EVALUATION OF MULTI-PURPOSE SOIL FUMIGANTS FOR ROOT-KNOT NEMATODE AND SOILBORNE DISEASE MANAGEMENT ON TOMATO IN FLORIDA.

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The efficacy of two formulations of methyl bromide (MBr) was compared with five other fumigants for control of *Meloidogyne arenaria* race 1 and *Sclerotium rolfsii* on tomato in polyethylene mulch culture. Treatments included soil injection of chloropicrin (390 kg/ha) alone and plus pepulate (4.5 kg/ha) sprayed on the soil surface and incorporated, 1,3-D/17% chloropicrin (325 liter/ha) alone and plus pepulate, MBr 98 (450 kg/ha), and MBr 67 (390 kg/ha). Dazomet (450 kg/ha) and metham sodium (935 liter/ha) were applied uniformly over the bed surface, incorporated and the bed reformed. Tetrathiocarbonate (1,870 liter/ha) and metham sodium (935 liter/ha) were applied through the drip irrigation system through two drip tubes per bed with emitters spaced 23 cm apart. Tomato 'Sonny' was transplanted 6 April, 3 weeks after the fumigants were applied. One additional application of tetrathiocarbonate (185 liter/ha) was made through the drip irrigation system 2 weeks after transplanting. Tomato fruit was harvested at breaker stage of growth 28 June and 7 July and graded into marketable size categories of extra-large, large, and medium. Three soilborne pathogenic fungi, *Rhizoctonia solani*, *Fusarium* spp., and *Macrophomina phaseolina* were isolated from tomato roots in mid-May and mid-June. Greater incidences ($P \leq 0.05$) of *R. solani* and *M. phaseolina* were recovered from roots in plots treated with tetrathiocarbonate and the untreated control, respectively, compared to other treatments during the mid-June sampling date. For total fungi, the highest ($P \leq 0.05$) levels were recovered from the untreated control and tetrathiocarbonate treated plots. *Sclerotium rolfsii*-infected plants were reduced ($P \leq 0.05$) by all treatments except tetrathiocarbonate and the untreated control. Plots treated with MBr provided greater marketable yields and lower ($P \leq 0.05$) root-knot nematode galling indicies compared with other treatments. Relative marketable fruit yields were 100% for the two MBr treatments, 77% for 1,3-D + pebulate, 74% for chloropicrin, 72% for 1,3-D, 60-65% for chloropicrin + pebulate and metham sodium, 56% for the untreated control, and 51-54% for dazomet and tetrathiocarbonate treatments. Evidence of plant injury by tetrathiocarbonate was present following the second application of the material. Root-knot nematode galling indices were negatively correlated ($P \leq 0.01$) with marketable yields ($r = -0.59$, $n = 66$).