

Guarantee®

Seaweed Extract

Improves Yield, Weight, and Total Returns in Blueberries

Ocean Organics Guarantee® Seaweed Extracts produce statistically significant increases in blueberry:

- Yields
- Berry weight
- Total return per acre

With trends toward increase in Brix and lower incidence of storage rot.

CROP

Highbush blueberry
Variety: Duke

STUDY OBJECTIVES

Investigate the overall crop production enhancement provided by selected Ocean Organics products and the response in combination with a grower standard fertility program. Specifically:

- Monitor growth and production in blueberries treated with Ocean Organics' seaweed programs.
- Measure impact of seaweed programs on berry weight, sugar content (BRIX), shelf life, and storage rot incidence.
- Compare Ocean Organics' Guarantee to Guarantee Hi K.
- Compare foliar versus soil-drench applications.

LOCATION/SCIENTISTS

Centerville, MI

Investigator: William Kirk, Michigan State University

Study Director: Rob Shafer, Mid Michigan Agronomy; Sarah Williams, Ph.D., Ocean Organics.



DATA COLLECTED

Researchers measured the impact of Ocean Organics' Guarantee® seaweed extracts on yield, berry weight, sugar content (BRIX), shelf life and incidence of storage rot (%). Means followed by same letter or symbol do not significantly differ ($P=0.10$, LSD).

METHODS AND MATERIALS

Treatments included foliar applications of both **Guarantee** and **Guarantee Hi K** and a soil application of Guarantee Hi K.

Ocean Organics' seaweed treatments were compared to a Grower Standard without seaweed treatments. This trial was set up as a completely randomized block (RCB) design. Plots were 8 by 10 feet. Applications were made on April 10, May 1, May 21, May 28, and August 17 at 2 quarts/acre.

RESULTS AND DISCUSSION

Foliar applications of both Guarantee and Guarantee Hi K were made to evaluate whether the higher concentration of potassium in the Hi K would enhance performance in blueberries. In addition, a soil-applied treatment of Guarantee Hi K was added to the trial to compare whether foliar or soil application methods are more effective on blueberries.

Continued

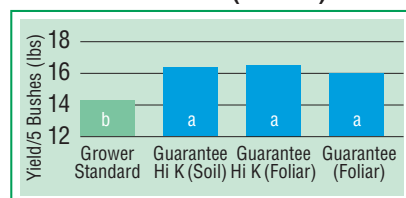
PRODUCTION DATA

Improved Yield

Both Guarantee and Guarantee Hi K statistically improved yield in blueberries. Data is shown from three harvest days.

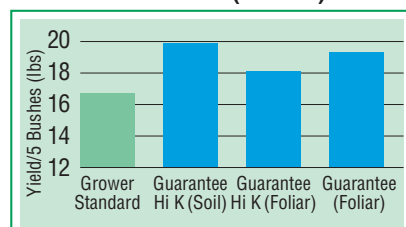
On June 30th, Guarantee and Guarantee Hi K statistically improved yield as compared to the grower standard. Both foliar and soil-applied methods of application were equally effective.

Yield Per 5 Bushes (6/30/16)



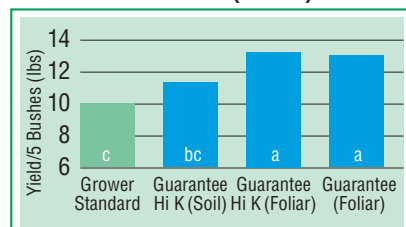
On July 14, all treatments numerically improved yield, but the data was not statistical.

Yield Per 5 Bushes (7/14/16)



On August 4, foliar treatments of Guarantee and Guarantee Hi K statistically improved yield compared to the grower standard. The soil-applied treatment of Guarantee Hi K numerically improved yield.

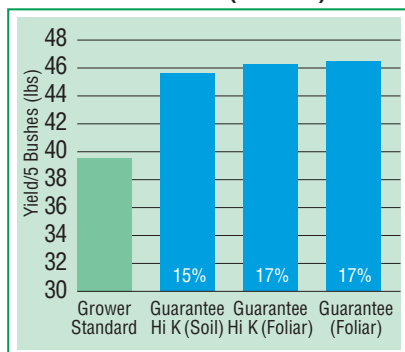
Yield Per 5 Bushes (8/4/16)



Combining the yield data for all three picks, total yield was computed for each treatment. As can be seen, **all three treatments increased overall production, as compared to the grower standard.**

Performance among treatments was similar, although foliar treatments did slightly outperform the soil-applied treatment statistically on one pick date (8/4/16, see previous chart).

Yield Per 5 Bushes (3 Picks)



In that region of Michigan, blueberries were priced at roughly \$1.50 to \$3.50 per pound (Mid Michigan Agronomy, personal communication). Using a conservative \$1.50 per pound estimate, **foliar treatments of Guarantee and Guarantee Hi K would have gained the grower roughly \$5,400 per acre.** **Soil-applied Guarantee Hi K treatments would have gained the grower roughly \$4,700 per acre.** This assumes a 208 ft. by 208 ft. acre, with rows containing bushes every 2 feet, and rows that are 8 feet apart. This does not take into account grower costs per acre. Ocean Organics treatment costs would be less than \$100/acre for all four applications made in the season.

Berry Weight

All treatments showed a trend of increasing berry weight. On July 14, all treatments showed numerically higher berry weight than the grower standard. On August 4, the foliar treatments of Guarantee Hi K and Guarantee statistically increased berry weight.

Weight per 100 Berries (lbs)

	Grower Standard	Guarantee Hi K (Soil)	Guarantee Hi K (Foliar)	Guarantee (Foliar)
6/30/16	0.24	0.22	0.24	0.24
7/14/16	0.23	0.26	0.27	0.25
8/04/16	0.21b	0.22b	0.25a	0.24a

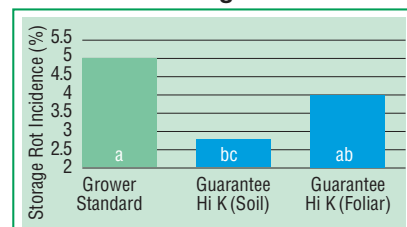
Sugar Content

Treatments did not statistically increase sugar content (Brix), however on multiple dates, there was a slight numerical trend of increased Brix with treatments. For example, on August 4, Brix for the Grower Standard was 10.9bc, whereas Brix for Guarantee (Foliar) was 11.25ab.

Storage Rot Incidence

Storage rot measurements were taken on July 7, July 21, and August 11. For each harvest, a subset of berries from each treatment was stored at 65° F for one week and then evaluated for storage rot. On July 7 and August 11, treatments and grower standard were in the same statistical grouping. However, on July 21, there were statistical differences. Guarantee Hi K treatments showed a lower incidence of storage rot.

Incidence of Storage Rot



Ocean Organics is a manufacturer of high performance, scientifically proven seaplant-extract based biostimulants, plant growth materials and granular fertilizers. Our state-of-the-art products contain unique and proprietary constituents. Founded in 1977, we are the developers and manufacturers of the Emerald Isle foliar fertilizers and biostimulants, now owned and distributed to professional turf and ornamental markets by Lebanon Turf Products. Our materials have been tested in over 25 universities and independent laboratories.



Ocean Organics®

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