NATURIZE BIO-NUTRITION PRODUCTS EFFECTS ON CUCUMBER

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Introduction

Naturize Biosciences produces two products that are a combination of beneficial microorganisms and fertilizers that supposedly support greater plant growth and yield. Since these products are new to Georgia cucumber growers, evaluation is needed in order to make appropriate recommendations to Georgia growers and to compare the formulations and application timing.

Methods

Cucumber plots were established at the Coastal Plain Experiment Station in Tifton, Georgia to determine the effects of two Naturize products on yield and fruit quality. Cucumber variety "Greensleeves" (Harris Moran Seed Co.) was direct seeded into plastic mulch-covered beds on April 10, 2003. The plots had been treated with methyl bromide (200lb/A 67%) two weeks earlier. The soil type was a Tifton sandy loam (fine-loamy siliceous thermic Plinthic Kandiudults) soil. Elevation at the CPES is 382 feet. Cucumber plots consisted of one row of 15 plants spaced 12 inches apart in the row on beds that were spaced 72 inches apart from center to center.

The test consisted of seven treatments: 1) NA 2101 at 2 quarts/A at transplanting + 2 quarts/A 14 days later; 2) NA 2101A at 2 quarts/A at transplanting + 2 quarts/A 14 days later; 3) NA 2101 at 4 quarts/A at transplanting; 4) NA 2101A at 4 quarts/A at transplanting; 5) NA 2101 at 2 quarts/A at transplanting + 2 quarts/A 14 days later with 75% fertilizer; 6) NA 2101A at 2 quarts/A at transplanting + 2 quarts/A 14 days later with 75% fertilizer; and 7) an untreated check. The experiment was arranged in a Randomized Complete Block Design with four replications.

The equivalent of a two quart per acre rate was applied around each plant at transplanting in treatments one, two, five and six. The equivalent of four quarts per acre was applied in the same fashion for treatments thee and four. Two additional quarts were applied in the same fashion 14 days later for the two quart treatments. Preplant fertilizer was applied to the plot area at a rate of 300 pounds/acre. All additional fertilization was applied through the drip irrigation system. However, treatments one, two, three, four and seven received additional fertilizer applications around each plant. This was done so that treatments five and six would end up with only 75% of the total nitrogen applied to other plots. Total fertilizer application amounted to approximately 110 pounds nitrogen and potassium per acre as the full rate. Applications were made with a 7-0-7 liquid fertilizer material. Plots were treated with recommended insecticide

sprays as needed. Irrigation was applied daily through the drip system.

Cucumbers were harvested approximately every three days between June 16 and July 8, 2003. Data was taken on yield by grade, marketability, average fruit weight and fruit characteristics. It was generally a wet spring and cucumber yields were lower than normal.

Results

There were no real striking differences among treatments for cucumbers either. One observation that stood out, however, was that the 2101 A compound seemed to perform better than the 2101 compound in this crop with the more desirable grades. Although not significant, the 2101 A compound did produce more boxes per acre of the super and small grades which would be the most marketable.

Table 1. Yield by grade, total yield of top two grades, average fruit size and percent marketability of cucumbers treated with various rates of Naturize 2101 and 2101A and untreated cucumbers at Tifton, Georgia in 2003.

	Yield (28# cartons)/Acre					Percent Super + Small (%)	Average Small (g)	Average Super (g)
Treatment	Super	Small	Carton	Select	Super + Small			
NA 2101[1]	146.1b	50.1a	178.9a	150.4a	196.2b	38.5b	283.1ab	306.4ab
NA 2101A[1]	232.9a	57.5a	98.1a	149.1a	290.4a	53.6a	204.3b	319.4ab
NA 2101 2X[2]	178.0ab	65.7a	232.9a	113.7a	243.7ab	43.1ab	240.7ab	324.7a
NA 2101A 2X[2]	249.8ab	33.3a	184.5a	165.5a	283.1ab	45.0ab	199.0b	330.6a
NA 2101 75%[3]	149.5b	65.7a	245.1a	138.3a	215.2ab	37.3b	213.1ab	314.0ab
Untreated-75%[4]	177.2ab	71.3a	190.6a	137.9a	248.5ab	43.6ab	359.8a	292.9b
Untreated	179.3ab	61.8a	175.9a	149.1a	241.1ab	43.0ab	217.4ab	319.7ab
Mean of Test	187.6	57.9	186.6	143.4	245.5	43.4	245.3	315.4
L.S.D. (0.1)	80.8	50.8	159.7	59.2	91.1	13.6	148.4	29.5
C.V. (%)	35.12	71.63	69.80	33.65	30.26	25.55	49.33	7.62

Plots consisted of a single row with 25 plants per row spaced 18 inches apart.
[1]2qt/A at transplanting + 2qt 14 days later in drip
[2]4 qt/A at transplanting
[3]2 qt/A at transplanting + 2qt 14 days later in drip-75% fertilizer
[4]Untreated-75% fertilizer