

EFFECTS OF SOIL APPLIED HUMIC ACID AND CALCIUM TREATMENTS ON PEPPER YIELD AND QUALITY

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Introduction

Bell pepper is annually one of Georgia's most valuable vegetable commodities. Production often exceeds \$80 million in farmgate value. Blossom End Rot is a common problem on pepper in Georgia during the Spring season. While this condition is associated with calcium deficiency, it is not only Ca in the soil that is at issue. Horizon Ag Products and Helena Chemical Company have two new products with potential to increase bell pepper yield and reduce Blossom End Rot. Hydra-Hume is a humic acid product which is purported to have the ability to increase uptake of micronutrients. Es-Cal-Eight is a low pH material with 5% nitrogen and 8% calcium. These materials alone and in combination were tested to determine their effects on yield, quality and Blossom End Rot occurrence on bell pepper.

Methods

Bell pepper plants (variety "Aristotle", Seminis Seed Co.) were produced in a greenhouse by a commercial transplant grower. Plots were established at the Coastal Plain Experiment Station (elev. 382 feet) in Tifton, GA. Plot land was tilled, 800 lb/A 10-10-10 was applied and incorporated. Methyl bromide was applied (134 lb. a.i./acre) when black plastic mulch and drip tape were installed.

Pepper were transplanted on April 20, 2004 into a Tifton sandy loam (fine-loamy siliceous thermic Plinthic Kandiudults) soil. Plots consisted of two rows of pepper (~14 inches between rows) planted on raised beds that were spaced six feet apart (from center to center). In-row spacing was 12 inches per plant. Plots were each 20 feet long and were replicated four times. The experiment was arranged in a Randomized Complete Block Design.

Hydra-Hume was injected at one gallon per acre shortly after planting. Es-Cal-Eight was injected at one gallon per acre one week prior to bloom and every three weeks thereafter. Additional fertilizer was applied through the drip irrigation system. Peppers were harvested on July 6 and July 27, 2004 and data collected on yield and quality. Other than soil amendments, normal cultural and pest control practices were used.

Results and Discussion

Results are presented in Table 1. The combination treatment of Hydra-Hume and Es-Cal-Eight performed significantly worse than the untreated check. There is no logical reason for this, since there is nothing deleterious in either of these compounds. The

treatments alone seemed to have no effect on the pepper as compared to the untreated check. Given these results, there needs to be replication of this study to determine conclusive information.

Table 1. Yield by grade, total yield of marketable grades, percent marketability and percent blossom end rot of bell peppers treated with Hydra-Hume and Es-Cal-8 and untreated peppers at Tifton, Georgia in 2004.

Treatment	Yield (28# cartons)/Acre				Percent Blossom End Rot (%)	Percent Marketable (%)
	Jumbo	U.S. No. 1	U.S. No. 2	Total Marketable		
Untreated	370 a	474 a	308 a	1151 a	25.2 a	58.5 b
Hydra-Hume	397 a	349 ab	333 a	1079 ab	10.8 a	79.7 a
Es-Cal-8	300 a	317 ab	333 a	951 ab	20.9 a	62.7 ab
HH + EC8	107 a	118 b	182 a	406 b	28.1 a	37.0 c
Mean of Test	293	315	289	897	21.2	59.5
L.S.D. (0.1)	301	352	265	717	21.9	18.0
C.V. (%)	64.1	69.9	57.4	50.0	64.6	18.1

Plots consisted of a single row with two rows per bed and 20 plants per row spaced 12 inches apart. Letters followed by the same letter within a column are not significantly different at P=0.05.