

BiOWiSH® Crop Technology

Chesapeake Greenhouse LLC Maryland, USA

Background

BiOWiSH® was tested by John Maniscalco at his Chesapeake Greenhouse LLC lettuce hydroponic farm in Maryland, USA.

The greenhouse consists of eight bays, 128 ft by 22 ft. Many varieties of lettuce, including Bibb lettuce, are grown on Nutrient Film Technique (NFT) tables. The total capacity of the greenhouse is 34,920 plants. The greenhouse NFT tables are irrigated with water circulated through two 1,700 gallon tanks with each serving 4 of the 8 bays.

A typical lettuce growing cycle takes 5 to 6 weeks, depending on season and weather conditions. Minimum Bibb lettuce weight to market is 4.0 oz.



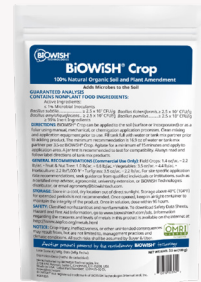
Bibb lettuce on Nutrient Film Technique (NFT) growing system

Existing Hydroponic Nutrient System

In addition to standard nutrient solution mix, the following growing conditions are maintained in the greenhouse as the typical management practice:

Electrical Conductivity	1.9 (mS/cm)
Temperature	65 (°F) / 18 (°C)
Humidity	75 (%)
pH	5.8 (S.U.)

BiOWiSH® Crop



- Optimizes yield potential
- Increases nutrient availability
- Enhances root development
- Improves plant vigor
- Enhances native microbial activity in the soil
- Improves soil productivity

Available Sizes

- 100 g/3.5 oz
- 1 kg/2.2 lbs
- 5 kg/11 lbs
- 10 kg/22 lbs

Implementation

On a daily basis, BiOWiSH® was added directly into one of the irrigation tanks serving half of the bays or 17,460 plants. In addition to the typical management practice, BiOWiSH® was added at a concentration near 10 ppm, or 50 grams per day. The “control” irrigation tank also serves 17,460 plants and was operated under typical practices for comparison purposes. The total BiOWiSH® cost of each fully grown lettuce was approximately \$0.01.

Growth Observations

The implementation of BiOWiSH® into the fertility program reduced the required time to produce a market crop by over 10% from 37 days to 33 days. The impact of this production time saving results in an additional crop rotation for each bay per year.

Since the original BiOWiSH® trial and supplementary trial at his facility, John Maniscalco has instituted BiOWiSH® as a routine addition to his general management practice to improve profit. His observations and resulting comments include “the BiOWiSH® treated plants had tighter heads, a noticeable difference in vigor and better overall appearance.”

Implementation Outcomes

BiOWiSH® treated lettuce were:

- Harvested more regularly
- Improved vigor
- Improved production economics
- Increased palatability
- More vibrant
- Thicker and more consistent



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