

EFFECTS OF TWO NATURIZE BIO-NUTRITION PRODUCTS ON BELL PEPPER

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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 pepper growers, evaluation is needed in order to make appropriate recommendations to Georgia growers and to compare the formulations and application timing.

Methods

Bell pepper 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. Bell pepper ("Camelot", Seminis Seed Co.) transplants were commercially produced in polystyrene trays at a local plant farm. The transplants were planted into plastic-mulched beds on April 9-10, 2003. The plots had been treated with methyl bromide (200lb/A 67%) two weeks prior to planting. The soil type was a Tifton sandy loam (fine-loamy siliceous thermic Plinthic Kandudults) soil. Elevation at the CPES is 382 feet.

Peppers were planted in an arrangement of two rows per bed with beds spaced 72 inches apart from center to center. Plots consisted of two rows of 20 plants per row spaced 12 inches apart.

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) untreated check 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 and five. The equivalent of four quarts per acre was applied in the same fashion for treatments three and four. Two additional quarts were applied in the same fashion 14 days later for the two quart treatments. Peppers received a pre plant granular fertilizer application of 600 pounds/acre 10-10-10. 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 150 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.

Peppers were harvested approximately weekly between June 30 and July 29, 2003. Data was taken on yield by grade, marketability, average fruit weight and fruit characteristics in each crop. It was generally a wet spring.

Results

The four quarts at planting treatments appeared to produce superior marketable yields in pepper, although not significantly from other treatments except the untreated. The two quarts + two quarts treatments produced the most Jumbo fruit, though not significantly. There was no difference in average fruit weight and the percent marketability was higher in plots that were treated with either compound and received the full compliment of fertilizer. Data are presented in Table 1.

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

Treatment	Yield (28# cartons)/Acre			Average Jumbo Fruit Weight (g)	Average U.S. No. 1 Fruit Weight (g)	Percent Jumbo+U.S. No. 1 Fruit (%)	Percent Marketable (%)
	Jumbo	U.S. No. 1	Total Jumbo + U.S. No. 1 ¹				
NA 2101 ²	461 A	1296 AB	1757 AB	178.4 A	129.9 A	63.9 AB	73.7 AB
NA 2101A ²	445 A	1246 AB	1688 AB	167.5 A	133.0 A	60.6 AB	69.7 B
NA 2101 2X ³	286 A	1426 AB	1712 AB	177.3 A	141.9 A	67.2 AB	73.2AB
NA 2101A 2X ³	313 A	1906 A	2219 A	176.7 A	146.4 A	75.0 A	78.1 A
NA 2101 75% ⁴	175 A	999 B	1172 AB	176.4 A	144.5 A	36.9 B	71.9 AB
Untreated-75% ⁵	229 A	985 B	1213 AB	179.2 A	147.4 A	40.8 AB	71.2 B
Untreated	247 A	837 B	1084 B	176.1 A	137.5 A	36.3 B	72.9 AB
Mean of Test	308	1242	1550	175.9	140.1	54.3	72.9
L.S.D. (0.1)	379.1	905	1099.8	18.24	44.51	35.58	6.50
C.V. (%)	83.0	49.0	47.8	6.98	20.45	44.05	6.00

¹Total of Jumbo and U.S. No. 1. Plots consisted of a single row with two rows per bed and 25 plants per row spaced 12 inches apart.

²2qt/A at transplanting + 2qt 14 days later in drip

³4 qt/A at transplanting

⁴2 qt/A at transplanting + 2qt 14 days later in drip-75% fertilizer

⁵Untreated-75% fertilizer