

BiOWiSH® Crop Liquid

Evaluation of BiOWiSH® Crop Liquid on Yield in Sweet Corn



Executive Summary

BiOWiSH Technologies, Inc. partnered with a leading global fertilizer manufacturer and engaged Agreco Australia as a third-party Contract Research Organization (CRO) to conduct a study to determine the effects of BiOWiSH® Crop Liquid enhanced fertilizer on sweet corn production in Queensland, Australia.

Sweet corn refers to the varieties of maize that are sweet tasting and grown for human consumption. It is grown in most of the states in Australia and the planted acreage exceeds 5,000 hectares. The ears of corn are used in fresh food market and processing. The Nitrogen (N) requirement of the crop is high with N removal exceeding 300 kg/ha.

The trial compared three treatments:

- 100% Urea (Control)
- 100% Urea (Control) + BiOWiSH® Crop Liquid
- 90% Urea (Reduced Control) + BiOWiSH® Crop Liquid

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 can be coated onto dry fertilizer or mixed with liquid fertilizer to create an enhanced efficiency fertilizer that optimizes yield potential, expresses plant vigor and improves soil productivity 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
- Increases nutrient availability
- Enhances root development
- Improves plant vigor
- Enhances native microbial activity in the soil
- Improves soil productivity

Available Sizes

- 50 gal/190 L
- 264 gal/1000 L

About Agreco Australia

Agreco Australia is an independent agronomic research and consultancy firm located in Bundaberg, Queensland. They offer clients tailored agronomic research, technical advice and practical solutions to ensure the best possible outcomes through accurate and confidential agronomic research.

Objectives

The objective of this research study was to determine the effects of BiOWiSH® Crop Liquid technology, manufactured in the USA by BiOWiSH Technologies, Inc., on sweet corn production when added to a fertility program common to the production area in 100% and 90% application rates. The coated urea was applied at planting as well as later in the season as a side dress application. The focus was on BiOWiSH® Crop Liquid's impact on yield and grower economics.

Implementation Program

A replicated field trial with six replications was conducted at a dedicated research facility in Bundaberg, Queensland. Applications of urea were applied twice during the growing season, including banded urea application at pre-plant followed by a sidedress fertilizer application four weeks after planting. The trial was planted using the Overland R variety at a planting density of 133,333 plants per hectare (53,980 plants/acre). The plot size was 21m². Recommended disease and insect control practices were followed to minimize outside influences on yield.

In this trial, the common regional fertility program included the standard rate of 235 kg/ha (210 lbs/acre) split over two applications. This program was compared to the same program with BiOWiSH® Crop Liquid as well as a reduced fertility program with a rate of 212 kg/ha (189 lbs/acre).

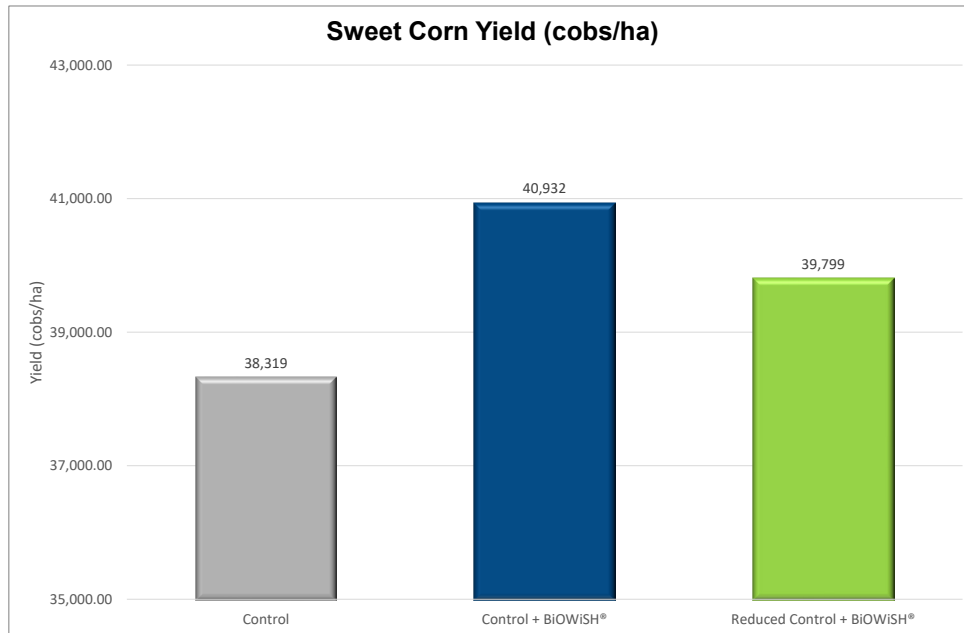
Treatment	Application Rate kg/ha [lbs/acre]	Application Phase
100% Urea (Control)	175 [156]	Banded at planting
	60 [54]	Sidedress
100% Urea (Control) + BiOWiSH® Crop Liquid	175 [156]	Banded at planting
	60 [54]	Sidedress
90% Urea (Reduced Control) + BiOWiSH® Crop Liquid	158 [141]	Banded at planting
	54 [48]	Sidedress

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

Results

Yield

The BiOWiSH® treatment showed an increased yield of 2,613 cobs/ha (1,057 cobs/acre) over the Control, and also showed an increased yield of 1,480 cobs/ha (599 cobs/acre) in the reduced rate urea.



Economics

BiOWiSH® Crop Liquid enhanced fertilizer had a strong impact on yield when applied with the full rate of urea resulting in a significant yield increase of 6.8% for the BiOWiSH treatment. This increase improved the net income by \$278 USD/ha (\$112 USD/acre) for the farmer without any additional input other than the BiOWiSH® product. In addition, when applied to the Reduced Control, the yield still increased by 3.9% with a net income of \$167 USD/ha (\$68 USD/acre).

Treatment	Yield cobs/ha [cobs/acre]	Yield Increase cobs/ha [cobs/acre]	Yield Increase (%)	Net Income USD/ha [USD/acre]	Profit Change USD/ha [USD/acre]
100% Urea (Control)	38,319 [15,507]	-	-	4,035 [1,476]	-
100% Urea (Control) + BiOWiSH® Crop Liquid	40,932 [16,565]	2,613 [1,057]	6.8	4,313 [1,578]	278 [112]
90% Urea (Reduced Control) + BiOWiSH® Crop Liquid	39,799 [16,106]	1,480 [599]	3.9	4,202 [1,538]	167 [68]

*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® coated urea was evaluated on a crop of sweet corn. The study determined that the BiOWiSH® Crop Liquid enhanced fertilizer program significantly increased yield over the Control by 6.8%, and it also increased yield by 3.9% in the Reduced Control treatment. The improved significant yield increased profitability by \$278 USD/ha (\$112 USD/acre) over the Control and by \$167 USD/ha (\$68 USD/acre) in the Reduced Control, demonstrating the addition of BiOWiSH® Crop Liquid to the common regional fertility program offers a significant return on investment opportunity to the farmer.



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

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