

APPLICATION OF EXPERIMENTAL LIQUID SOIL AMMENDMENTS ON BELL PEPPER IN SPRING

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Introduction

Bell pepper continues to be one of the most valuable vegetable crops in Georgia. Blossom end rot and small fruit size can still be problems with the crop, however. Horizon Ag Products and Helena Chemical Company have several new liquid products with potential to increase bell pepper yield and quality. These are all numbered experimental compounds. These materials were applied weekly and biweekly beginning just before first bloom. 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) when black plastic mulch and drip tape were installed.

Pepper were transplanted on April 13, 2006 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.

HM 0402 and HM 9947 were injected through the drip irrigation system at 1.0 gallons per acre beginning one week before first flower and continuing weekly. HM 0506 was injected at

the same timing at 1.5 pounds per acre. HM 0402 and HM 9947 were also injected at a 2.0 pound rate beginning one week prior to flower and continuing at two week intervals. HM 0506 was applied at the same timing at 3.0 pounds per acre. A combination treatment of 1.0 gallon of HM 0402 plus 1.5 pounds of HM 0506 was applied at the two-week interval timing as well. These were compared to an untreated check.

Additional fertilizer was applied through the drip irrigation system approximately weekly from May 5 to July 7, 2006. A total of 252 pounds N was applied, 80 pounds of P and approximately 235 pounds of K. Peppers were harvested on June 28, July 7, July 13 and July 21, 2006 and data collected on yield and quality. Due to a *pythium* outbreak only 10 plants per plot were harvested. 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. There was a significant outbreak of *pythium* in the plot area during the season. This contributed to a decrease in overall yields. Only 10 competitive plants were harvested per plot. There was either too much variation or not enough power to detect differences at the 5% level among any of the treatments. Average fruit weights and average fruit firmness were very similar for all treatments. The insignificant differences in yield could be attributed to the *pythium* infestation. This resulted in abnormally high amounts of sunscald and blossom end rot which affected total yields. Fruit were not graded by size due to the injury associated with the *pythium*.

Table 1. Total marketable yield, average fruit weight and average fruit firmness of bell pepper produced with seven different liquid soil amendments and one control at Tifton, GA in Spring, 2006.

Product	Rate	Average Fruit Firmness	Total Marketable Boxes/Acre (23-pound box)	Average Fruit Weight (grams)
Untreated		3.43 a	782.8 a	244.6 a
HM 0402	1.0 gallon/acre	3.38 a	694.4 a	216.9 a
HM 9947	1.0 gallon/acre	3.45 a	606.1 a	189.3 a
HM 0506	1.5 pounds/acre	3.56 a	938.3 a	293.1 a
HM 0402	2.0 gallons/acre	3.34 a	606.8 a	189.6 a
HM 9947	2.0 gallons/acre	3.61 a	569.8 a	178.0 a
HM 0506	3.0 pounds/acre	3.47 a	794.7 a	248.3 a
HM 0402 + HM 0506	1.0 gallon/acre 1.5 pounds/acre	3.53 a	559.5 a	174.8 a
Mean of Test		3.47	694.0	216.8
L.S.D. (0.05)		0.335	394.3	123.18
C.V. (%)		6.57	38.64	38.64