

## BiOWiSH® Crop Technology

### BiOWiSH® Crop Additive Increases Bok Choy Yield In Dong Nai Province, South Vietnam



#### Executive Summary

The Vietnam National Field Fertilizer Testing Department conducted a study to test the effect of BiOWiSH® Crop Liquid Green Choice coated urea on bok choy production in Vietnam. The trial used today's farming standard (urea fertilizer) as the control. It was then compared to two treatments: the control coated with BiOWiSH® Crop Liquid Green Choice and a reduced control, coated with BiOWiSH® Crop Liquid Green Choice. In both cases, the BiOWiSH® treatments resulted in increased yield, leading to higher profits.

#### Background

Vietnam is a highly agrarian country with rich alluvial deltas and mountainous areas, each with distinct soil types. BiOWiSH Technologies has conducted a series of trials on numerous crops in Vietnam to illustrate the effectiveness of BiOWiSH® coated urea and NPK fertilizers. The research in Vietnam is supported by additional research that has been conducted in other countries which also resulted in increased yields and profitability for farmers. This is the second study in a series of studies done on bok choy in Vietnam. All studies can be found online at [biowishtech.com](http://biowishtech.com).

BiOWiSH® Crop Liquid Technology increases nutrient uptake in plants, improves plant vigor, stimulates microbial activity in the soil, and promotes root development. BiOWiSH® Crop Liquid Technology is proven to enhance the effects of applied fertilizers by increasing yield and soil productivity.

#### Objectives

BiOWiSH Technologies engaged the National Field Fertilizer Testing Department in Vietnam to measure yield of bok choy when fertilized with BiOWiSH® Crop Liquid Green Choice coated urea (46-0-0). The study was conducted in the Dong Nai Province of South Vietnam.

#### BiOWiSH® Crop Liquid Green Choice



- Improves crop yields
- Increases nutrient availability
- Enhances root development
- Improves plant vigor
- Stimulates native microbial activity in the soil
- Improves soil productivity

#### Available Sizes

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

## Implementation

This study was conducted in alluvial soil in a typical field. It compared the farmer's normal fertilizer management program using standard urea (Control), standard urea coated with BiOWiSH®, and a reduced rate of standard urea coated with BiOWiSH®. Pest and disease management techniques were independent. Costs and yields were evaluated to determine how the addition of BiOWiSH® to the fertilizing program increased the farmer's yield and revenue. The study had a randomized plot layout with four replicates. The rates of fertilizers applied for each treatment are detailed in the tables below.

Treatment	First Application (3-5 days after transplanting)		Second Application (7 days after transplanting)	Third Application (15 days after transplanting)		
	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]
	Urea	Super Phosphate	KCl+MgO & S+B <sub>2</sub> O <sub>3</sub>	Urea	Super Phosphate	KCl+MgO & S+B <sub>2</sub> O <sub>3</sub>
100% Urea (Control)	103.8 [116.4]	173.9 [194.9]	73.7 [82.6]	103.8 [116.4]	165.2 [185.2]	73.7 [82.6]
100% Urea + BiOWiSH®	103.8 [116.4]	173.9 [194.9]	73.7 [82.6]	103.9 [116.4]	165.2 [185.2]	73.7 [82.6]
90% Urea + BiOWiSH®	93.5 [104.8]	173.9 [194.9]	73.7 [82.6]	93.5 [104.8]	165.2 [185.2]	73.7 [82.6]

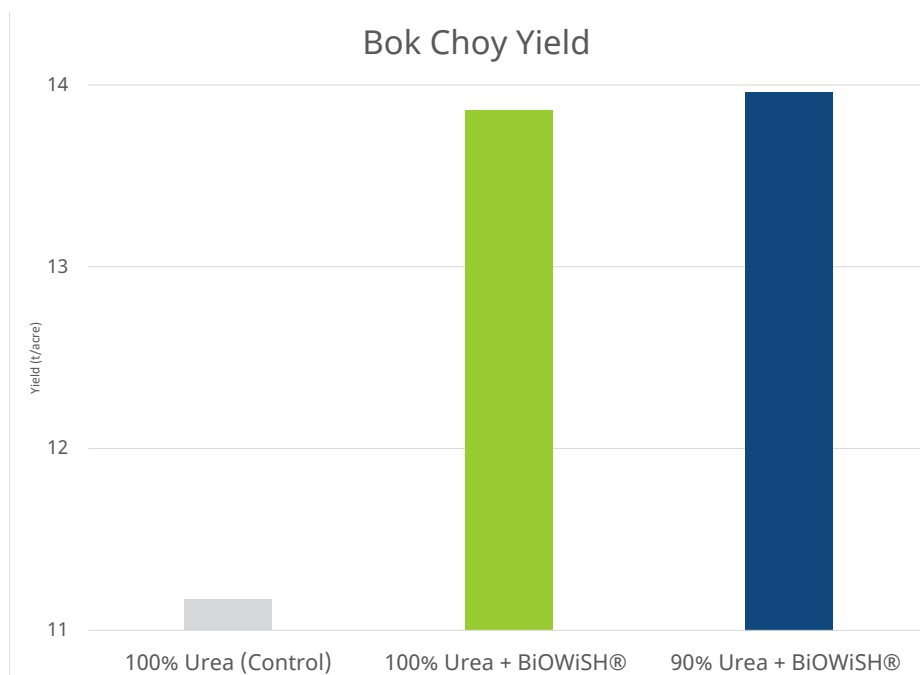
Treatment	Total Fertilizer for the Whole Season			Total NPK for the Whole Season		
	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]	lb/acre [kg/ha]
	Urea	Super Phosphate	KCl+MgO & S+B <sub>2</sub> O <sub>3</sub>	N	P	K
100% Urea (Control)	207.7 [232.8]	339.1 [380.1]	147.3 [165.1]	95.6 [107.2]	23.6 [26.5]	46.4 [52.0]
100% Urea + BiOWiSH®	207.7 [232.8]	339.1 [380.1]	147.3 [165.1]	95.6 [107.2]	23.6 [26.5]	46.4 [52.0]
90% Urea + BiOWiSH®	186.9 [209.5]	339.1 [380.1]	147.3 [165.1]	86.0 [96.4]	23.6 [26.5]	46.4 [52.0]

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

P and K units are calculated as elemental phosphorus and elemental potassium.

## Results

The BiOWiSH® treatment increased bok choy yield and profitability in Dong Nai Province.



Treatments	Yield Ton/acre [mT/ha]	Yield Increase Ton/acre [mT/ha]	Yield Increase %	Net Income Gain %	Profit Change USD/acre [USD/ha]
100% Urea (Control)	11.2 [25.1]	-	-	-	
100% Urea + BiOWiSH®	13.9 [31.2]	2.7 [6.1]	24.1	24.1	\$638 [\$1576]
90% Urea + BiOWiSH®	14.0 [31.4]	2.8 [6.3]	25.0	25.1	\$666 [\$1645]

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

## Conclusion

This bok choy research study demonstrates that the application of urea coated with BiOWiSH® Crop Liquid Green Choice increased farmers' yield and net income gain by up to 25% when compared to the standard fertilizer program in this region.



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