

BiOWiSH® Fertilizer Enhancement

OUR PRODUCT ECONOMICS

BiOWiSH® is a blend of proprietary microbial cultures that is applied to fertilizer to create a new class of Enhanced Efficiency Fertilizer (EEF). This treatment option, applied by your trusted fertilizer supplier, is coated onto dry fertilizer or mixed with liquid fertilizer to improve nutrient use efficiency.

ADVANTAGES

- Arrives on-farm, ready-to-use — no fermenting, special equipment or mixing required
- Consistent performance across a broad range of crops, climates, soil types, and management practices
- Proven, reliable approach using root associated pathway to enhance beneficial microbes in the rhizosphere
- Superior value at an input cost that makes sense for cereal grain farmers

ECONOMIC METRICS EXAMPLE

BiOWiSH tracks economic results for all replicated trials that we conduct including both replicated, third party research trials and on-farm demo trials. Using fertilizer and BiOWiSH® as input costs, and crop values at the time of the study, we can estimate the net income for each treatment. The difference between the net income for the BiOWiSH® treatment and the Control represents the profit change afforded by the BiOWiSH® EEF. In the example below, the yield potential increase realized from sixteen Midwestern USA on-farm, corn demonstration trials using BiOWiSH® Enhanced Fertilizer led to an average profit increase of \$58 per acre over a standard fertility program.

TABLE 1. YIELD AND NET INCOME TABLE

Treatment	Yield bu/acre [MT/ha]	Yield Increase bu/acre [MT/ha]	Yield Increase (%)	Net Income USD/acre [USD/ha]	Profit Change USD/acre [USD/ha]
Control	180 [11.29]	-	-	850 [2100]	-
Control + BiOWiSH®	191 [12.01]	11 [0.72]	6.0	908 [2244]	58 [144]

*Calculations for conversions between imperial and metric units are based on the original source data; slight rounding differences may occur within reported publication values.

**Net income is the crop value minus the fertility program cost. It does not account for non-fertility expenses.

***Profit change is the difference between net income of the respective program and the Control.

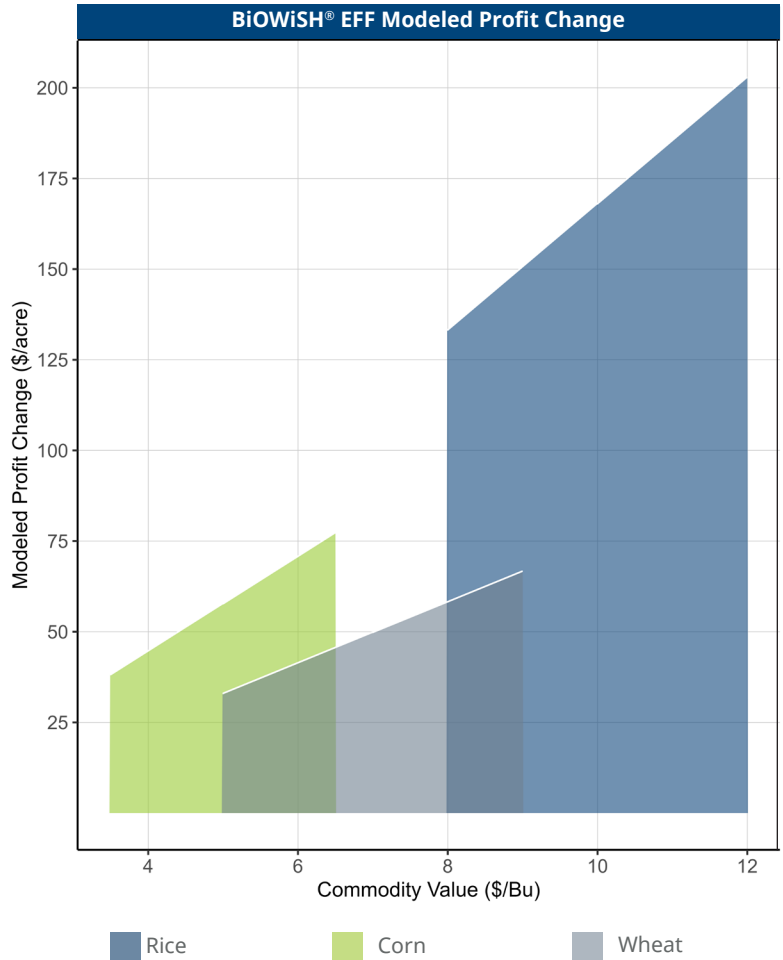
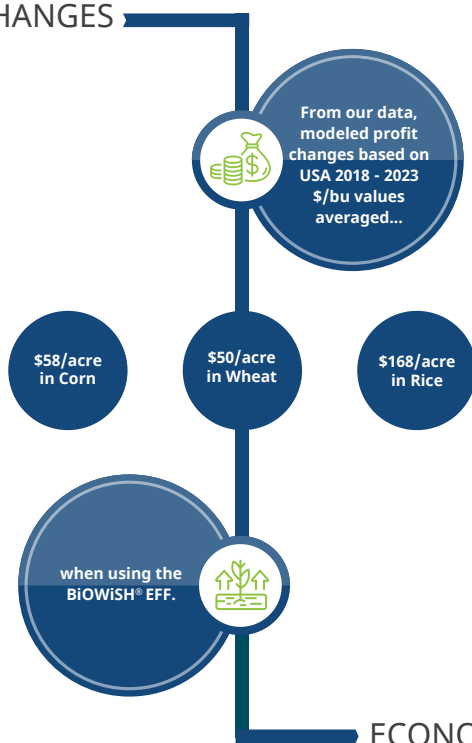
PROFIT TRENDS ACROSS MAJOR CEREAL CROPS

Meta analysis of profit change results for replicated cereal grain studies of the BiOWiSH® EEF on urea (see our Technical Bulletin to explore additional carriers), over Control treatments, are presented on the right.

Using USA 5-year (2018-2023) commodity value ranges (\$/bu), we modeled profit changes per acre for three major cereal crops based on yield and fertility program input cost data from our large database of replicated trials.

To get a sense of potential profit per acre from the BiOWiSH® EEF, use the Commodity Value in \$/bu (x-axis) within each crop to trace the Predicted Profit Change (\$/acre) on the y axis for each crop.

PROFIT CHANGES



ECONOMIC RELEVANCE

Based on modeled results from prior studies across many combinations of climate, soil type, and management practices, the BiOWiSH® EEF can lead to improved profits on a per acre basis over a range of commodity values. Using the predictive model for corn, an average profit increase of \$58/acre over a standard fertility program equals **\$116,000 total profit** for a 2,000 acre farm.

PERFORMANCE RESULTS

Meta analysis of more than 200+ independent, replicated field research trials, as well as comparisons with on-farm trial performance in the corn example on the first page, together support the performance and economic sensibility of the BiOWiSH® EEF across a variety of crops and environments. Visit biowishtech.com/resources or scan the QR code to view our research and case studies for more economic insights.

DISCLAIMER: Since Control and Control + BiOWiSH® EEF treatments use the same amount of urea in these studies, modeled profit changes are independent of the urea price. Profit change variation within a crop is therefore driven by differences in yield between treatments, the commodity value, and the price of the BiOWiSH® Fertilizer Enhancement. This modeling serves as a guide based on prior research and is not a guarantee of future outcomes. This applies to all data and examples above.

