

BiOWiSH[®] Crop Liquid

Evaluation of BiOWiSH[®] Crop Liquid on Corn Production



Executive Summary

BiOWiSH Technologies partnered with a leading global fertilizer manufacturer to determine the effects of BiOWiSH[®] Crop Liquid coated onto urea as an Enhanced Efficiency Fertilizer (EEF) on corn production. The case study took place at a commercial farm in the Goulburn Valley of Northern Victoria, Australia, and used the common regional fertility program as the Control.

This trial compared two treatments:

- Control, Standard Fertility Program (Urea + SLTEC SS 10-14-0+0.7 Zn + MAP)
- Control + BiOWiSH[®] Crop Liquid

This study determined that the addition of BiOWiSH[®] Crop Liquid optimized yield potential by improved nutrient uptake in corn. In this trial, a 6.8% yield increase was observed for the BiOWiSH[®] treatment over the Control Fertility Program.

Background

About BiOWiSH Technologies

Headquartered in Cincinnati, Ohio, BiOWiSH Technologies, Inc. is a global provider of biotechnology solutions. As a leader in the agricultural market, we help farmers increase crop production sustainably, safely, and cost effectively. Our revolutionary BiOWiSH[®] Crop Liquid is a blend of proprietary microbial cultures that can be coated onto dry fertilizer or mixed with liquid fertilizers to create an enhanced efficiency fertilizer. BiOWiSH[®] endophytic *Bacillus* deliver soil nutrients to crops through the rhizophagy cycle creating a symbiotic relationship between the plant and soil microbes. This helps farmers achieve consistent results across a broad range of operating conditions, climates, and environments. By unifying nature and science, BiOWiSH reinvents the way food is grown. For more information, visit biowishtech.com.

BiOWiSH[®] Crop Liquid



- Optimizes yield potential by improved nutrient uptake
- Increases nutrient use efficiency and supports nutrient uptake
- Optimizes soil conditions for greater root mass
- Improves soil conditions for increased plant vigor
- Enhances beneficial microbes in the rhizosphere

Available Size

- 264 gal/1000 L

Objectives

The purpose of this on-farm demo trial was to evaluate the performance of BiOWiSH® Crop Liquid coated onto urea as an Enhanced Efficiency Fertilizer (EEF) for corn, as part of a standard fertility program, compared to the Control. The evaluation focused on corn yield and economic benefits for the farmer.

Implementation Program

The study was a side-by-side farm demonstration for grain corn planted in Northern Victoria, Australia. The Control used the standard regional fertility program of 300 kg/ha (268 lbs/acre) of urea applied three days before planting. Additionally, 30 L/ha (12.8 qt/acre) of SLTEC's SS 10-14-0+0.7 Zn fertilizer and 200 kg/ha (178 lbs/acre) of MAP fertilizer was applied at planting.

The BiOWiSH® Crop Liquid was coated onto the urea at the manufacturers recommended rate prior to the application. All other fertility applications matched the Control.

Table 1. Fertilizer, Treatments, and Application Timing

Treatment	Fertilizer	Application Rate Metric [Imperial]	Application Phase
Control	Urea	300 kg/ha [268 lbs/acre]	Pre-Plant
	SLTEC SS 10-14-0+0.7 Zn	30 L/ha [12.8 qt/acre]	At Planting
	MAP	200 kg/ha [178 lbs/acre]	At Planting
Control + BiOWiSH® Crop Liquid	Urea	300 kg/ha [268 lbs/acre]	Pre-Plant
	SLTEC SS 10-14-0+0.7 Zn	30 L/ha [12.8 qt/acre]	At Planting
	MAP	200 kg/ha [178 lbs/acre]	At Planting

*BiOWiSH® Crop Liquid used at manufacturer's recommended rate.

Results

BiOWiSH® Crop Liquid, when added to a regional standard fertility program as a fertility enhancement coated onto urea by the fertilizer supplier for corn, increased grain yield by 6.8% (0.77 MT/ha, 0.34 tons/acre) over the Control treatment. This increase in grain production led to a profit change of \$172 USD/ha (\$69 USD/acre) based on input cost and crop values at the time of the study.

Table 2: Yield and Net Income Table

Treatment	Yield MT/ha [tons/acre]	Yield Increase MT/ha [tons/acre]	Yield Increase (%)	Net Income USD/ha [USD/acre]	Profit Change USD/ha [USD/acre]
Control	11.30 [5.04]	-	-	2487 [1007]	-
Control + BiOWiSH® Crop Liquid	12.07 [5.38]	0.77 [0.34]	6.8	2659 [1076]	172 [69]

*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.

Conclusion

BiOWiSH® endophytic *Bacillus* deliver soil nutrients to crops through the rhizophagy cycle creating a symbiotic relationship between the plant and soil microbes. This enabled optimized yield potential by improved nutrient uptake, which led to profit changes of \$172 USD/ha (\$69/acre) in this study.



BiOWiSH® is a registered trademark of BiOWiSH Technologies International, Inc.

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