PREPLANT BERMUDAGRASS CONTROL IN WARM-SEASON SOD WITHOUT METHYL BROMIDE

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Tests were conducted at Crossville and Fairhope, Alabama in 2001 to evaluate potential alternatives to methyl bromide (MB) + chloropicrin (PIC) for use in sod production. The most troublesome pests for sod producers are perennial weeds. Bermudagrass, common (*Cynodon dactylon*) and hybrid cultivars (*Cynodon dactylon* X *C. transvaalensis*), ranks as the most troublesome. Both sites were infested with common bermudagrass as the major weed.

Crossville. Tarped treatments were MB + PIC @ 400 + 47 lb ai/A; metam sodium @ 320 lb ai/A (with and without tarp); iodomethane (MI) + PIC @ 250 + 167 lb ai/A; 1,3-dichloropropane (1,3-D) @ 542 lb ai/A. Glyphosate @ 4 lb ae/A was applied to half of each plot on June 13 prior to tillage (June 29 disk, July 12 chisel plow and disk, July 18 rototill) and fumigant application on July 18. Experiment was irrigated with 0.5 inches of water 1.25 hours after final fumigant application and tarping. Tarps were removed 9 days after treatment (DAT). Treatments failing to provide 100% control of common bermudagrass 58 DAT included: 1) 80% control with metam sodium non-tarped and no glyphosate; 2) 84% control with glyphosate + tillage; 30% control with tillage alone.

Fairhope. Tarped treatments were MB + PIC @ 400 + 47 lb ai/a; metam potassium @ 348 lb ai/A (with and without tarp); MI + PIC @ 250 + 167 lb ai/A; 1,3-D @ 542 lb ai/A; dazomet @ 400 lb ai/A; sodium azide (SEP 100 formulation) @ 137 lb ai/A. Glyphosate and tillage was the same as the Crossville site. Only three treatments with glyphosate provided greater than 95% control 36 DAT: 1) 97 % control MI + PIC; 2) 96% control 1,3-D; 3) 96% control with sodium azide. Glyphosate + tillage provided 50% control and tillage provided 44%. Glyphosate added little towards control of common bermudagrass at this site.

Tuskegee and Tallassee. Tests were conducted in 2006 to evaluate the non-tarped treatment of sodium azide (SEP 100) + EPTC for control of hybrid (Tuskegee) and common bermudagrass (Tallassee). EPTC was applied preplant incorporated at 6.7 lb ai/A. Sodium azide was applied preemergence to the soil surface at 50 lb ai/A. Each experiment received 0.3 inches of irrigation water immediately after the sodium azide was sprayed. Complete control of hybrid and common bermudagrass was obtained at both locations. Control of yellow nutsedge at the Tallassee location averaged 94%.

Conclusion. Glyphosate pretreatment followed by 1,3-D tarped or metam sodium + chloropicrin tarped are workable alternatives for producers of warm-season turf species. However, potential for ground water contamination from 1,3-D will limit use in some areas. Also, plant-back interval may be 5 to 6 weeks under conditions of cool soil temperatures. Metam sodium has potential for enhanced biological degradation (Pietro Di Primo et al. 2003) and application for the majority will require a commercial applicator. Pesticide applicators on some sod farms in Alabama have refused to apply metam sodium due to problems with skin and nasal irritations. Sodium azide + EPTC treatment has shown excellent bermudagrass efficacy and a reasonable plant-back interval of 3 to 4 weeks (Walker, unpublished). Advantages for these chemicals include elimination of the tarp requirement and they can be applied with ordinary spray equipment with minor changes. Sodium azide use will require replacing heavy metal components with stainless steel, plastic, rubber, and/or ceramic components. Although EPTC has shown potential for enhanced biological degradation (Tal et al. 1989a, 1989b), we believe sodium azide will eliminate this problem since it is a broad-spectrum microbiocide.

References.

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