

# Phytotoxicity on ornamental plants associated with flumioxazin

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Flumioxazin is a pre-emergent herbicide of broadleaf weeds. From 2005 to 2007, seventeen trials were conducted in commercial nurseries located in three distinct growing climates to generate efficacy data for Canadian registration. Treatments were replicated and controlled for statistical analysis of data, and applied to mimic standard grower practices. Plant injury was visually assessed by rating on a 1-unit increment scale from 0 (no damage) to 10 (91 to 100% of plant leaf surface shows injury).

In nursery field production, Flumioxazin 51WDG was mixed in water and applied to the soil surface in five separate trials near four host plants (*Acer*, *Fraxinus*, *Quercus*, *Syringa*). Damage on herbicide-treated plants was never statistically higher than untreated plants for all evaluation dates. Leaf spot was the most common injury on flumioxazin-treated plants, obvious 3 to 7 days after treatment on leaves located low on the trunk and contacted by the spray application. Plants with leaf spots on low branches had no visible herbicide injury on higher parts of the canopy, including at growing tips. Nursery growers can safely use this herbicide in field production provided they make the application to the soil and avoid drift to the crop plant by using shields or applying in low wind conditions.

In nursery container production, the product Flumioxazin 51WDG was mixed in water and applied over-the-top at the bud swell stage. Phytotoxicity was noted at all rates tested and all hosts at 3 and 9 days after treatment. First unfolding leaves showed necrotic leaf spots, necrotic leaf margins, leaves brown and leaves wrinkled. No damage was noted on subsequent unfolding leaves. Use of this formulation over-the-top of plants in container production would require clear label wording to apply only on fully dormant plants.

In nursery container production, the product Broadstar 0.25G was manually applied on the soil surface during early spring, or over-the-top during summer, in nine separate trials near 18 host plants representative of nursery production. Damage on herbicide-treated plants was never statistically higher than untreated plants for all evaluation dates, with the following exceptions. *Buxus* showed leaf wrinkling shortly after application; *Hydrangea* had significant tip dieback; *Picea* showed needle chlorosis; *Rosa* showed damage from the 2X label rate; *Spiraea* had significant tip dieback and reduced top dry weight; *Viburnum* showed necrotic leaf spots following over-the-top application. Nursery growers can safely use this herbicide in container production, except not on *Hydrangea* and *Spiraea*, provided they make the application to the surface; application over-the-top of actively growing plants requires further care such as irrigation or rainfall to wash product residue from the crop foliage.