SEP 100: Pest Efficacy And Crop Tolerance

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Sodium azide (SEP 100) was evaluated in 2004 and compared to methyl bromide/pic (67/33) and metam potassium (KPAM HL, 55 gal/A) for control of weeds and effect on plant back of seeded bermudagrass, zoysiagrass, and tall fescue. Experiment was conducted at Tallassee, AL. The soil is a sandy loam with a high density of yellow and purple nutsedge, and varying densities of common bermudagrass and summer annual broadleaf weeds. Treatments included sodium azide at 113, 141, 168 kg ai/ha (SEP 100 at 54, 67, 80 gal/A) applied to the soil surface with a conventional hydraulic sprayer. Immediately following spraying, the 5 by 50 foot plots (5 reps) were tarped with 1 mil black HDPE mulch. The soil surface was moist at spraying. Methyl bromide/pic was shank injected at 392 kg ai/ha followed immediately with the HDPE tarp. Metam potassium was sprayed onto the soil surface and immediately incorporated with a vertical-action tiller to a 15-cm depth and the tarp followed. The tarp was left in place for 14 days. One day after tarp removal, bermudagrass and zoysiagrasss were seeded in a portion of each plot. Tall fescue seeding was delayed another 15 days. Treatments providing commercially acceptable control of nutsedge over the 82-day rating period were methyl bromide/pic and the three rates of SEP-100. Zoysiagrass germination and growth was best with methyl bromide/pic and metam potassium. Bermudagrass germination and growth was best with methyl bromide/pic. Tall fescue germination and growth was best with methyl bromide/pic, and the two higher rates of SEP-100.

A field study was initiated in 2005 with the objective of determining potential to reduce sodium azide rates for disease and supplement sedge control with halosulfuron (Sandea) in tomato. Sodium azide was applied to a well prepared soil surface at a rate of 56 kg ai/ha (SEP 100 at 26.6 gal/A). The surface spray was immediately soil incorporated with a vertical-action tiller to a depth of 15 cm. Treated soil was then formed into beds approximately 10 cm tall and 90 cm wide. One treatment was supplemented with halosulfuron applied preemergence (PRE) to the surface of beds at 0.054 kg ai/ha immediately before tarping. Another treatment was supplemented with halosulfuron applied postemergence (POST) to weeds and tomato. All beds were mulched with 1 mil black LDPE. Methyl bromide/pic was soil injected at 448 kg ai/ha and tarped. Thus, treatments were: sodium azide alone; sodium azide plus halosulfuron, PRE; sodium azide plus halosulfuron, POST; methyl bromide and the non-treated. The selected area has a history of *Cyperus strigosus* infestation and Fusarium crown and root rot [*Fusarium oxysporum* f. sp. *radicis-lycopersici* (FORL)]. Sedge control (>90%) and tomato tolerance was highest with SEP 100 plus halosulfuron POST. Tomato vigor was excellent with all SEP 100 treatments as judged by plant height, stem diameter and number of flower clusters. Tomato vigor in methyl bromide/pic and non-treated was poor although sedge control with methyl bromide/pic was commercially acceptable. Spray application and mechanical soil incorporation of SEP 100 at 56 kg ai/ha proved to be an easy and effective method for control of *Cyperus strigosus* and *Fusarium* crown and root rot in tomato.