RESURGENCE OF SOILBORNE PESTS IN DOUBLE-CROPPED CUCUMBER

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Proposed promising chemical and non-chemical alternatives to methyl bromide (MBr) are 1,3-dichloropropene (1,3-D) + chloropicrin (Pic) + pebulate and solarization, respectively. These treatments [1,3-D + 17% Pic + pebulate (alone or with napropamide); 7 to 8 weeks of solarization in combination with *Gliocladium virens* or napropamide], applied annually from 1998 to 2001 just prior to fall tomato, were compared with those of MBr + Pic and a non-treated control for residual pest control the following spring in the principle three cropping systems: double-cropped cucumber (*Cucumis sativus* L.), cover crop of millet (*Panicum ramosum* L.), and fallow.

Populations of nutsedges (*Cyperus* sp.) and nematodes with 1,3-D + 17% Pic + pebulate were similar to those with MBr + Pic in most years, and pest resurgence by the end of the spring season was sometimes high, even with MBr + Pic. Solarization performed as well as 1,3-D + Pic + pebulate against nutsedge in cucumber; however, this may have been due to applications of paraquat in solarized plots where nutsedge had emerged prior to planting each fall tomato crop. Nematodes were controlled more consistently with 1,3-D + Pic + pebulate than solarization. Cucumber fruit production was similar with 1,3-D + Pic + pebulate and MBr + Pic across all four years; whereas, solarization resulted in yields equivalent to MBr + Pic in two of four years. Results indicated that pest resurgence in spring after soil treatment the preceding fall was not greater with 1,3-D + Pic + pebulate than with MBr + Pic.

- 1,3-D + 17% chloropicrin + pebulate performed as well as methyl bromide + chloropicrin.
- Solarization did not perform as well as methyl bromide + chloropicrin.
- Pest resurgence occurred with all treatments, but to a much lesser extent with methyl bromide + chloropicrin and 1,3-D + chloropicrin + pebulate.