

EFFECTS OF EXPERIMENTAL GRANULAR SOIL AMMENDMENTS ON FALL BELL PEPPER

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Introduction

Almost half of Georgia's Bell pepper crop is produced in the fall season. Small fruit size can still be a problem with the crop, however. Horizon Ag Products and Helena Chemical Company have several new granular products with potential to increase bell pepper yield and quality. These are all numbered experimental compounds. These materials were applied at planting on bell pepper to determine their effects on yield and quality of bell pepper. The effect of these products on fruit firmness was also a parameter of interest.

Methods

Bell pepper plants (variety "Heritage", Harris Moran Seed Co.) were produced in black plastic trays in a university greenhouse. Plots were established at the Coastal Plain Experiment Station Tifton Vegetable Park (elev. 382 feet) in Tifton, GA. Plot land was deep turned and disked. Beds were laid off and 800 lb/A 10-10-10 was applied and incorporated. Methyl bromide was applied (134 lb. a.i./acre) and white plastic mulch and drip tape were installed on August 23, 2006.

Pepper were transplanted on August 29, 2006 into a Tifton sandy loam (fine-loamy siliceous thermic Plinthic Kandudults) 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.

HM 9754A was applied just after planting to the plant base at 40 and 60 pounds per acre. HM 0624 was applied in a similar manner. HM 0506 was applied at a rate of 7.5 pounds per acre. All applications were made on August 29, 2006. These were all compared to an untreated check.

Additional fertilizer was applied through the drip irrigation system approximately weekly from September 13 to November 29, 2006. A total of 353 pounds N was applied, 80 pounds of P and approximately 353 pounds of K. Peppers were harvested on November 2, November 15, November 28 and December 5, 2006 and data collected on yield and quality. Other than soil amendments, normal cultural and pest control practices were used. Penetrometer readings were taken on ten fruit per plot at harvest and recorded. Data was analyzed using the Statistical Analysis System and means separated using Least Significant Difference.

Results

Results are presented in Table 1. The only parameter measured that showed any significant difference was for fruit firmness. The lowest rate of HM 0624 produced significantly firmer fruit than the untreated check. There were no significant differences among treatments for average fruit weight of large or extra large fruit. The untreated check produced the fewest boxes of extra large as well as combined extra large and large fruit, but this difference was not significant. The overwhelming majority of the fruit harvested fell into the large and extra large size class. There were very few medium fruit and these were only taken on the final harvest. The yields of total marketable fruit were amazingly alike among all treatments except the low rate of HM 0624 which produced the most total boxes, but again this difference, was not significant.

Table 1. Total, extra large, large, medium and extra large plus large marketable yield, average fruit weight of extra large and large fruit and average fruit firmness of bell pepper produced with five different granular soil amendments and one control at Tifton, GA in Fall, 2006.

Product	Rate	Avg Fruit Firmness	Avg Wt Lg Fruit (g)	Avg Wt XL Fruit (g)	Total Marketable Boxes/A (23 lbs)	Total XL Boxes/A (23 lbs)	Total Lg Boxes/A (23 lbs)	Total Med Boxes/A (23 lbs)	Total XL+L Boxes/A (23 lbs)
Untreated		4.79 b	209.2 a	262.2 a	1289.7 a	715.2 a	471.9 a	102.6 a	1187.0 a
HM 9754A	40 lbs/acre	5.02 ab	216.1 a	259.4 a	1287.7 a	733.9 a	455.3 a	98.5 a	1189.2 a
HM 0624	40 lbs/acre	5.05 a	218.6 a	255.1 a	1329.1 a	766.9 a	482.4 a	79.9 a	1249.2 a
HM 9754A	60 lbs/acre	5.00 ab	210.2 a	249.6 a	1289.7 a	732.1 a	478.0 a	79.5 a	1210.1 a
HM 0624	60 lbs/acre	5.00 ab	216.9 a	261.2 a	1273.7 a	759.2 a	454.2 a	60.4 a	1213.3 a
HM 0506	7.5 lbs/acre	4.92 ab	214.8 a	260.3 a	1288.7 a	738.7 a	485.1 a	64.9 a	1223.7 a
Mean of Test		4.96	214.3	257.9	1293.1	741.0	471.1	81.0	1212.1
L.S.D. (0.05)		0.25	10.3	13.5	124.1	123.5	103.4	49.1	122.0
C.V. (%)		3.38	3.18	3.47	6.37	11.05	14.56	40.22	6.68