

Nutrient Deficiency

Monitoring Nitrogen Availability with AGMRI & NVision in Indiana

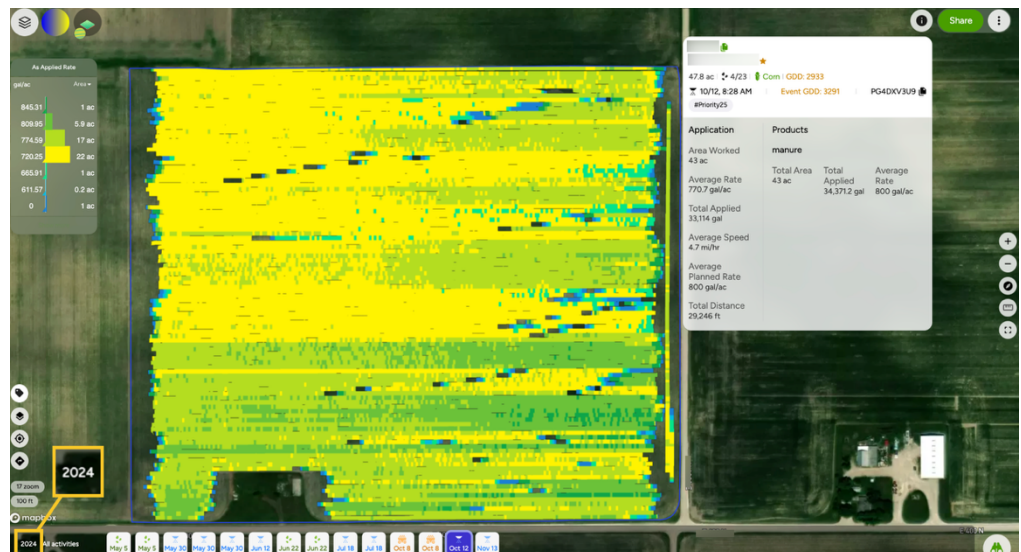
Key Highlights

- Fall-applied manure proved inconsistent, contributing to 10–30 bushel/acre yield gaps.
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- Planned changes to manure management will extend nitrogen availability and improve efficiency.

Background:

In Indiana, two brothers farm corn, soybeans, and wheat, and also operate several hog barns. Wheat is included in their rotation in part to support their livestock operation. Their operation reflects typical farming practices: standard field cultivators, VT tools, and conventional planters (not high-speed). Most in-season applications, such as herbicide and fungicide, are handled by their ag retailer partner.

They have been leveraging AGMRI for several years, integrating insights into their decision-making with consistent results. In fall 2024, favorable weather conditions allowed them to apply manure across fields. **However, the following spring brought wet weather, followed by dry conditions in the summer—a challenging combination for efficient nitrogen utilization.**



Map shows manure application on October 12, 2024.

Challenge:

Nitrogen is a critical but costly input for corn production. These growers use manure from their hogs as a primary nitrogen source, supplemented by starter fertilizer at planting. While manure can be highly effective when properly applied and managed, its nutrient content and seasonal availability are not always predictable, especially when fall-applied.



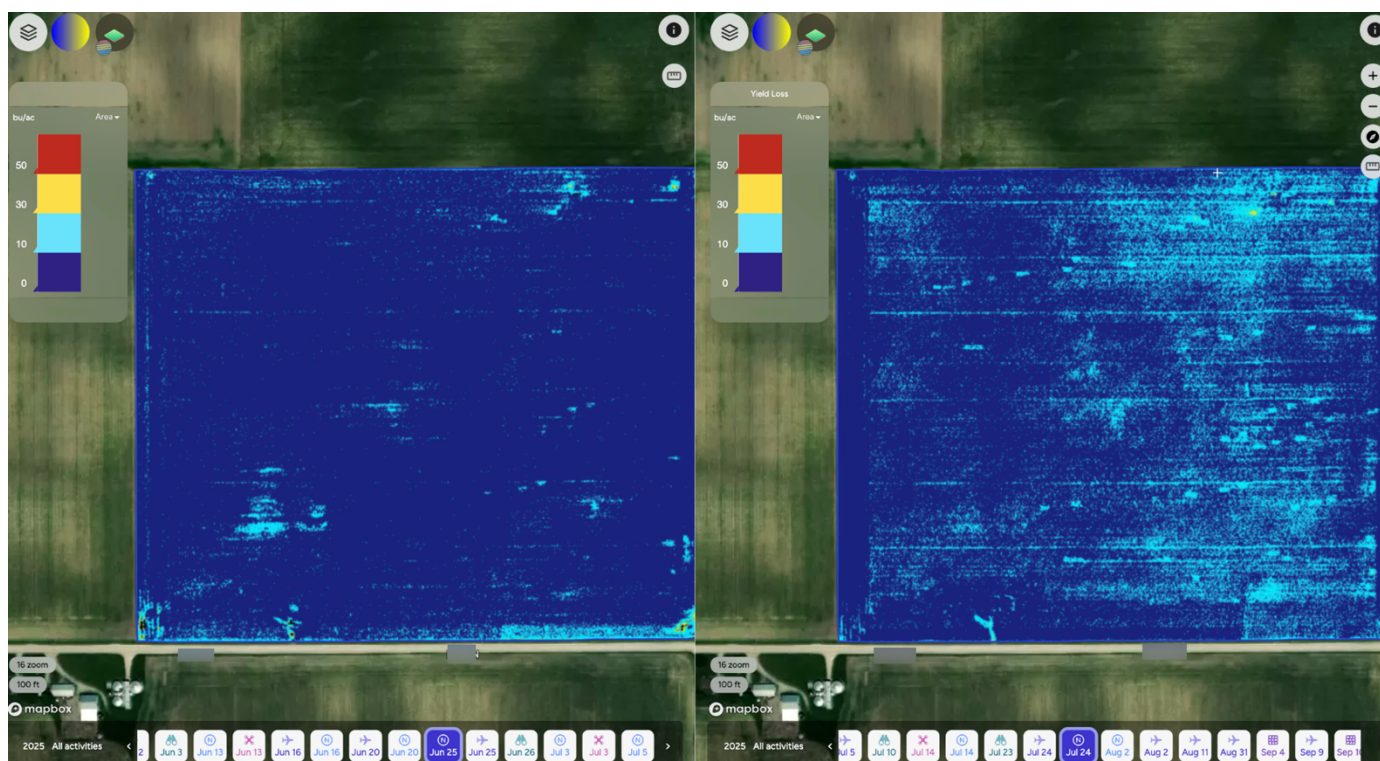
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Early in the season, AGMRI's NVision maps (June 25th) showed adequate nitrogen across the field. But by July 24th, the maps revealed significant nitrogen deficiencies, prompting the question: **was starter fertilizer masking issues early on, and had the fall-applied manure already leached beyond the root zone?**

Analysis suggested that starter fertilizer supported crop growth until mid-season. Still, the manure nitrogen had either moved out of the soil profile or beyond the reach of the root system. Skipped application zones in the "as-applied" manure map aligned with problem areas in both June and July, confirming the diagnosis.

Without intervention, these deficiencies risked yield losses of 10–30 bushels per acre in affected zones.



NVision maps from June 25 and July 24, 2025 — showing nitrogen loss across

Solution:

AGMRI's NVision map provided real-time visibility into nitrogen dynamics, helping the growers identify and validate where manure nitrogen was failing to sustain the crop. The map confirmed that starter fertilizer had initially masked the problem, but deficiencies became apparent as the season advanced.



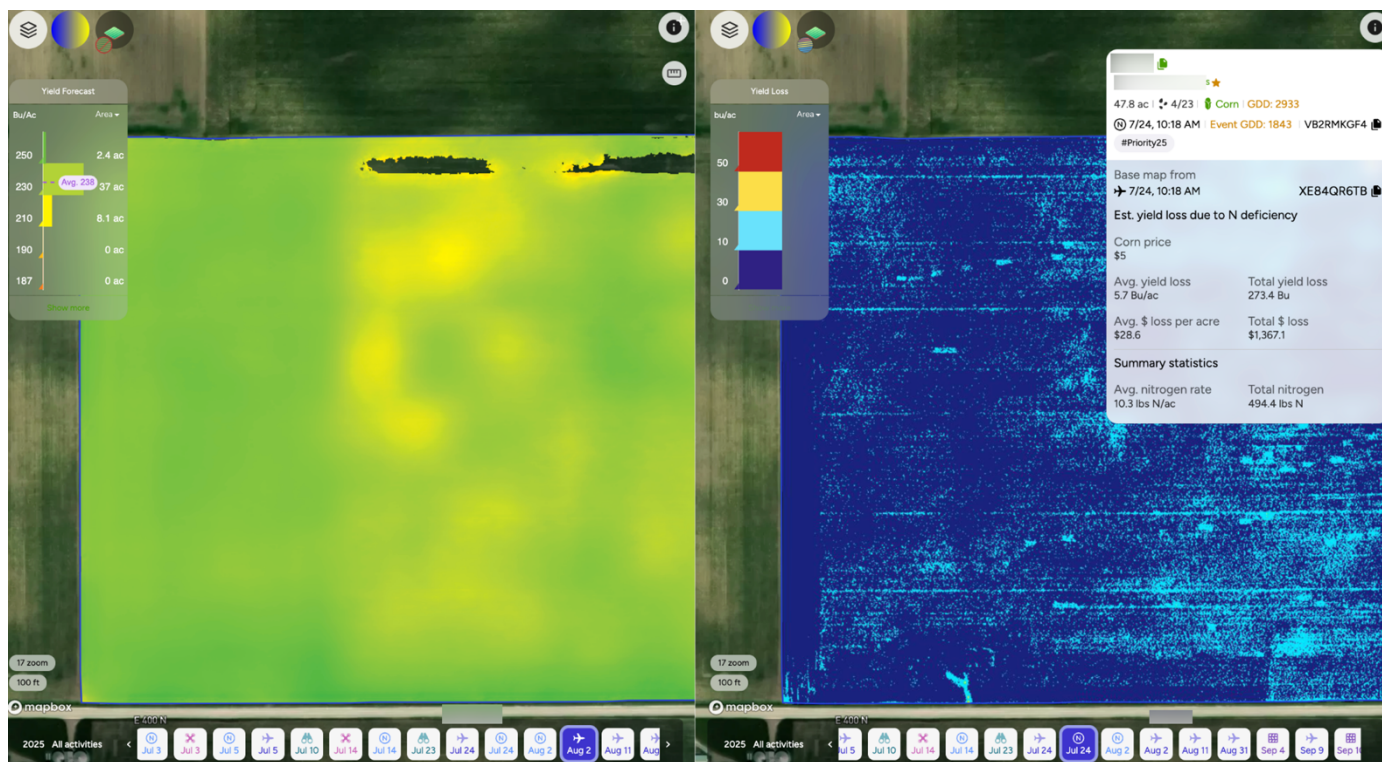
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To address the issue, the brothers plan to adjust their manure application strategy by incorporating an injection system with a stabilizer into their applicator. This will help maintain nitrogen availability longer and support crop health throughout the season.

Results:

AGMRI's Yield Forecast map on August 2 revealed a clear correlation: nitrogen-deficient areas were forecasted around 210 bushels/acre, while healthier zones showed projections near 230 bushels/acre. The projected gap highlights measurable yield drag tied to nitrogen availability.

Going forward, the growers plan to use stabilizers with fall manure applications and continue monitoring with AGMRI to validate nitrogen management decisions. **With the confidence of real-time data on their nitrogen performance, they can address nutrient issues before they create significant yield losses.**



August 2 Yield Forecast map indicating approximately 210 bu/ac in nitrogen-deficient zones and 230 bu/ac in the healthier areas of the field.

