

Use Case

Optimizing Soybean Profitability Through Phosphorus Efficiency

How reducing chemical fertilizer by 25% actually increased yield and ROI

In 2025, Riverbend Ag (Haynes, Arkansas) conducted a trial to challenge the "more is better" approach to fertilization in soybean production. By integrating Rootella® (Arbuscular Mycorrhizal Fungi), the farm aimed to maintain, or even increase soybean yields while significantly reducing Monoammonium Phosphate (MAP) inputs.

The Challenge Rising Costs, Hidden Nutrients

Traditional soybean farming relies on high rates of phosphorus (P), much of which becomes "locked" in the soil. Riverbend Ag sought to:

- 1. **Lower chemical input** costs without sacrificing yield.
- 2. **Boost natural nutrient uptake** through biological synergy.

The Solution Mycorrhizal Inoculation

Mycorrhizal fungi expand the root surface area, allowing plants to access phosphorus and micronutrients more effectively, even when fertilizer rates are lowered.

A trial on soybeans compared three distinct strategies to find the "sweet spot" of efficiency:

- **Standard Program:** 100 lb/acre MAP fertilizer.
- **Rootella Add-on:** 100 lb/acre MAP + Rootella.
- **Optimized Strategy:** 75 lb/acre MAP (25% reduction) + Rootella.

Results: Boosting Margins through Mycorrhizal Efficiency

The data from the combined trials showed that the "Optimized Strategy" (Reduced P + Rootella) was the clear winner in both productivity and profitability.

