

EFFICACY OF MI GENE IN TOMATO AGAINST ROOT-KNOT NEMATODE IN FLORIDA.

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A root-knot nematode resistant cultivar Christa was compared to a root-knot nematode susceptible cultivar Talledega each grown in drip irrigated raised beds treated with methyl bromide, Telone C35, or nontreated. The beds were covered with either virtually impermeable film (VIF) or metallic aluminized reflective film. The experimental design was a 3 x 2 x 2 factorial randomized complete block. The experiment was conducted in 2007 at the Plant Science and Education Unit, Citra, FL. The soil was an Arredondo and Sparr fine sand (95%, 3% silt, 2% clay; om 1.5%; pH 6.5). The site was infested with a high density of *Meloidogyne javanica*, a mixture of *M. incognita*, and *M. arenaria*, and *Cyperus rotundus* (purple nutsedge) and *C. esculentus* (yellow nutsedge). The field was deep ploughed, disked, and prepared for applying treatments in February. Plots were single row, 35 ft long on 6 ft centers and bed width at top was 30 inches wide. A starter fertilizer of 10-10-10 (NPK) with minors was applied on the flat soil surface and a Power Bedder (Kennco Mfg., Ruskin, FL) was used to prebed. Methyl bromide 67-33 and Telone C35 were applied at 350 lbs and 35 gpa, respectively. They were each injected 12 inches deep with three chisels spaced 10 inches apart over the preformed beds 29 days preplant with a Mini-Combo Superbedder (Kennco Mfg., Ruskin, FL). All plots were drip irrigated twice to three times daily and fertilized via drip tubes weekly.

When data for mulch type and cultivars were averaged over both fumigant types there was an increase in total marketable yields over the nontreated control ($P \leq 0.05$). Mbr and C35 increased yields 41% and 35%, respectively, over the nontreated control. No root-knot nematode galling was observed on plants in plots treated with either fumigant, whereas the galling index on the nontreated plants averaged 34.2% (scale based on a 0 =no galls, 1 = 10% of root system galled....to 10 = 100% of root system galled). A lower marketable yield was recorded from plant grown in plots covered with the VIF as compared with the metallic mulch ($P \leq 0.05$). This was most likely caused by some phytotoxicity of C35 on the two cultivars when grown under the VIF. There was no difference in marketable yield between Talladega and Christa cultivars ($P \leq 0.05$). No galling was observed on cv. Christa in the nontreated plots.

Key Points

1. Both methyl bromide and C35 were equally effective in the suppression of root-knot nematode throughout the season.
2. When yields were averaged across all plots treated with either methyl bromide or C35 there was no difference between yields. Both products produced significant yield increases over the nontreated plots.
3. Covering beds with VIF is more likely to result in phytotoxicity of C35 when environmental conditions are not conducive to degradation of the compound. Greater care must be taken when transplanting into bed treated with C35 that are covered with VIF.
4. The performance of cv. Christa was equal to that of Talladega in terms of marketable yield but far superior in terms of preventing root-knot nematode galling