

Objective: Evaluate Stimplex and Acadia LSC on yield of watermelon

Material and Methods:

There were two sites for the study, one at the Lower Eastern Shore Research and Education Center (LESREC near Salisbury, MD and the other at the Central Maryland Research and Education Center-CMREC located north of Upper Marlboro, Maryland.

Treatments at LESREC were: Nitrogen applied at planting at the rates 100 and 150 pounds/acre and Stimplex and Acadia LSC applied at 1.5 quarts/acre 2 weeks after transplant (June 10) bloom (June 20) Fruit set (July 1) two weeks after fruit set (July 11) and 4 weeks (July 24) after fruit set. At CMREC nitrogen was applied at 80 and 150 lbs/acre and Stimplex and Acadia LSC were applied as above (June 17, June 26, July 8, July 18 and July 25). There were 6 rows of plastic 100 feet long with drip irrigation in each rep. and 5 reps transplants of "crimson sweet" went to the field at LESREC on May 28 and at CMREC on June 3, 2008 at a 3 ft spacing, 33 plants/row. Nitrate readings were taken with a cardy meter starting on June 30 and every 1 week through July until harvest from each row. Plants were treated with Bravo three times at LESREC and twice at CMREC for foliar disease. Yields were taken on August 5 at LESREC and August 5 at CMREC and consisted of weight and number of melons.

Data were analyzed using ANOVA and Orthogonal Contrasts (SAS, 2008). This summer we had good rainfall and plants grew quickly at both locations. Little foliar disease was observed at either study site, however, at CMREC some plants started to show signs of yellowing and wilting at the time of flowering. They were found to have fusarium crown and root rot (*Fusarium oxysporum*) a soil disease commonly found in cucurbit growing areas. By July 21, there were significantly ( $P=0.05$ , orthogonal contrasts) more plants in the non seaweed treated plots that dies from this disease than in the seaweed treatments (Table 1). By late July 30% of the watermelon plants were killed in the non seaweed plots.

Table 1. Percentage of Watermelon (Crimson Sweet) Killed by Crown Rot in Seaweed Treated and Non-treated Plots.

% of Plants Killed by Crown Rot

Date	July 7	July 14	July 21
No seaweed	20.6a	27.3a	30.2a
Stimplex	5.4 s	7.6b	10.1a
Acadia LSC	4.6 s	6.1b	9.8b

Means within a column with different letters are significantly different at the PS 0.05 level.

Nitrate petiole sap readings in the 100 lbs. of N+seaweed plots gave readings (Nitrate-N ppm) similar to the 150 lbs. of N treatments. Nitrate readings at CMREC were unusually 40% greater than LESREC's until the July 30 readings. Acadia LSC and Stimplex gave similar readings at the 100 and 150 lbs of N Fertility Levels.

Table 2. Nitrate Concentration (ppm-N) Taken from Petiole Sap in Watermelon Fields Treated and Non-treated with Seaweed.

Treatment	100 lbsN		150lbsN		100+Stimplex		100+Acadia		150+Stimplex		150+Acadia	
Location	LESREC	CMREC	LESREC	CMREC	LESREC	CMREC	LESREC	CMREC	LESREC	CMREC	LESREC	CMREC
Date:												
July 1	1000	2062	1200	2400	1350	2500	1250	2250	1400	2800	1550	2000
July 15	800	2050	950	2100	1000	1850	1150	1950	1100	2650	1250	2500
July 30	500	800	800	1000	1000	1300	850	1150	1000	1200	1000	1100

Yields of watermelon were greatest in the Stimplex +150 lbs of N compared with any other treatment other than Acadia LSC +150 lbs. Table 3. Adding seaweed to 100 lbs of N resulted in yields equivalent to adding 150 lbs of N with no seaweed. The number of watermelon fruit did not differ between treatments (Table 3). One hundred pounds of N alone was not enough to produce good yields; however, with 100 lbs of N and the addition of either seaweed yields increased significantly.

Table 3. Watermelon Yields (weight in lbs) in Seaweed and Non-Seaweed Treated Plots.

Treatment	Meas. lbs of Watermelon <u>1/</u>	Meas. Number of Watermelons
1000 lbs	263.8 a	14.0 18.75 a
150 lbs.	304.2 b c	16.6 18.31 a
Stimplex + 100	287.3 a b	14.4 19.88 a
Acadia LSC + 100	297.3 b	15.5 19.2 a
Stimplex +150	345.9 d	17.4 19.75 a
Acadia LSC + 150	327.5 c d	16.2 20.25 a

1/ Means with different letters are significantly different from one another at the PS 0.05 level, orthogonal contrasts.

Results equivalent to using 150 lbs. of nitrogen. By using the seaweed extract it is possible to reduce nitrogen applications and yet increase yields.