EFFECT OF METHYL IODIDE ON PYTHIUM, MELOIDOGYNE, AND YELLOW NUT SEDGE IN TOMATO

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The purpose of this field study was to evaluate methyl iodide when applied under plastic mulch, would reduce or eliminate the effects of soil-borne *Pythium splendens* , root-knot (*Meloidogyne* sp.) and Yellow nut sedge (*Cyperus esculentus*) control for another crop season.

The field trial was conducted in Rockdale sandy loam-limestone on December 19, 1995. Prior to fumigation soil beds were formed 48 inches wide and 6 inches high on 6 ft centers. Each treatment plot was 100 feet long and replicated five times. Fertilizer of the analysis 14-16-16 at 1500 lb./A was banded on in the bed and rototilled into the bed.

Five soil fumigants, methyl-bromide, MC33 (67% methyl bromide + 33% chloropicrin), chloropicrin, and methyl iodide and methyl iodide + chloropicrin were evaluated for disease , nematode, and weed control and fruit yield on March 11, 1995. Methyl bromide and MC33 were injected into soil beds at 250 lb./A and methyl iodide was applied at 375 lb./A. The intention was to inject methyl iodide on an equal molar rate with methyl bromide. Chloropicrin was injected at 75 lb./A. All of the fumigants were injected at 71% of commercial fumigation rates. The fumigants were injected through three shanks, spaced 9 inches apart, at a depth of 4 inches.

Immediately following injection of the fumigants, 1.5 mil polyethylene film was placed over the beds. After 7 days the plastic was perforated to allow venting and 12 days later plant house commercially raised tomato cultivar 'Sunny' transplants were planted at a spacing of 12 inches in the row.

All of the fruits were harvested from 25 plants from each replicate were harvested March 11, 1996. Following the fruit harvest the plants were pulled for root evaluation. Methyl-iodide + chloropicrin, MC33, and Chloropicrin provided significantly more fruit than the other treatments including the control (Table 1). Iodide and methyl bromide alone provide very little root rot control. Chloropicrin alone provides no control of rootknot and yellow nut sedge (Table 2).

There was no apparent phytotoxicity in any of the treatments.

Table 1. Effect of fumigant on the 'Agriset 761' tomato yields.

Treatment*	Tomato Yield Large No.	Large Wt**	Medium No.	Medium Wt.**
Control	084.21a	42.1a	29.91a	08.6a
Iodide	149.24 b	59.8 b	68.62 b	17.7 b
Iodide plus Chloropicrin	181.75 c	86.6 c	89.33 c	22.4 c
MC33	178.75 c	89.9 c	67.95 b	20.2 c
Methyl Bromide	150.48 b	67.4 b	67.84 b	18.3 b
Chloropicrin	189.88 c	85.3 c	87.94 c	23.5 c

*Mean separation by Waller-Duncan k-ratio t-test, P<0.05.
**Fruit weight in pounds means of 4 replications.

Table 2. Effect of fumigant on Pythium root rot, Rootknot nematode, and yellow nut Sedge.

Treatment*	Root rot**	Rootknot***	Sedge****
Control	9.81a	4.29a	863.51a
Iodide	8.95a	0.73 b	012.32 b
Iodide plus Chloropicrin	0.44 b	0.62 b	008.64 b
MC33	0.53 b	0.72 b	006.78 b
Methyl Bromide	9.06a	0.75 b	003.85 b
Chloropicrin	0.40 b	3.89a	709.89a

*Mean separation by Waller-Duncan k-ratio t-test, P<0.05.
**Root rot rating on a 0 to 10 scale with 0-no disease and 10-100%.
***Rootknot is 0 to 5 with 0-no knots and 5-80 to 100.
****Mean number of plants per 4 replications of 25 feet.