

CUCUMBER RESPONSE TO SOIL NUTRIENT AMENDMENTS AND FOLIAR PLANT ACTIVATOR SPRAYS

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Introduction

Cucumbers are an important vegetable commodity in Georgia. The primary use for cucumbers produced in Georgia is for slicers, however, there is a growing pickle industry in the state as well. There are several new products on the market which claim to enhance plant growth and yield. Stoller Chemical Company has several of those products. ReZist, Bio-Forge and Root Feed II are some of the products purported to be beneficial to several vegetable crops. Therefore this study was initiated to examine the effects of these compounds alone and in combination on fresh market cucumber production.

Methods

Plots were established at the Coastal Plain Experiment Station Tifton Vegetable Park (elev. 382 feet) in Tifton, GA. A pre-plant fertilizer application of 600 lbs./A 10-10-10 was made before the installation of plastic mulch and drip irrigation. Plastic was installed and the plots were fumigated with methyl bromide (134 lb. a.i./A) simultaneously.

Cucumbers (“Speedway” variety, Seminis Seed Co.) were direct seeded into a Tifton sandy loam (fine-loamy siliceous thermic Plinthic Kandiodults) soil on April 28, 2005. Plots consisted of a single row of cucumbers planted on beds that were spaced six feet apart (from center to center). In-row spacing was 12 inches per plant. Plots were each 26 feet long and were replicated four times. The experiment was arranged in a Randomized Complete Block Design.

Treatments consisted of 1) an untreated check; 2) ReZist applied as a foliar spray at one pint per acre every 21 days + Bio-Forge applied as a foliar spray at one pint per acre on time; 3) Root Feed II applied at five gallons per acre every seven days through drip irrigation. The foliar sprays were applied once the cucumbers vines began to produce runners and every 21 days thereafter. The Root Feed II was applied beginning 14 days after seeding.

Cucumbers were harvested on July 1, July 5, July 8, July 14, July 18 and July 23, 2005 and data collected on yield and fruit size. Other than fertilizers, normal cultural and pest control practices were used. Data were analyzed using the Statistical Analysis System and means separated using L.S.D. (P=0.05).

Results and Discussion

Results are presented in Table 1. Yields from the treated plots did not surpass the yields from the untreated plots for any parameter measured. In fact, the yield of super grade cucumbers was significantly greater for the untreated check than for the treated plots. More research would have to ensue to fully evaluate the effects of these products, but based on these findings, it would appear that they would likely not be cost effective.

Table 1. Yield in boxes per acre of super, small and carton grade cucumbers and total yield as well as average size of super grade fruit produced with BioForge + Re-Zist, Root Feed II and an untreated check at Tifton, Georgia in 2005.

Treatment	Yield (55# Boxes/Acre)				Average Super Fruit Size (g)
	Super	Small	Carton	Total	
Untreated	281 a	61 a	171 a	512 a	274 a
Re-Zist + BioForge	191 b	65 a	155 a	411 a	270 a
Root Feed II	211 b	56 a	133 a	400 a	235 a
Mean of Test	227.4	60.8	152.9	440.9	259.6
L.S.D. (0.05)	59.5	18.8	58.6	118.2	52.4
C.V. (%)	17.93	21.16	26.27	18.38	13.83

Plots consisted of a single row with 26 plants per row spaced 12 inches apart.