EFFICACY OF BROADCAST TELONE C-35 IN TOMATO

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Four experiments (fall 2000, spring and fall 2001, and spring 2002) were conducted to determine the efficacy of broadcast applications of a mixture of 65% 1,3-dichloropropene (Telone II) and 35% chloropicrin (Telone C-35) with a tank mix of pebulate (Tillam) + napropamide (Devrinol) herbicides relative to in-bed applications of Telone C-35 as an alternative to methyl bromide for soil fumigation in fresh market tomato production on flatwoods soils in west central Florida. Treatments consisted of a nontreated control, Telone C-35 applied in-bed, Telone C-35 applied broadcast with a Yetter Avenger coulter applicator, alone or followed by additional chloropicrin applied in-bed, Telone II broadcast followed by additional chloropicrin in the bed, and methyl bromide in-bed. A tank mix of Tillam + Devrinol was applied broadcast and incorporated in the top 5 to 6 inches of the soil in both experiments prior to bed formation. Treatments were located on the same site each season to allow pest populations to build over time as a result of seasonal treatments. Staked tomatoes were grown on polyethylene mulched beds and data were collected for control of nutsedge, soilborne diseases, and nematodes, and tomato fruit production.

There was little nutsedge in the test site in fall 2000, but by spring 2001 the population had increased and differences were observed. Although all Telone plots were treated with Tillam + Devrinol for nutsedge control, Telone C-35 in-bed was more efficacious than broadcast application, unless chloropicrin was applied to the bed.

Soilborne disease (Southern blight and Fusarium wilt race 3) control varied somewhat between broadcast and in-bed application of Telone C-35. Fusarium wilt was more prevalent in the fall seasons and all fumigant treatments provided good control of it until the fourth season (spring 2002) when broadcast application of Telone C-35 without additional chloropicrin in the bed failed to control it. Southern blight was not a serious pest in the first fall season, but by spring it had become better established. While in-bed application of Telone C-35 provided blight control equal to methyl bromide in all seasons, broadcast application did not during the spring of 2001, unless it was accompanied by additional chloropicrin in the bed.

Telone application method had a slight effect on nematode control. Only sting and stunt nematodes were present in this test site. Broadcast Telone C-35 without additional chloropicrin in the bed provided no control of sting nematodes during the first season of this study, but was comparable to methyl bromide in all other seasons. Stunt nematode control was provided by in bed Telone C-35 but broadcast application generally was not different from the nontreated control.

Tomato production followed the same trend as nutsedge and southern blight control; marketable fruit production was not different among fumigant treatments in the two fall seasons, but in the spring of 2001 yield was lower where Telone C-35 was applied broadcast without additional chloropicrin applied to the bed. Tomato production was low during the spring of 2002 due to high temperatures early in the season and a late planting date. In bed application of Telone C-35 produced marketable tomatoes equivalent to methyl bromide, whereas, broadcast applications had lower yields than methyl bromide.