

## Broad Acre Crops

### Center for Applied Horticultural Research, California, USA

*“BiOWiSH™-Crop could result in a higher return on investment for growers”*  
- Center for Applied Horticultural Research

#### Background

The Center for Applied Horticultural Research (CfAHR) undertook a research project to look at the impact of BiOWiSH™-Crop on tomato plants grown in a commercial nursery.

The CfAHR is a non-profit organization that researches issues the facing the nursery and floriculture industries. Based in Vista, California, the CfAHR aims to answers problems commercial growers and the green industry deal with on a daily basis.

#### Objectives

The CfAHR evaluated the ability of BiOWiSH™-Crop to improve plant growth and shorten the time it takes for ‘Beefsteak’ tomato plants to mature under commercial nursery conditions

#### Solution

BiOWiSH™-Crop was chosen because of its proven ability to increase micronutrient uptake in plants, improve plant vigor and stimulate microbial activity in the soil. Growers, distributors and institutions have reported that using BiOWiSH™-Crop improves yields and fruit quality, adding directly to the farmer’s bottom line.

#### Implementation Program

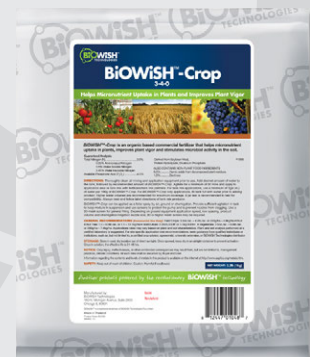
The independent study was conducted at the CfAHR’s climate controlled greenhouse in California. Three groups of tomato ‘Beefsteak’ seeds were planted. The control group received a traditional fertilizer combination. The second group received the traditional fertilizer combination along with BiOWiSH™-Crop. The third group received 80% of the traditional fertilizer combination along with BiOWiSH™-Crop.

#### BiOWiSH™-Crop

- Improves yields
- Improves plant vigor
- Increases total number of crops per annum
- Increases nutrient availability to plants
- Stimulates microbial activity in the soil
- Accelerates crop residue decomposition

#### Available Sizes

- 100g/3.5oz
- 1kg/2.2lb
- 5kg/11lb



## Results

After five weeks, 94% of the plants receiving BiOWiSH™-Crop plus 100% fertilizer and more than 83% of the plants receiving BiOWiSH™-Crop plus 80% fertilizer were ready for transplant. In the control group, just 66% of the plants were ready for transplanting.



Control

80% Fertilizer +  
BiOWiSH™-Crop

100% Fertilizer +  
BiOWiSH™-Crop

In addition to the shorter growing times, plants treated with BiOWiSH™-Crop were taller, wider and had higher growth index and stem diameter than plants receiving fertilizer only; they also had higher shoot fresh weight than plants receiving fertilizer only.

| Treatment                       | Height (cm) | D1 (cm) | D2 (cm) | Growth Index | Stem Diameter (cm) |
|---------------------------------|-------------|---------|---------|--------------|--------------------|
| Control                         | 12.4        | 23.2    | 19.0    | 16.8         | 4.6                |
| 80% Fertilizer + BiOWiSH™-Crop  | 15.3        | 25.0    | 19.3    | 18.7         | 4.9                |
| 100% Fertilizer + BiOWiSH™-Crop | 15.5        | 26.8    | 22.3    | 20.0         | 5.0                |

## Conclusion

The CfAHR study proves that BiOWiSH™-Crop increases growers' profits and that the cost of implementing BiOWiSH™-Crop is offset by the high return on investment. The group receiving 100% fertilizer plus BiOWiSH™-Crop proved to be the best program overall with an additional annual gross profit of \$49,121 per acre over the control group. On the other hand, the group receiving 80% fertilizer plus BiOWiSH™-Crop had the same cost as the control group but generated an additional gross profit of \$35,640 per acre..

| Treatment                       | % Ready to Transplant | Estimated Rotations per year | Annual gross profit per acre over Control* |
|---------------------------------|-----------------------|------------------------------|--|
| Control                         | 66.7                  | 8.5                          | \$0.00                                     |
| 80% Fertilizer + BiOWiSH™-Crop  | 83.3                  | 9.5                          | \$35,640                                   |
| 100% Fertilizer + BiOWiSH™-Crop | 94.4                  | 10.5                         | \$49,121                                   |

\*Annual gross profit based in California price per plan, average plant population per acre, and percent ready to transplant. Note: The number of rotations is for tomato plants evaluated for transplant maturity, not for retail shipping size which requires less maturity.

## Contacts

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