

Use of Sulfentrazone (F6285) for Preemergence Weed Management in Field-Grown Ornamentals

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The nursery industry currently has limited options for effective season-long weed control, because relatively few soil-persistent broad spectrum herbicides are registered for use in ornamentals. Sulfentrazone (F6285), a newly developed herbicide from the FMC Corporation, has shown promising results for preemergence weed control in field trials with ornamentals. Sulfentrazone provides selective control of yellow nutsedge (*Cyperus esculentus*) and morning glory (*Convolvulus*) species, as well as broadleaf and annual grass weeds (Weston et al., 1995). When applied at low rates in combination with other efficacious materials, the spectrum and longevity of weed suppression is enhanced (Crotser and Weston, 1995). Additional trials are needed to further evaluate the potential for registration of sulfentrazone for use in ornamentals.

Research was conducted to evaluate preemergence application of sulfentrazone and currently labeled products at different rates in ornamentals. The 17 treatments (replicated three times) included rates of sulfentrazone alone and in combinations with Gallery, Treflan, and Pennant. Within each treatment, 10 tree and shrub species were planted, using three plants of each species per treatment. The plant materials included: *Hemerocallis*, *Liriope muscari*, *Euonymus alatus* 'Compacta', *Abies concolor*, *Viburnum trilobum* 'Hahs', *Syringa vulgaris*, *Cercis canadensis*, *Crataegus viridis* 'Winter King', *Fraxinus americana* 'Skyline', and *Quercus rubra*. Plots were sprayed in June 1996, and herbicide efficacy was evaluated at 4 and 8 weeks after treatment (WAT), while phytotoxicity was evaluated at 5 and 10 WAT.

Major weeds encountered in this experiment at 4 WAT included annual grasses, yellow nutsedge, morning glory species, honeyvine milkweed, and velvetleaf. The best overall control was provided by sulfentrazone (0.426 kg a.i. ha⁻¹) plus Pennant (3.409 kg a.i. ha⁻¹), with a 90% overall weed control rating. Also providing excellent control was sulfentrazone at 0.568 kg a.i. ha⁻¹ (86% overall control). Sulfentrazone alone at 0.142 kg a.i. ha⁻¹ and Gallery alone at 0.568 kg a.i. ha⁻¹ provided the poorest overall control (32 and 55%, respectively). Sulfentrazone at higher rates and all sulfentrazone combinations provided moderate control (~80%). Major weeds encountered at 8 WAT included annual grass, morning glory species, honeyvine milkweed, and velvetleaf. Yellow nutsedge was not apparent at 8 WAT, since it was non competitive with the vining weeds. The best overall control was obtained by sulfentrazone at 0.568 kg a.i. ha⁻¹, with a rating of 83%. Sulfentrazone (0.426 kg a.i. ha⁻¹) plus Pennant (3.409 kg a.i. ha⁻¹) also maintained good control with a 78% overall weed rating. Treatments providing the poorest control were the same at 4 and 8 WAT.

Limited phytotoxicity was observed at 5 WAT with sulfentrazone and sulfentrazone combinations. *Liriope* and *Hemerocallis* were most sensitive to sulfentrazone, exhibiting chlorosis and bleaching of the foliage. The highest levels of phytotoxicity in these species were observed where sulfentrazone was applied at 0.568 kg a.i.

ha⁻¹ and at 0.426 kg a.i. ha⁻¹ with Pennant (3.409 kg a.i. ha⁻¹). *Syringa vulgaris* exhibited slight herbicide damage due to initial foliar contact. At 10 WAT, injury to *Hemerocallis* and *Liriope* was still evident, with chlorosis of tissue greatest when high rates of sulfentrazone were applied (> 0.426 kg a.i. ha⁻¹) or when sulfentrazone at 0.426 kg a.i. ha⁻¹ was applied with Pennant. Necrosis in *Syringa* was not apparent by 10 WAT and injury due to initial leaf contact was temporal. However, injury to *Abies* was highly visible at 10 WAT and was greater where higher rates of sulfentrazone were applied and in all sulfentrazone combinations. Chlorosis and necrosis of the foliage was likely due to postemergence contact, as evidenced by enhanced injury within the spray pattern at 10 WAT. It is not clear whether injury would be overcome with time.

In conclusion, sulfentrazone (>0.426 kg a.i. ha⁻¹) provided consistent and long-term weed suppression of difficult-to-control weeds. Combinations of sulfentrazone plus Pennant or Treflan also provided consistent control. Use of shielded applicators to prevent postemergence contact of sulfentrazone with ornamental foliage could minimize injury.

LITERATURE CITED

- Crotser, M. and L. Weston. 1995. Preemergence weed control with sulfentrazone (F6285) and sulfentrazone combinations in field-grown ornamentals. Weed Sci. Soc. Amer. Abstr. 35:26.
- Weston, L., R. McNeil, and R. Harmon. 1995. Herbicide combinations for weed control in established woody nursery crops. University of Kentucky, Nursery and Landscape Program 1995 Research Report.

Hemerocallis (Daylily) Propagation

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INTRODUCTION

Numerous *Hemerocallis* (daylily) cultivars are introduced each year that never make it to the consumer market because of limited supplies. The dramatic increase in the number of daylily cultivars and the preference for named cultivars has resulted in daylily propagation being limited to vegetative propagation, except in the case of hybridizers use of seed propagation to grow-out and evaluate the plants produced from their crosses. It has been stated that it can take 20 years for an outstanding cultivar to move from the enthusiast (connoisseur) market to the mass market (Pounders and Garton, 1996). The shortage and subsequent rapid nursery production of 'Happy Returns' introduced in 1986 indicated that even if the cultivar forms a relatively large number of divisions per year, it can take 10 years or more to have adequate plants to meet market demand.

Hybridizers have often been caught short of plants when a new introduction proves popular leading some to postpone introductions for several years (Schott, 1995). The recent introduction of patented daylily cultivars and the continuing efforts by hybridizers to breed cultivars for use by the landscape industry has resulted in the