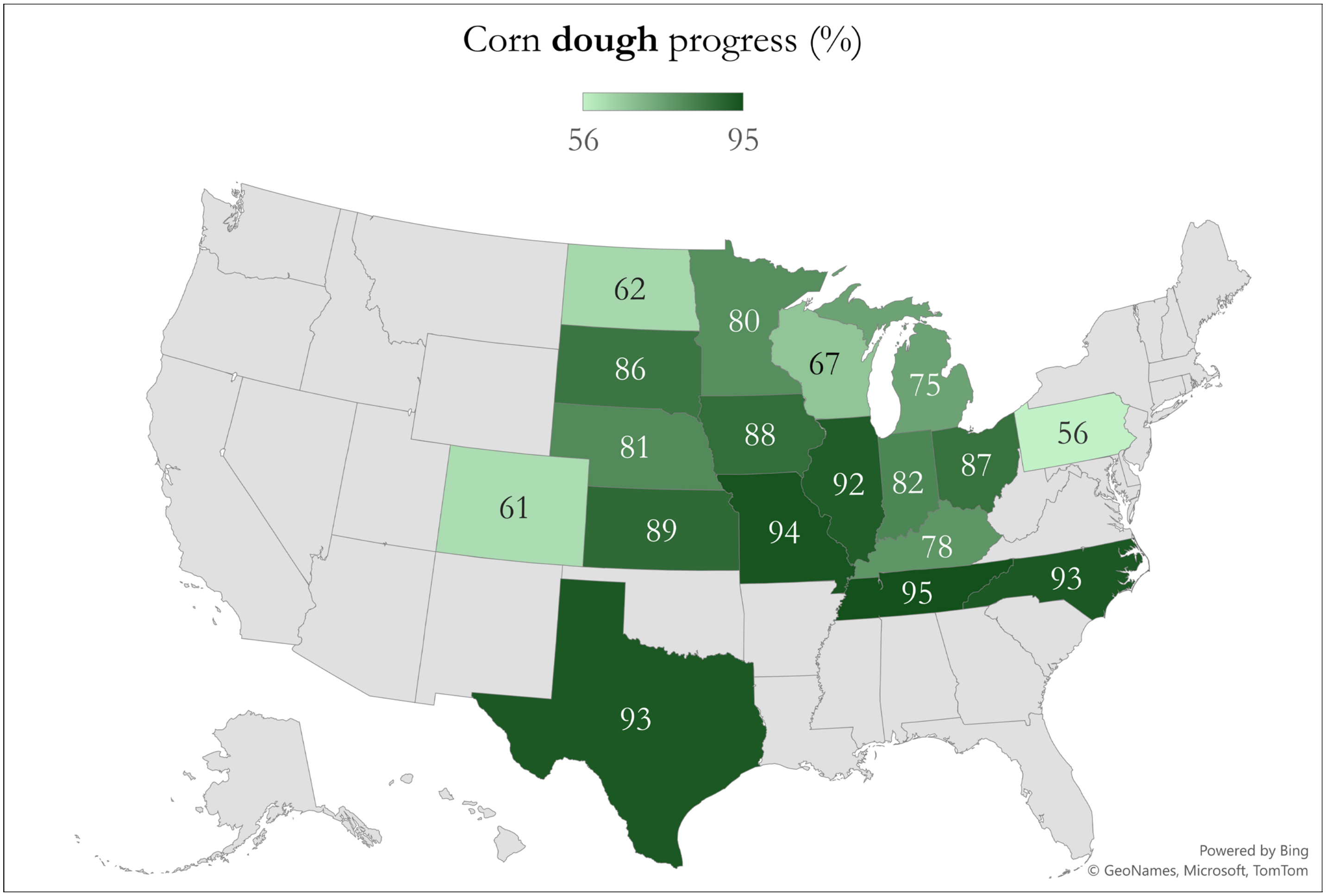

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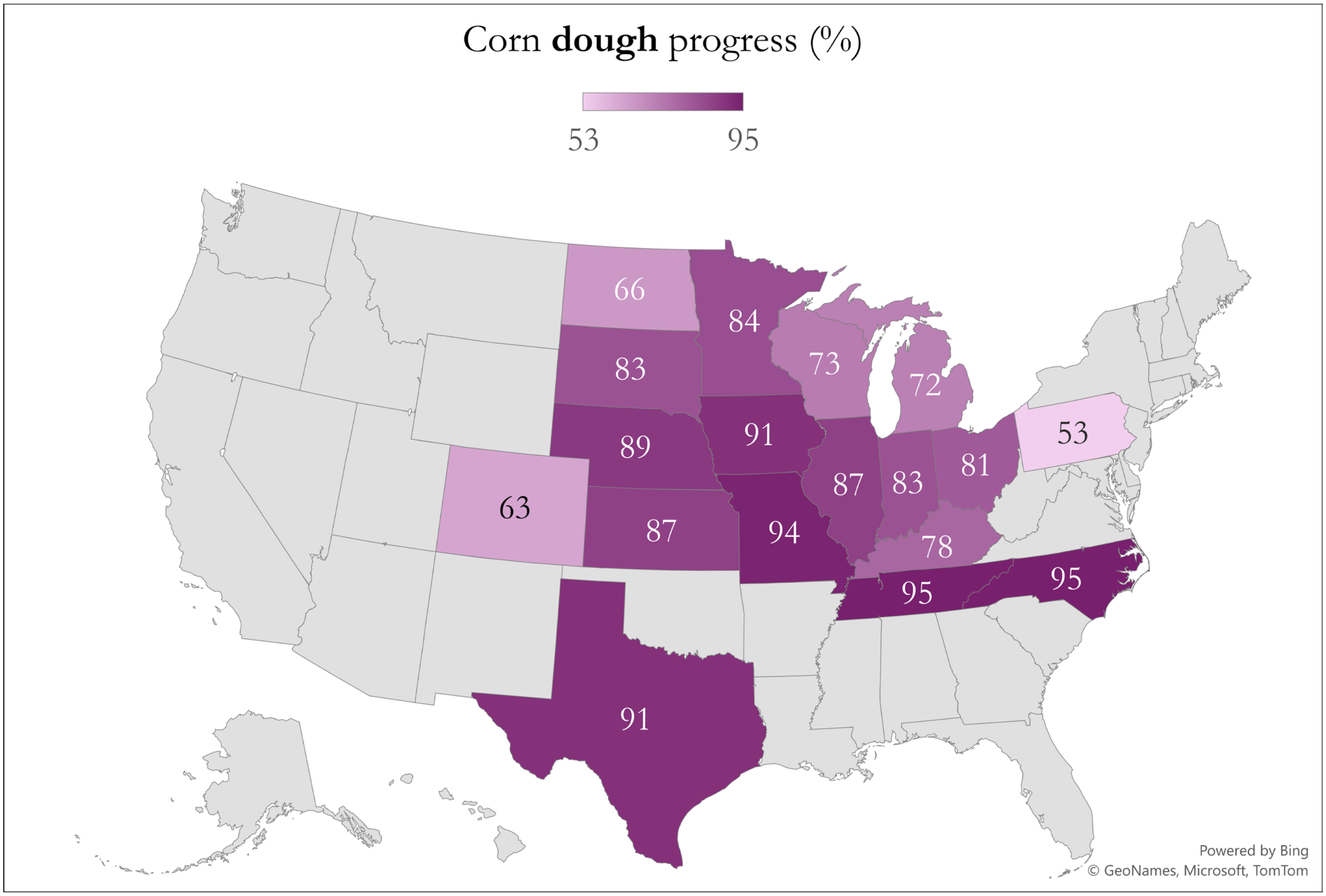

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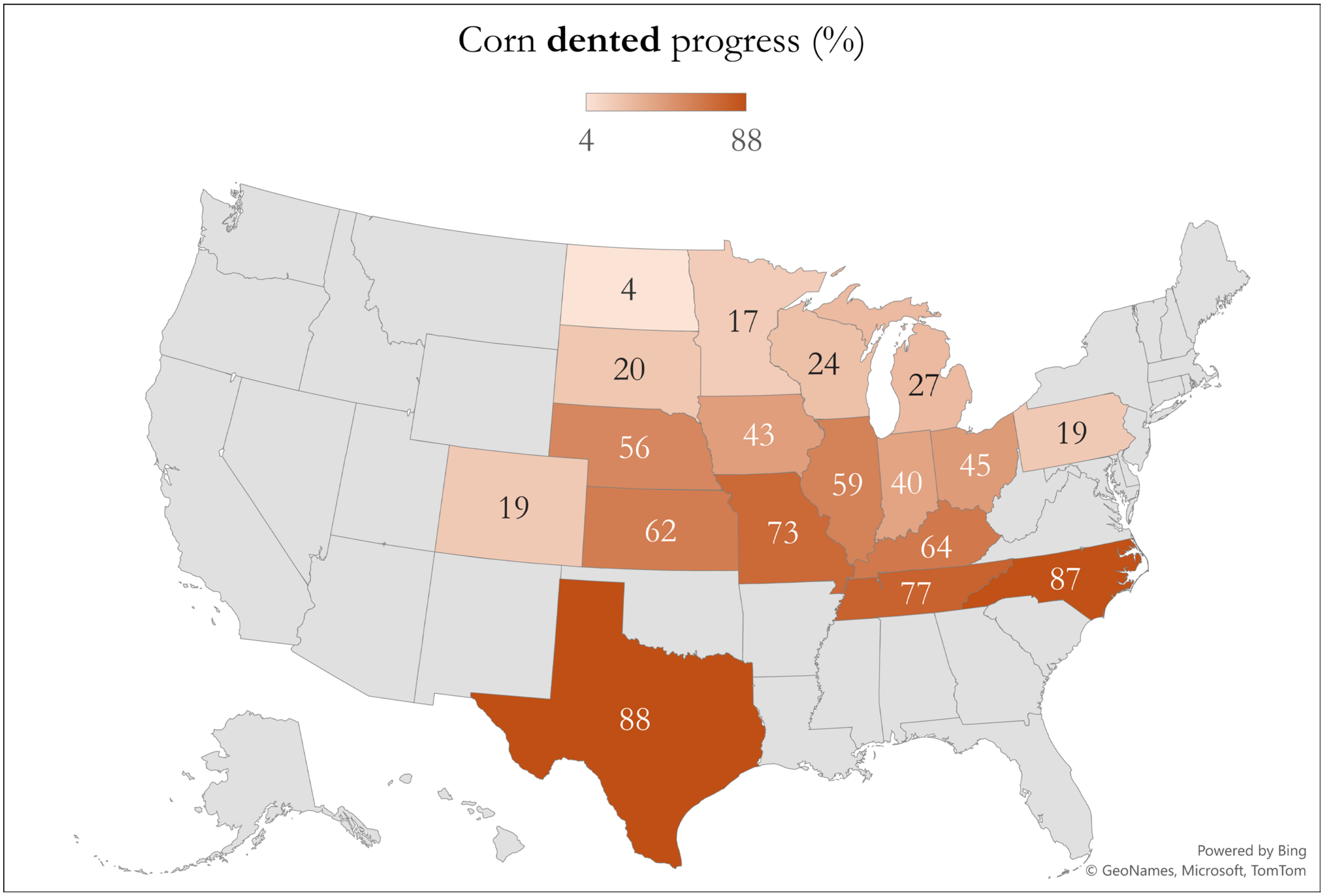

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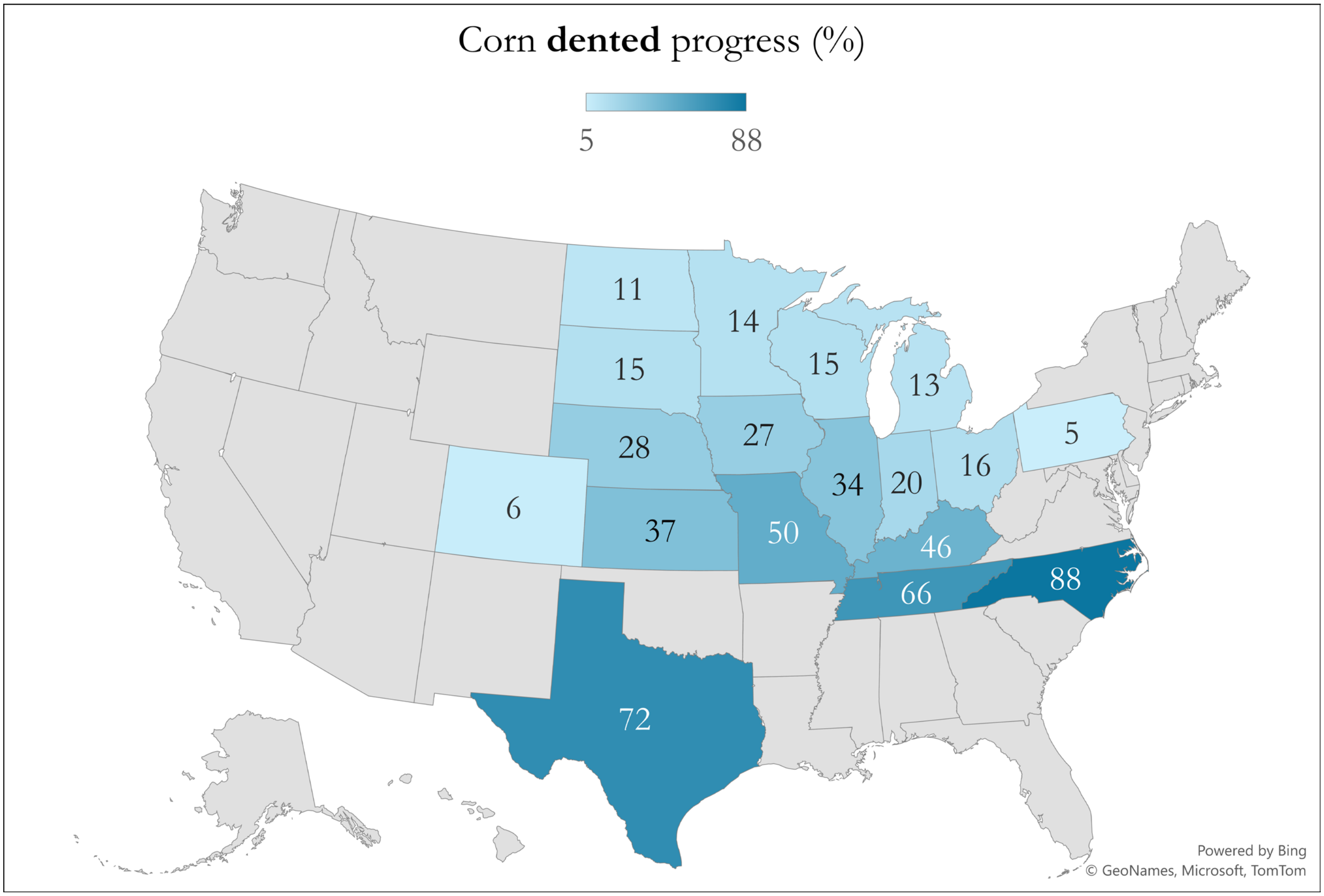

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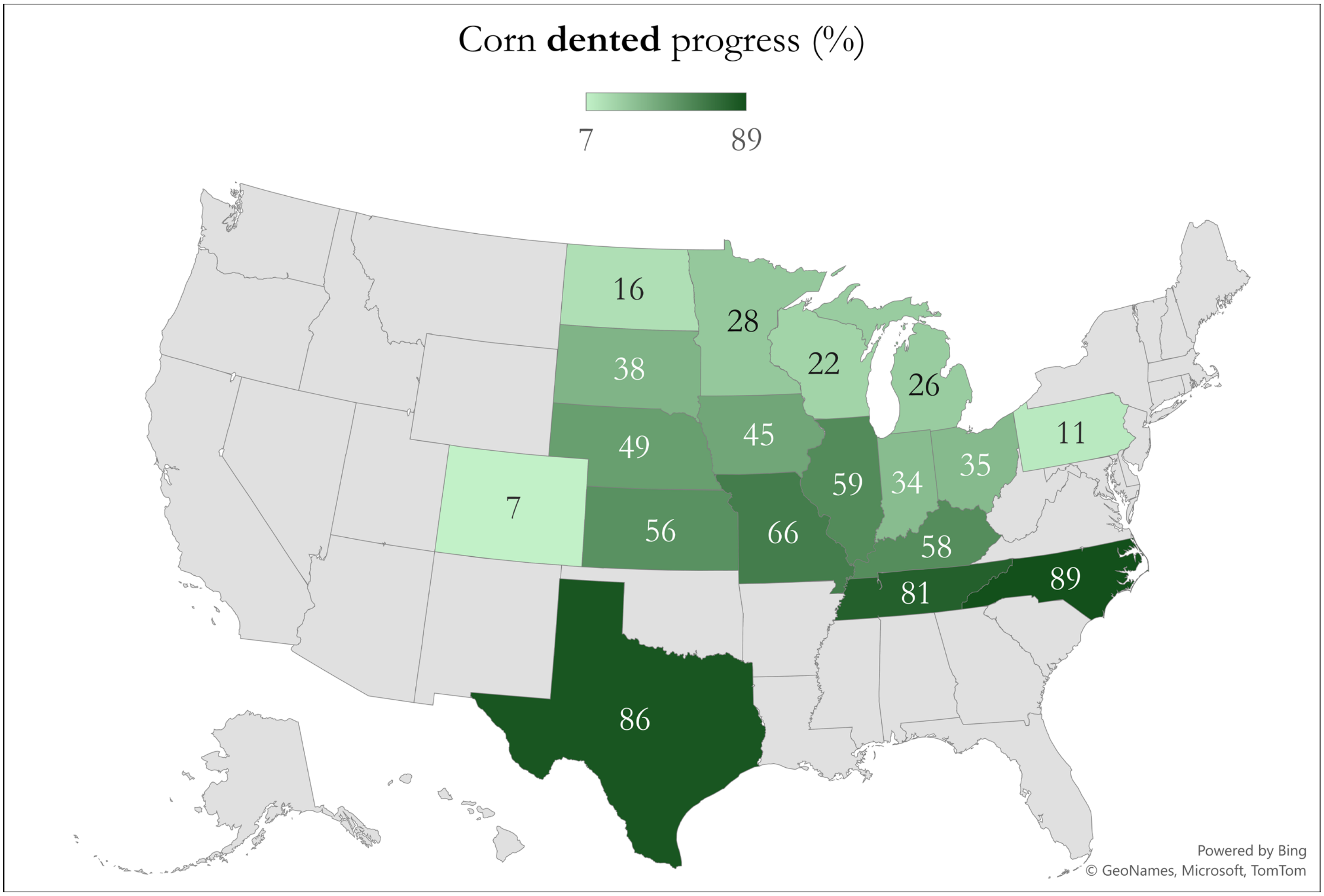

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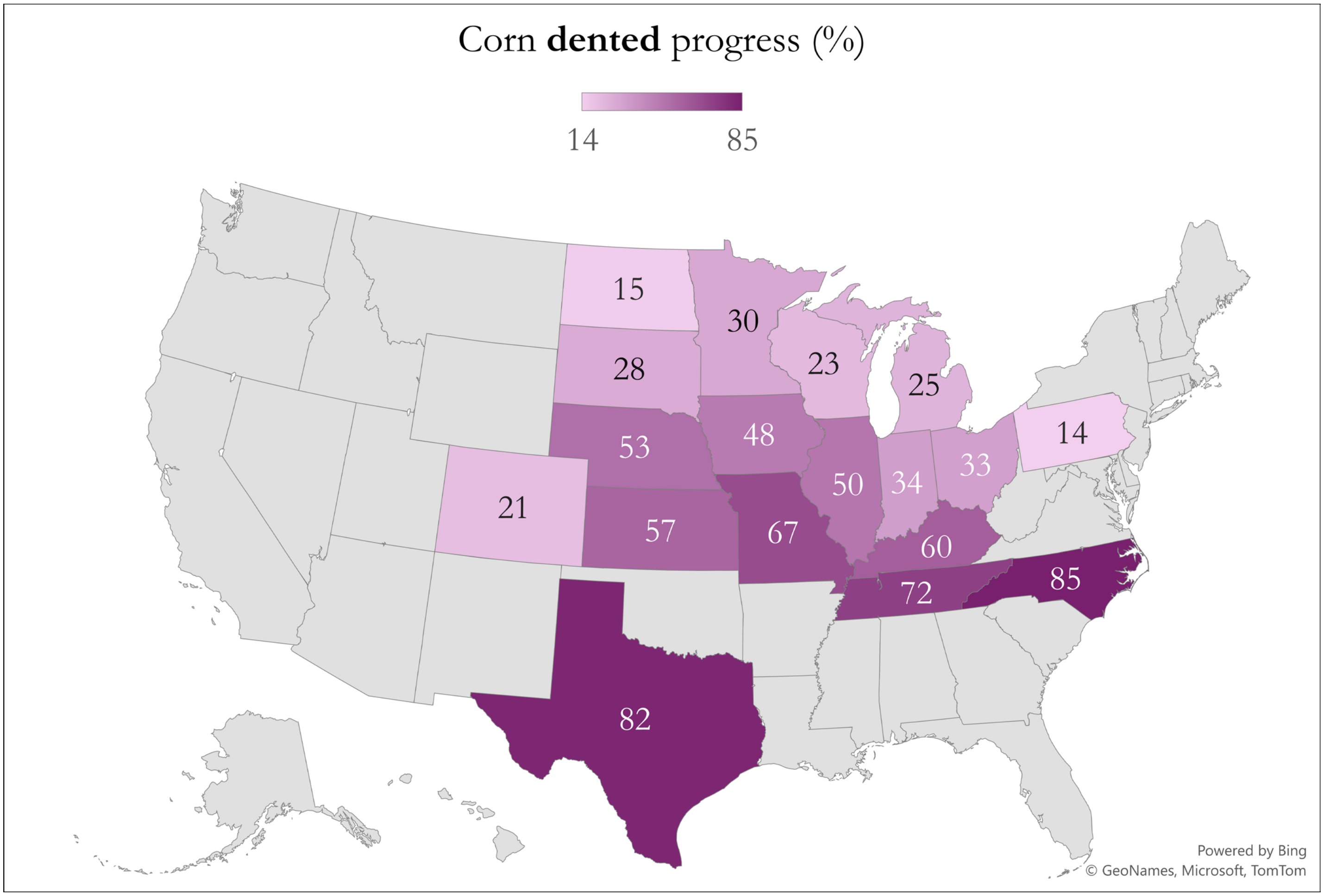

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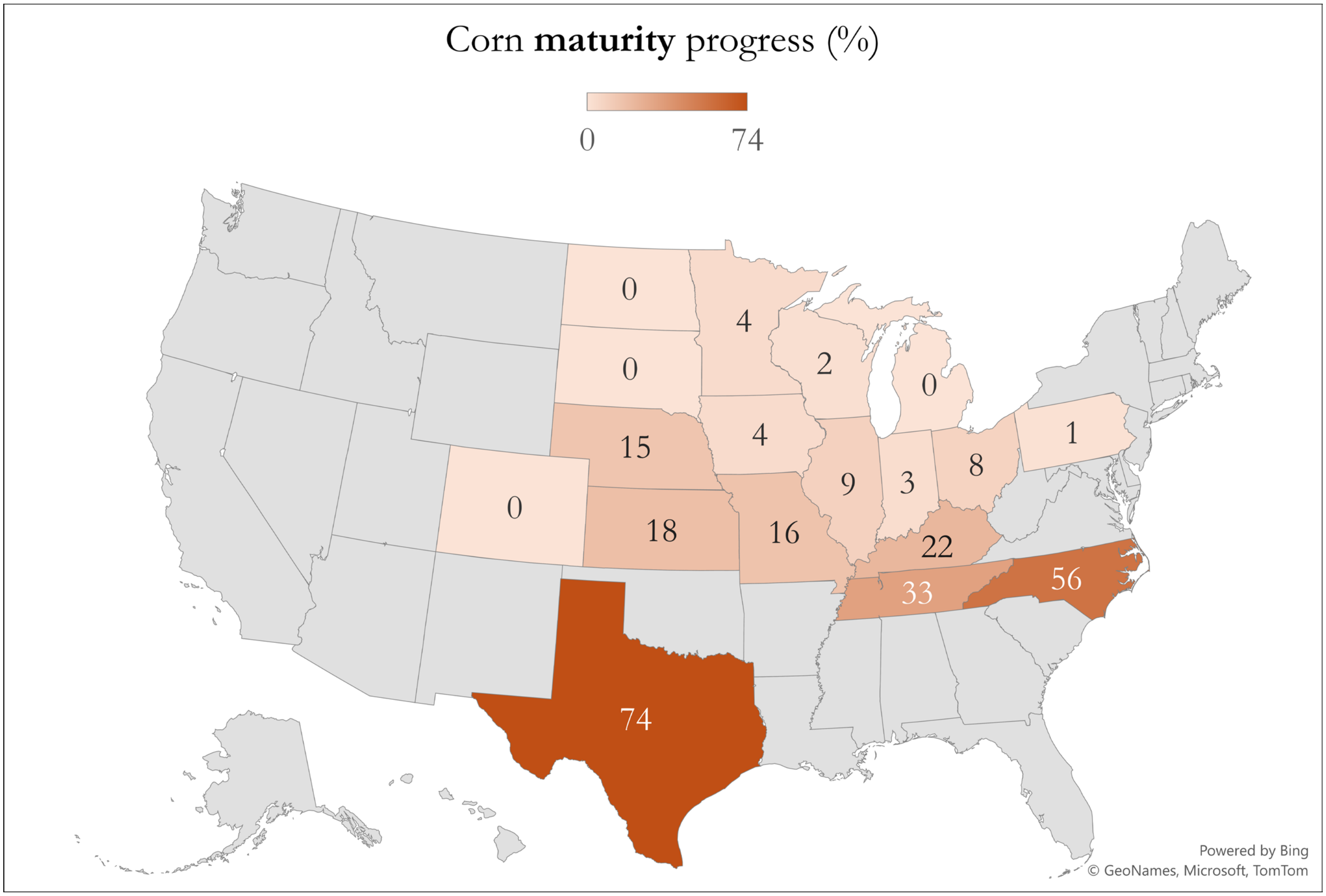

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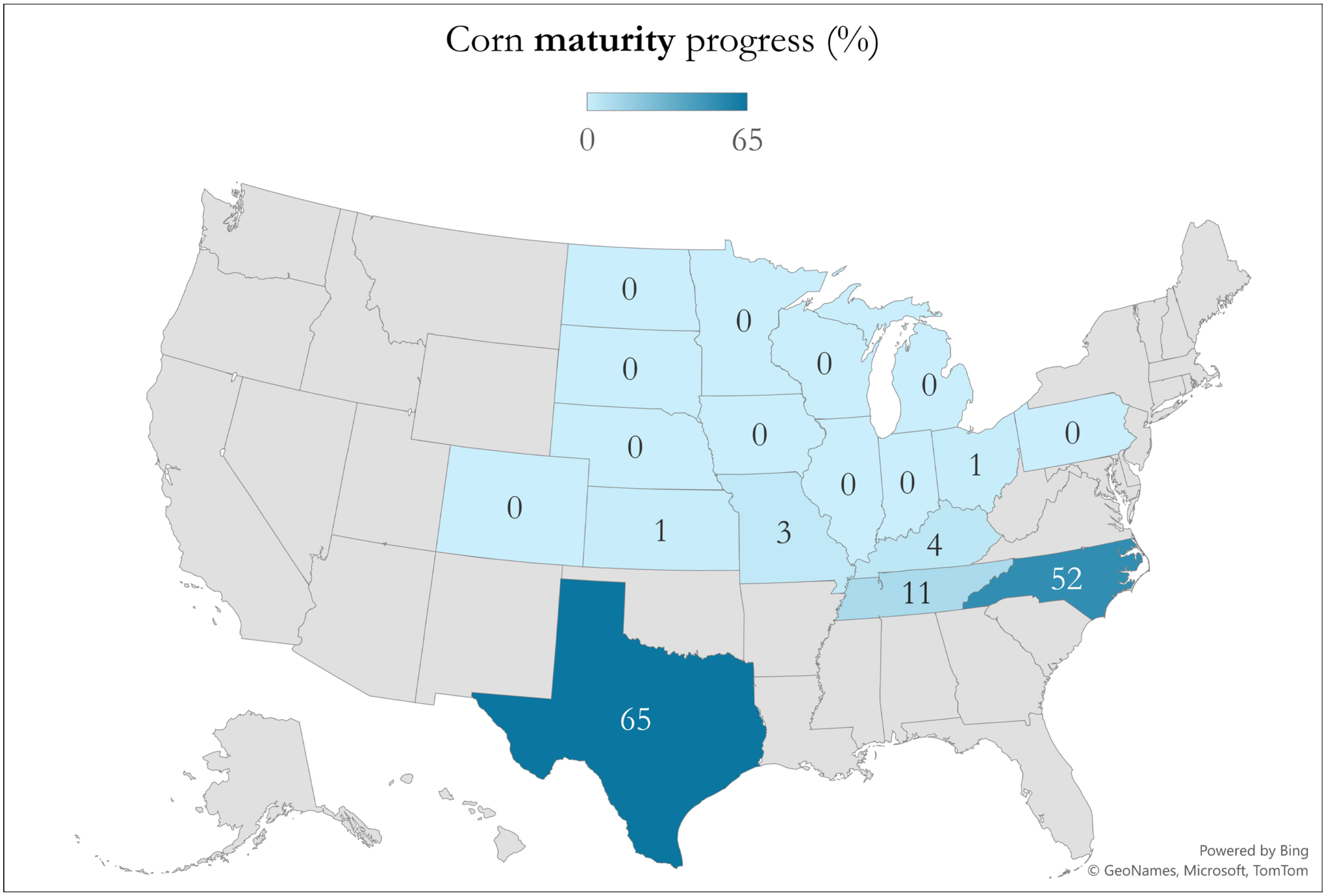

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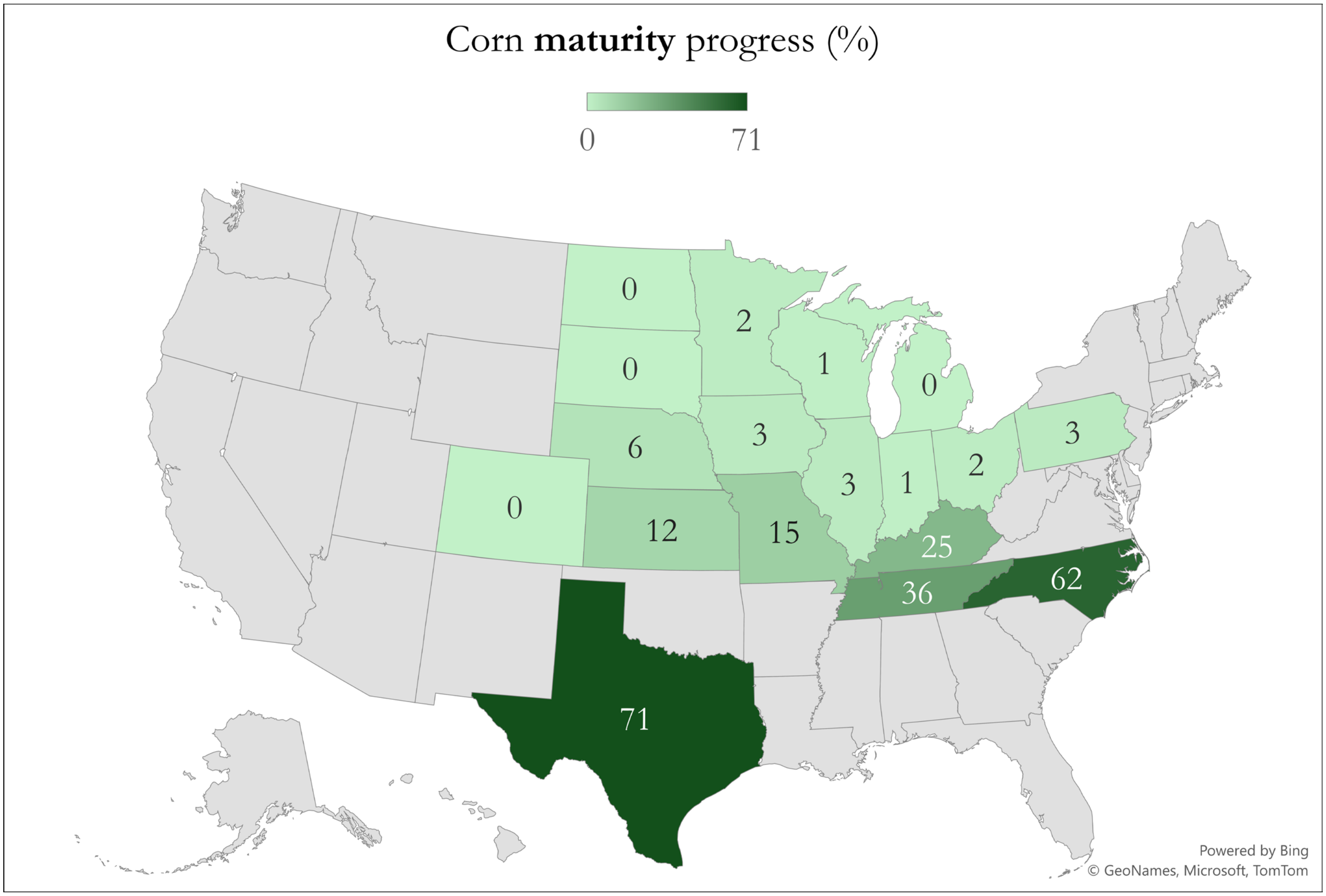

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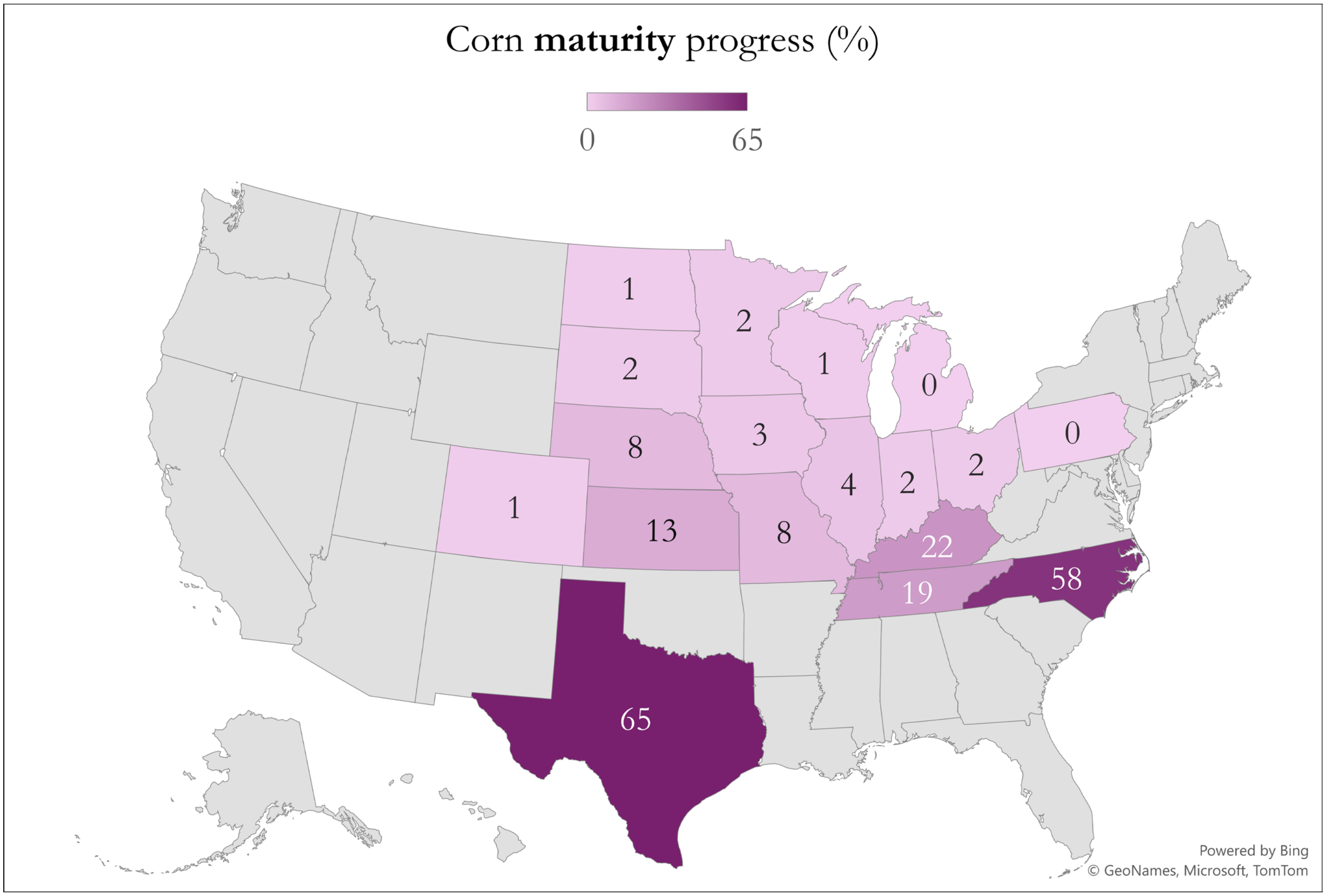

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