



# MATHERS ENVIRONMENTAL SCIENCE SERVICES, LLC.

## **Abstract #2. Phytotoxicity and Efficacy Investigations of Marengo SC Dormant Applications Compared to Granule Formulation and Industry Standard in Nursery Overwintering Polyhouses**

**Abstract.** The practice of dormant pre-emergence herbicide applications in nursery overwintering containers is becoming more common. There are no registered preemergence herbicides for this practice. Marengo SC (Indaziflam 7.4% by wt.) (OHP, Inc., Mainland, PA, 19451) was registered for under greenhouse benches in 2014. The sponsor of this trial, OHP, was interested in the phytotoxicity, efficacy and duration of efficacy of Marengo SC at 7.5, 15 and 30 oz/ac rates versus the Marengo G (0.0224% a.i. indaziflam) 200 lb/ac rate, applied OTT, to dormant containerized plants, pre-winter close up. The Marengo formulations were compared to the industry standard for these dormant applications, SureGuard WDG (*Flumioxazin* 51%) 6 oz/ac, (Nufarm Americas Inc., Alsip, IL, 60803) and an untreated control. Seven species with varying levels of phytotoxicity to indaziflam and flumioxazin, in active growth, were chosen for dormant evaluations, *Spirea japonica* 'Little Princess', *Stachys minor*, *Berberis thunbergii* 'Concord', *Juncuseffuses*, *Rhododendron* 'Dandy Man Pink', *Hydrangea macrophylla* 'Endless Summer' and *Phlox paniculata*. The host site was Smith's Gardens, Inc., Delaware, OH, 43015. For each species and treatment, there were eight single plant replicates arranged in a completely randomized design (CRD) within species and 336 total trial plants. *Spirea*, *Berberis*, and *Hydrangea* experienced phytotoxicity above commercially acceptable  $\leq 3$  and should not be used even dormant with Marengo SC, G and SureGuard. Marengo G 200 lb/ac was found safe on dormant *Stachys*, *Juncus* and *Phlox*. This finding was significant to herbaceous perennial nursery container growers as *Stachys* and *Phlox* are two of the most sensitive herbaceous species to herbicide injury, and currently are kept weed free without chemical controls. The Marengo SC 7.5 oz/ac rate was also safe on dormant *Juncus*, *Phlox* and *Rhododendron*; however, confounding cold injury suggests that the *Rhododendron* and Marengo SC 7.5 oz/ac should be evaluated further in future studies. All treatments were significantly different than the control pooled over species and evaluations for efficacy. All treatments provided commercially acceptable weed control  $\geq 7$ , except the control. Marengo SC 7.5, Marengo G and SureGuard were not statistically different in there level of control, but again were different in phytotoxicity. Pooled over evaluations and species and comparing phytotoxicity and efficacy, Marengo G and Marengo SC 7.5 oz/ac are the two best treatments for dormant applications.