BIOSHOT & BIOSHOT LITE BIOSTIMULANTS IN CABBAGE CROP IN NEW YORK, 2016

W.H. Palmer. Reality Research, New York.

A field trial was conducted in Reality Research, Lyons, New York, in order to evaluate the effects of the new biostimulants BioShot and BioShot Lite in fresh market cabbage (*Brassica oleracea var. capitata f. alb*) crop. The researcher who conducted the trial was W.H. "Butch" Palmer. Plots were 12 by 100 feet. Each biostimulant treatment was applied four times, at 3-4 weeks intervals, on June 23, July 14, August 4 and August 25, 2016. In each application, a rate of 2 fl. oz./ac. (146 ml/ha) was applied on leaves and soil with ground sprayer. The spray volume was 30 gallons per acre.

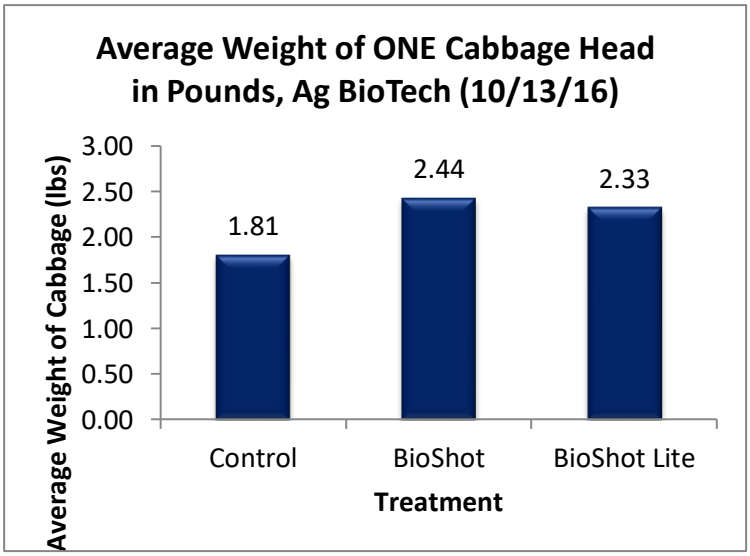
As you may see in the table and graphs, both biostimulants increased significantly yield and head weight by excellent 34% and 29% in BioShot and BioShot Lite, respectively, as well as head width and length, and showed similar trend in chlorophyll content, which is one of the initial modes of action that explain the improvements in the formerly quoted yield and growth parameters. There were no significant differences between the two biostimulants, although BioShot always showed slightly better values.

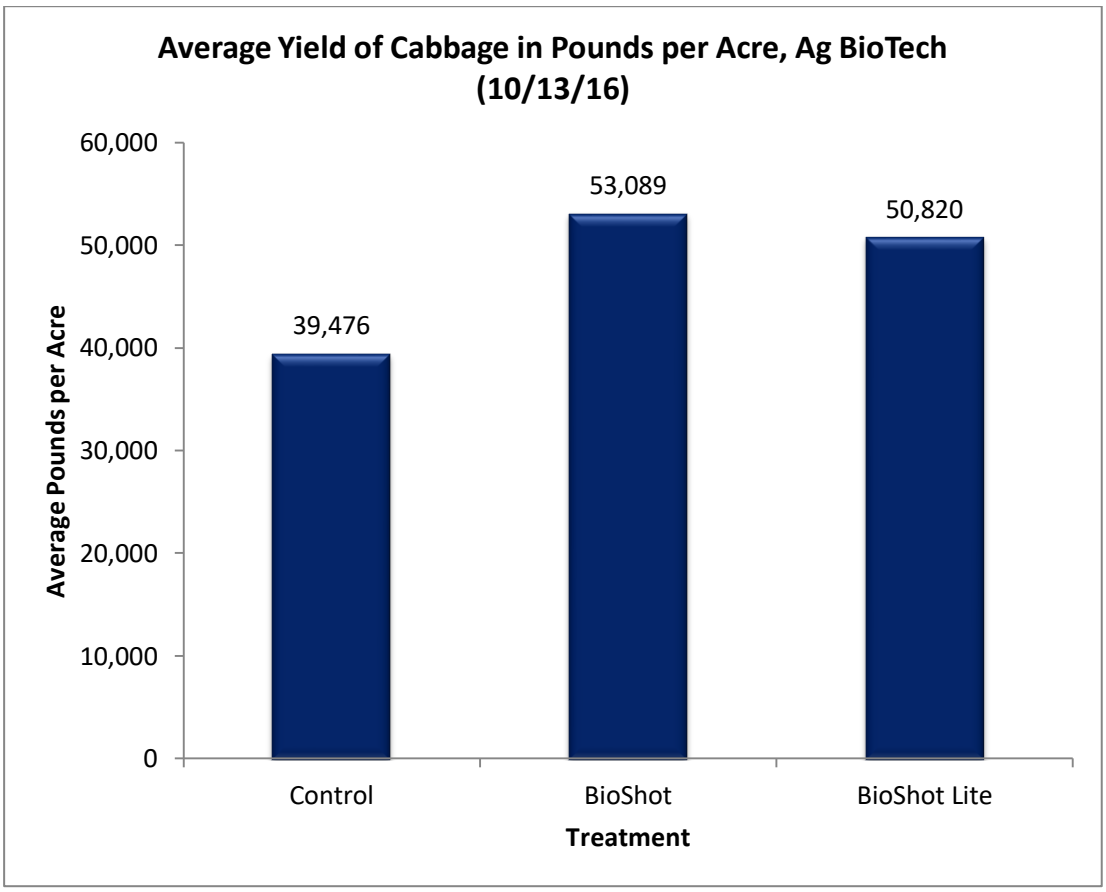
On the other hand, the number of holes in the three outermost leaves was smaller in both biostimulants than the control, more so in BioShot, which means they were healthier regarding pest damage, and thus of better quality. The following evaluation took place on October 13, 2016. Sample size was 12 heads.

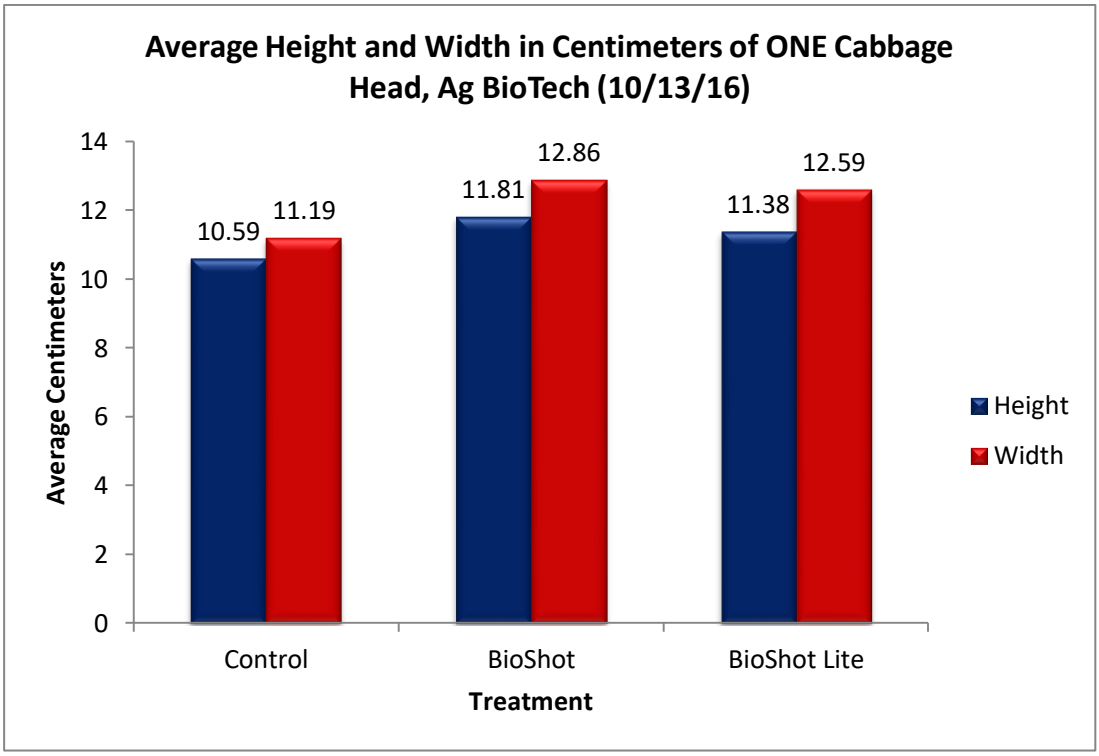
Program	Avg. Wt. one head	Avg. Yield (lb/A)	Avg. Height One Head	Avg. Width One Head	Chloro-phyll Content	# Holes Leaf 1	# Holes Leaf 2	# Holes Leaf 3
Untreated control	1.815b	39476b	10.595b	11.19b	19.29a	2.44a	2.23a	1.93a
Bioshot	2.440a	53089a	11.815a	12.86a	22.46a	1.75b	1.60b	1.04c
Bioshot Lite	2.335a	50820a	11.375ab	12.60a	20.76a	2.29a	1.81b	1.52b

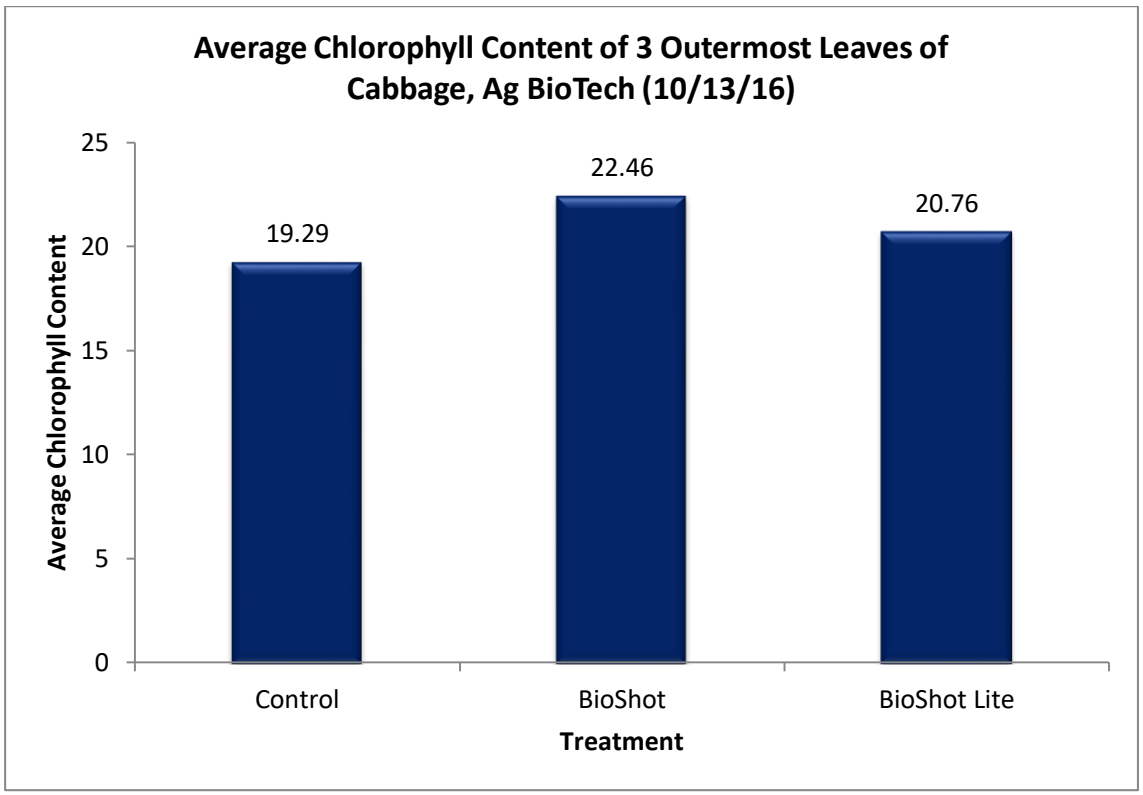
Means followed by same letter do not significantly differ (P=0.10, LSD).

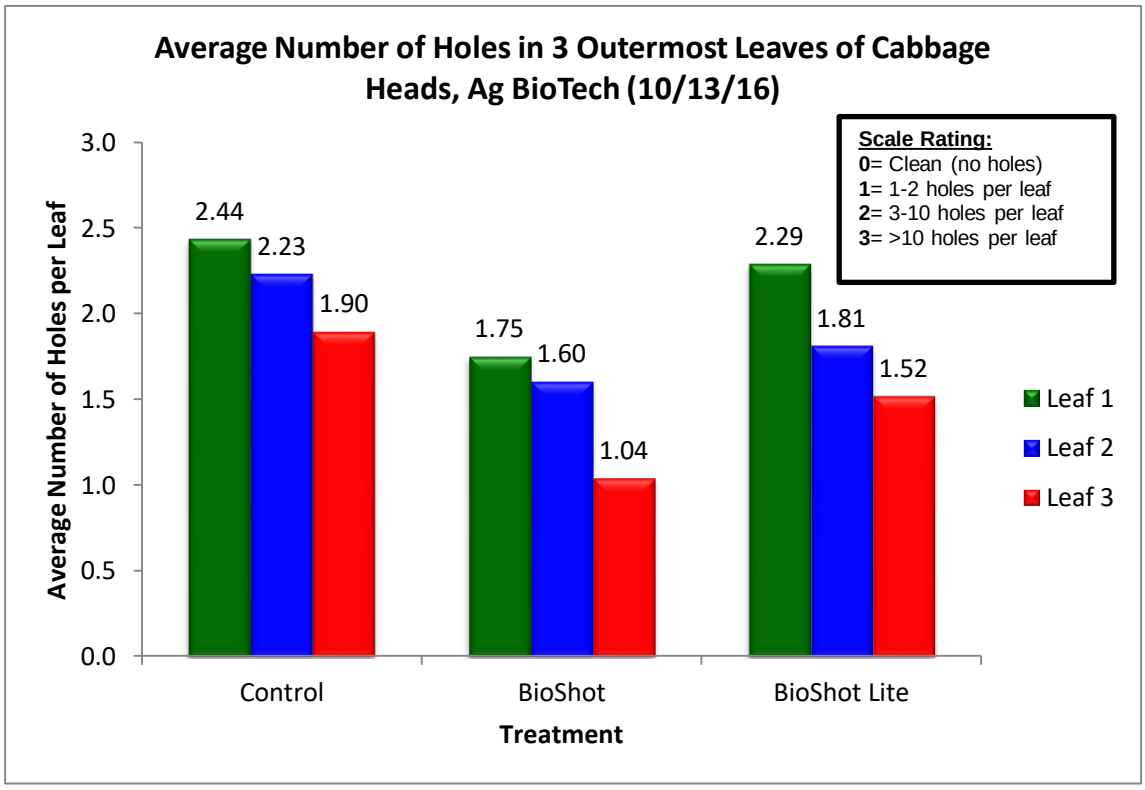
Program	Yield (lb/ac)	Yield increase		Added income US$/ac	Added cost US$/ac	Net profit US$/ac	Cost-bene-fit ratio
		(lb/ac)	(lb/ac)				
Untreated control	39476 b	-	-	-	-	-	-
Bio Shot	53089 a	13613	34.5	2859	32.38	**2826**	**87**

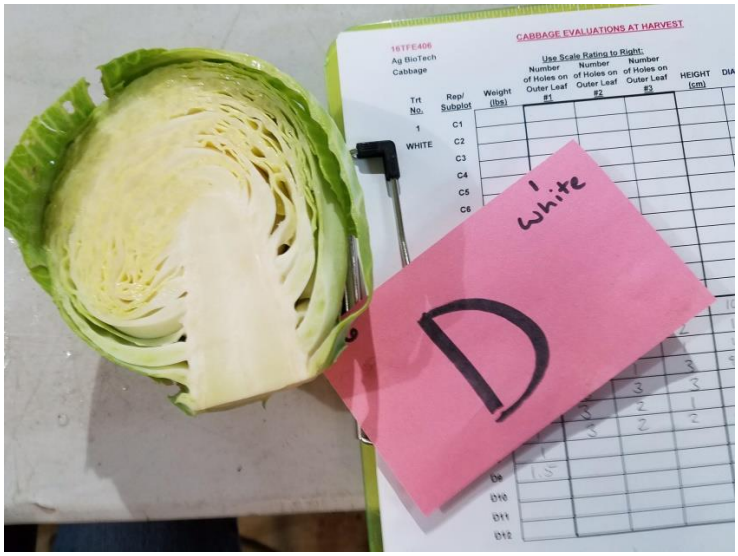



Average Yield of Cabbage in Pounds per Acre, Ag BioTech (10/13/16)
60,000
50,000
40,000
30,000
20,000
10,000
0
Average Pounds per Acre
39,476
53,089
50,820
Control
BioShot
BioShot Lite
Treatment

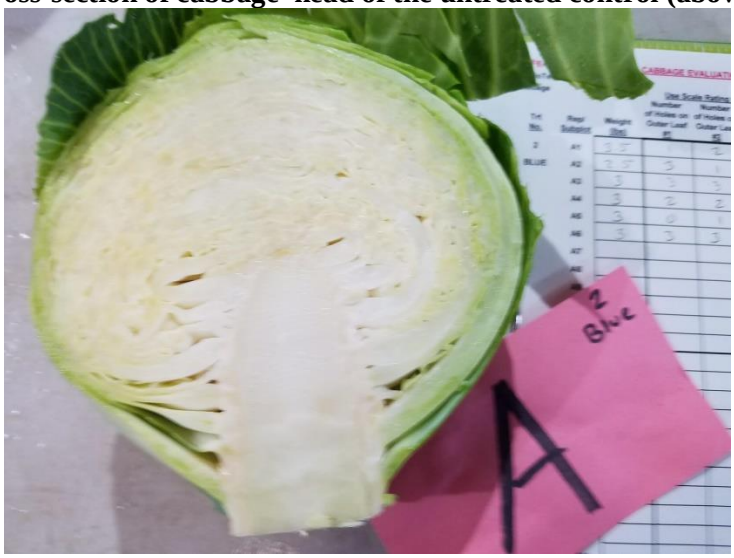

Average Height and Width in Centimeters of ONE Cabbage Head, Ag BioTech (10/13/16)
14
12
10
8
6
4
2
0
Average Centimeters
10.59
11.19
11.81
12.86
11.38
12.59
Control
BioShot
BioShot Lite
Treatment
Height
Width


Average Chlorophyll Content of 3 Outermost Leaves of Cabbage, Ag BioTech (10/13/16)
Average Chlorophyll Content
25
20
15
10
5
0
19.29
22.46
20.76
Control
BioShot
BioShot Lite
Treatment

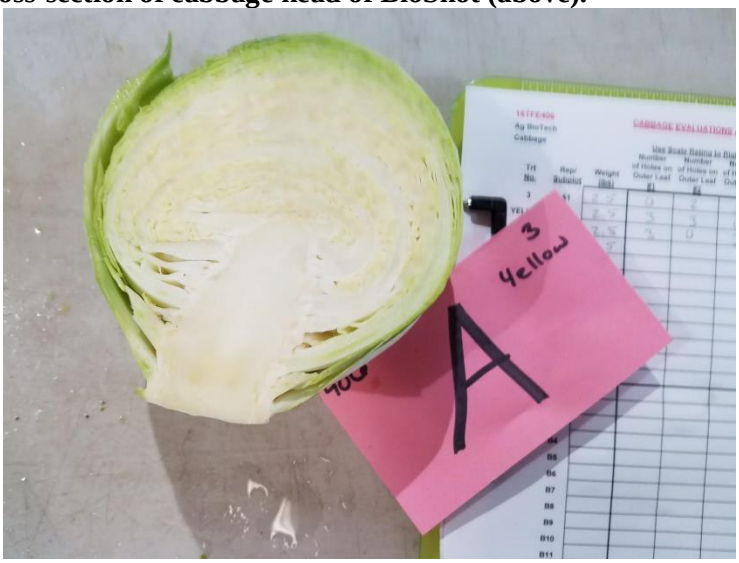

Average Number of Holes in 3 Outermost Leaves of Cabbage Heads, Ag BioTech (10/13/16)
Average Number of Holes per Leaf
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.44
2.23
1.90
1.75
1.60
1.04
2.29
1.81
1.52
Scale Rating:
0= Clean (no holes)
1= 1-2 holes per leaf
2= 3-10 holes per leaf
3= >10 holes per leaf
Leaf 1
Leaf 2
Leaf 3
Control
BioShot
BioShot Lite
Treatment



Cross-section of cabbage head of the untreated control (above).



Cross-section of cabbage head of BioShot (above).



Cross-section of cabbage head of BioShot Light (above).