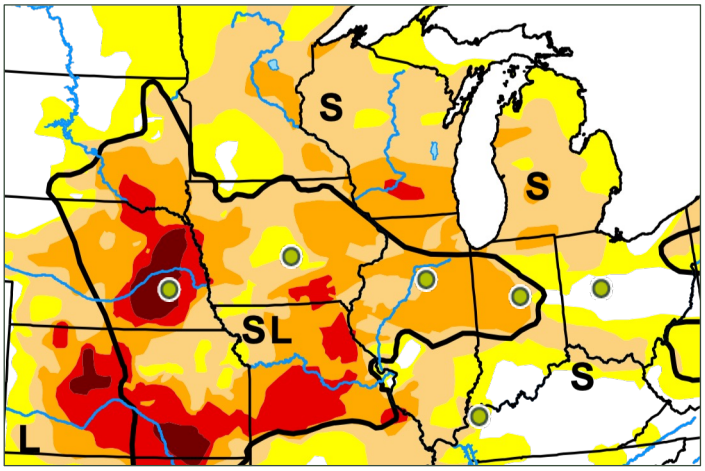
PIVOT BIO

OUR TAKE | on the 2023 Beck's PFR Study

In a year marked by extreme water scarcity, Beck's 2023 evaluation of Pivot Bio PROVEN® 40 offered an opportunity to assess our products under a range of difficult conditions. The map below shows a snapshot of the drought the U.S. faced last year, against the locations of the trials. Of these, the only location that was under irrigation was in Nebraska.

U.S. Drought Monitor



July 4, 2023
(Released Thursday, Jul. 6, 2023)
Valid 8 a.m. EDT

Trial Site Locations

Drought Impact Types:

Delineates dominant impacts

S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

Pivot Bio's Analysis

- **PROVEN® 40 delivered on yield:** The Nebraska trial, which was irrigated, resulted in a yield advantage for corn grown with PROVEN® 40 and reduced nitrogen application. It also found a significant ROI advantage, showcasing the effectiveness of PROVEN 40.
- **PROVEN® 40 delivered consistent increase in biomass:** Findings indicate that PROVEN® 40 added nitrogen to the plant earlier in the season, leading to more biomass and nitrogen capture, and delivering on our product's promise.
- **Drought conditions impacted nitrogen uptake:** Most sites experienced drought, limiting the corn's ability to fully utilize the added nitrogen, which is a critical factor in assessing yield potential.
- **Inconsistencies at the Ohio site led to unreliable results:** Variability in plant populations at this site highlights the importance of maintaining consistent stand counts on research plots. The data discrepancies here suggest a need to reevaluate the Ohio site's results.
- **Improved nitrogen management practices led to improved synthetic N performance:** The nitrogen application pattern used in the study (one-third at planting, two-thirds side-dress) is efficient but atypical.
  Such efficient nitrogen use may reduce the observable impact of our microbes, which is a significant consideration in interpreting the results.

KEY TAKEAWAY

In these trials, Pivot Bio PROVEN® 40 delivered more nitrogen and resulted in larger plants. The lack of available water at most of these locations likely limited other nutrient uptake, and highly efficient nitrogen application practices led to less synthetic loss than would have been expected under typical conditions.

OUR ACTIONS

Enhanced Evaluation of Specific Soil Types: We are intensifying the assessment of microbe performance, particularly focusing on soils with high clay and high magnesium (Mg) content.

Development of Versatile Microbes: We plan to explore microbes that are more versatile under hot and dry conditions.

Exploration of Synergistic Partner Products: We are investigating potential partner products that could enhance the consistency and efficacy of our existing solutions, especially under drought conditions.

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Q&A

Why is Pivot Bio responding to the 2023 Beck's PFR Study?

As a company dedicated to advancing agriculture, we believe it's crucial to discuss significant industry studies and doing so is an integral to Pivot Bio's commitment to transparency and scientific integrity. By proactively addressing the study's outcomes, we aim to provide our growers with clear, informed insights, helping them understand the implications of the findings for their farming practices. Our focus on the study underscores our dedication to ensuring our customers have the best possible information and support to use our products effectively.

Were there any inconsistencies in the study?

Yes, the Ohio trial faced some inconsistencies, particularly in stand-count variability, which affected the reliability of its results.

What's the importance of the biomass and nitrogen-uptake findings?

The consistent increase in biomass and nitrogen uptake across sites suggests that PROVEN® 40 delivers on its promise, supplying nitrogen to the crop when it needs it most.

How does Pivot Bio use these study results?

Pivot Bio places immense value on both external and internal studies to enhance our knowledge base. By considering a broad spectrum of research, we gain a comprehensive view of how our products interact with various environmental factors. This holistic approach enables us to refine our formulations continuously and adapt our recommendations to align with the specific needs and challenges faced by farmers. As a result, we ensure our solutions are robust, enabling growers to maintain yields, even in the face of uncertainty.

What impact did drought conditions have on the study's outcomes?

Drought conditions significantly influenced the study's outcomes in a few key ways. First, we observed the presence of in-plant nitrogen, which suggests that our microbes remained active despite the drought. However, their ability to fix nitrogen was limited under the conditions. Additionally, the importance of potassium (K) in mitigating drought stress and aiding in nitrogen uptake was accentuated, particularly in states like Kentucky and Ohio.