

Guarantee® Hi K

Seaweed Extract

Improves Yield, Return per Acre, Fruit Size and Weight in Bell Peppers

Guarantee® Hi K Seaweed Extract Produces Significant Increases in Bell Pepper:

- Yield
- Weight
- Circumference
- Total return per acre

Guarantee® Hi K is approved for organic use.

“It should be noted that the grower was impressed with the results he observed in the field as well as the results he saw in terms of yield and quality of the bell peppers in the packing house.”

– West Coast Research, final report



STUDY DESIGN

Bell peppers were grown on plastic mulch covered beds on 60-inch centers. Nine beds/plot (1.29 acres) were treated with three successive foliar applications of Guarantee® Hi K at 1 quart (“Low” rate) and 2 quarts/acre (“High” rate). Both the “Low” and “High” rate foliar

plots were pretreated with 2 qt/acre applied in the water of the first irrigation after transplanting. The total size of the trial area is 15.5 acres.

The cooperating grower was provided with product and treatment supervision:

- Guarantee® Hi K was injected thru the drip system at 2 quarts/acre on a 20-acre block at first subterranean irrigation after planting. “Control” or “Grower standard” rows were plugged during the irrigation and not treated with Guarantee® Hi K.
- Guarantee® Hi K at each rate was applied via foliar spray application at each of three selected intervals that coincided with the grower’s standard treatments.

RESULTS

Modified from report written by Rusty Sarrett and West Coast Research team.

Yield

Table 1: Guarantee® Hi K treatments increased yield and value/acre.

Treatment(s) rate: GTE Hi K*	Total GTE Hi K used in 3 foliar per acre	Total GTE Hi K used in irrigation per acre	Incremental yield cartons per acre**	Extrapolated incremental value/acre***
Control protocol: 0	0	0	0	0
Low rate protocol: 1 qt	3 qt	2 qt	71	\$1,420
High rate protocol: 2 qt	6 qt	2 qt	50	\$900

* Harvest of all plots was performed simultaneously, randomized preselected plants were harvested on a “first pick protocol.”

** Estimated from extrapolated yield per acre:

- 18,000 plants/acre (36,000 bell peppers/acre on first pick)
- 23 pounds/carton (heavier bell peppers = fewer bell peppers/carton = more cartons of bell peppers/acre)

*** Estimated from extrapolated yield per acre and one peak size increase/carton. Los Angeles average price/carton wholesale value June 28, 2018

- Total bell pepper yield from the “Low” rate Guarantee® Hi K protocol were extrapolated to be 71 additional cartons/acre compared to the “control” treatment. This resulted in an extrapolated incremental value/acre of \$1,420/acre.
- Total bell pepper yield from the “High” rate Guarantee® Hi K protocol were extrapolated to be 50 additional cartons/acre compared to “control” treatment. This resulted in an extrapolated incremental value/acre of \$900/acre.

CROP

On-Farm Bell peppers

STUDY OBJECTIVES

- To evaluate the effects of two rates of Guarantee® Hi K on peppers as compared to a grower standard program alone.
- To measure impact on yield, size, weight and plant height.

LOCATION/SCIENTISTS

Coachella Valley, CA

Investigator: Rusty Sarrett (PI),
West Coast Research

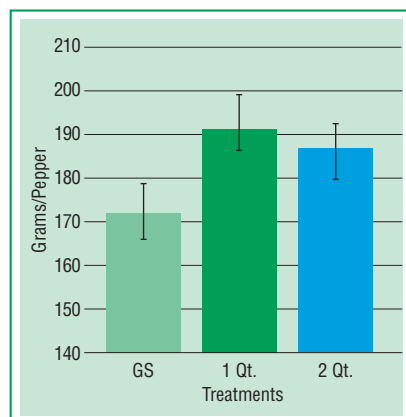
Study Director: Sarah Williams, Ph.D.,
Ocean Organics

Note: this document is a summary of the report provided by West Coast Research. For more details, contact Ocean Organics for a copy of the full report.

Continued

Fruit Weight

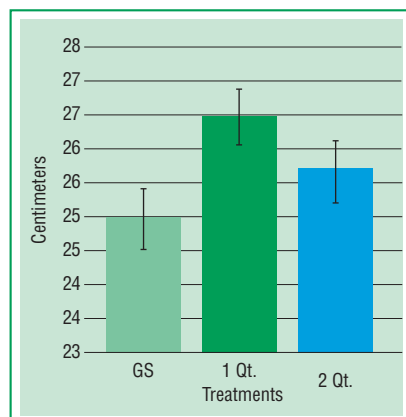
Figure 1: Weight of Peppers Compared to the Treatment Means. Guarantee® Hi K treatments statistically increased bell pepper weight.



- Bell pepper fruit weights in the “Low” rate Guarantee® Hi K were significantly higher than the “High” rate or “control” treatments.
- Bell pepper weights produced with the “High” rate Guarantee® Hi K protocol were significantly higher compared to the “control” treatment.

Fruit Circumference

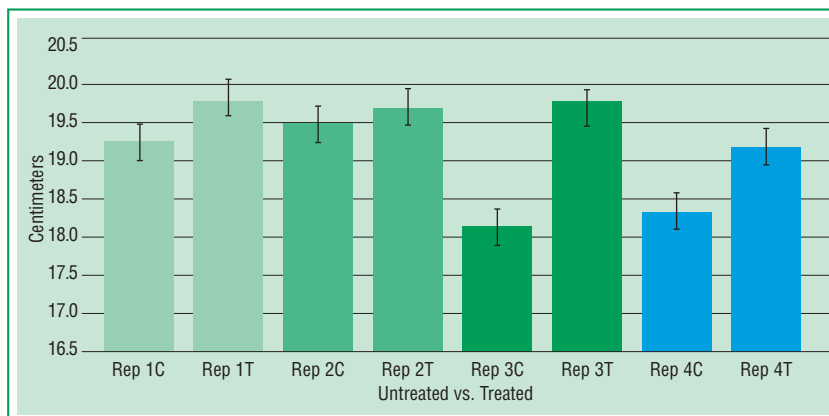
Figure 2: A Comparison of the Circumferences of Bell Pepper. Guarantee® Hi K treatments statistically increase bell pepper circumference.



- Bell peppers treated with “Low” rate protocol Hi K were significantly larger, based on measurement of circumference, compared to “High” rate or “control” protocol.
- Bell peppers treated with the “High” rate protocol was not significantly larger than “control” protocol.

Plant Height

Figure 3: Plant Height Comparison Chart. Guarantee® Hi K increased plant height in all treated reps (T) as compared to untreated checks (C).



- Plant height measurements taken at beginning of trial confirm that no differences in plant height were in effect at the start of the trial.
- Plant height was taken three weeks following treatment with 2 quarts/acre Guarantee® Hi K (C = Check, T = Treated).
- Treating the first irrigation water with Guarantee® Hi K (2 qt/acre) increased plant growth compared to the grower standard “control” (which was irrigated but not treated with seaweed).
- Additional note: Observations of “shade” produced under plant canopies did not reveal any differences on either of the treatment protocols.



Conclusions

- Extrapolation of yield data and size estimates suggest a significant economic benefit did result with both rates of the Guarantee® Hi K used in this trial.
- Bell peppers harvested from the “Low” rate protocol plots were significantly larger (size/circumference) than those treated with “control” or the “High” rate protocols.
- This trial indicates that pretreatment with Guarantee® Hi K (at 2 qt/acre) in the water of the first irrigation after transplanting, followed by 3 foliar treatments at 1 quart/acre is the preferred protocol.

Ocean Organics has been processing seaweed and formulating fertilizers for over 40 years. Our innovative processing technology yields products richer than others yet with fewer solids and lower viscosity. This means our extracts can be used with a broader range of materials with better blending, mixing and stability characteristics. Our seaweed-based fertilizers, plant health materials and soil conditioners lead the industry in quality, effectiveness, cost efficiency and environmental sustainability.



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