



# Ornamental Horticulture Program Research Project Sheet

<http://ir4.rutgers.edu/Ornamental/ornamentalProjectInformationSheets.cfm>

**Project Name:** Pre Emergent Herbicide Crop Safety – Oxyfluorfen + Prodiamine

<b>New</b>	<b>Ongoing</b>	X	<b>Completed</b>	<b>Duration if ongoing or completed:</b>	2004-2013
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**Project Description:**

The Pre-Emergent Herbicide Crop Safety Project began in 2004 and has continued through 2013. While specific crops and herbicides have changed, the intent of this research has been to screen over-the-top applications of pre-emergent herbicides as plants are breaking dormancy, or beginning new growth, and then 4 to 6 weeks later once foliage is more mature.  
This research project sheet covers Biathlon (oxyfluorfen + prodiamine).

**Research Project Abstract (if available):**

**Abstract from 2013 Oxyfluorfen + Prodiamine Crop Safety Summary**

From 2009 through 2013 IR-4 completed 98 trials evaluating Biathlon (oxyfluorfen + prodiamine) crop safety. The data contained in this report were generated to register uses of oxyfluorfen + prodiamine as over-the-top applications on and around ornamental horticulture plants. The rates tested were 2.75 (1X), 5.5 (2X) and 11.0 (4X) pounds active ingredient per acre (lb ai per acre).  
Biathlon was applied to thirty-four plant species or genera. Thirteen (13) genera exhibited no or minimal transient injury in at least 3 trials. One species exhibited phytotoxicity or growth reduction in at least one trial at the 2X and/or 4X rate, but it may not affect the marketability of the crop. No species tested consistently exhibited significant phytotoxicity or growth reduction in more than one trial. Twenty-one (21) species require further testing. Results are summarized at the species level, as there is some evidence that crop safety can differ at the varietal level. On the Biathlon label, *Potentilla fruticosa* appears twice: it may be used on the variety ‘Abbotwood’ but is not recommended on ‘Goldfinger’. More data is needed to establish the actual varietal sensitivities within *Potentilla fruticosa*, and identify other species with the same difficulty. We recommend *Lantana camara* *Rudbeckia spp.*, and *Sedum spp.* be added to the Biathlon label along with 6 additional varieties of species already listed.

**Target Species (Phytotoxicity, or common and Latin name of arthropod, pathogen, weed):**

Crop Safety

**Target Crops (list tested crops if ongoing or completed project)**

See “IR-4 Crop Safety to Date” below

**Target Product(s) (list tested products or numbered compounds if ongoing or completed project)**

Biathlon

**Product Registration and Research Status**

	<b>Registration Status</b>
Labeled & Commercialized Wide range of ornamental horticulture crops listed	Biathlon
Labeled & Commercialized Opportunity to add additional ornamental horticulture crops	
Labeled But NOT Commercialized	
Not yet registered or labeled	
No longer available for development	
* IR-4 Data contributed to registration decision – either adding pest to label or not pursuing further research	
1 At least one crop species screened fully	
2 Product not available for production ornamentals	

Project Pros	Project Cons
1 Additional research could yield data favorable for further label expansion	1 Wide range of crops already listed on the label

### IR-4 Crop Safety Trials to Date

Average rating on a scale of 1 – 5 with 1 = 0 to about no injury and 5 = severe injury and mortality; minimum to maximum rating; number of trials. A rating of 3 or higher is considered commercially unacceptable (*red text*). A rating of 1 or 2 is considered commercially acceptable and those with more than 3 trials are complete (*green text*). ‘Labeled’ indicates that IR-4 generated data in at least one trial and that this crop is listed on the label. For crop/product combinations that are blank, IR-4 has not screened this combination.

Plant Group	Crop	Biathlon (OHP 052908) (Oxyfluorfen + Prodiamine)
Broadleaf Evergreen Tree/Shrub	Camellia (Camellia sp.)	1.3 (1 - 2) n4
	Jasmine, Cape, Common Gardenia (Gardenia sp.)	Labeled
	Oregon Grape (Mahonia aquifolium)	1.0 (1 - 1) n1
	Heavenly Bamboo (Nandina domestica)	Labeled
	Azalea (Rhododendron sp.)	Labeled
	Rhododendron (Rhododendron sp.)	Labeled
Broadleaf Evergreen/Deciduous Tree/Shrub	Barberry (Berberis sp.)	Labeled
Bulbs & Corms	Daylily (Hemerocallis sp.)	2.3 (1 - 4) n4
Cactus & Succulents	Stonecrop (Sedum sp.)	1.3 (1 - 2) n4
Deciduous Tree/Shrub/Vine	Maple (Acer sp.)	1.0 (1 - 1) n3
	Birch (Betula sp.)	1.0 (1 - 1) n2
	Butterfly Bush (Buddleia davidii)	Labeled
	Dogwood (Cornus sp.)	1.1 (1 - 2) n7
	Euonymus (Euonymus sp.)	Labeled
	Golden Bells (Forsythia sp.)	1.0 (1 - 1) n1
	Hydrangea (Hydrangea sp.)	Labeled
	Candytuft (Iberis sp.)	1.0 (1 - 1) n3
	Sourwood, Sorrel Tree (Oxydendrum arboreum)	1.0 (1 - 1) n1
	Cherry (Non-Bearing) (Prunus sp.)	Labeled
	Oak (Quercus sp.)	1.3 (1 - 2) n3
	Rose (Rosa sp.)	Labeled
	Arrowwood (Viburnum sp.)	Labeled
	Fern	Fern, Autumn & Wood (Dryopteris sp.)
Hardy Ground Cover Foliage	Shrub Verbena (Lantana sp.)	Labeled
Herbaceous Flowering Plant	Mallow, Rose Mallow (Hibiscus sp.)	Labeled
	Cinquefoil, Shrubby (Potentilla fruticosa)	Labeled
	Pasture Sage (Salvia nemorosa)	1.2 (1 - 2) n5
Herbaceous Flowering Plant - Perennial	Purple Coneflower (Echinacea sp.)	2.0 (2 - 2) n2
	Hosta (Hosta sp.)	1.8 (1 - 3) n5
	Coneflower (Rudbeckia sp.)	1.3 (1 - 2) n3
Narrowleaf Evergreen Tree/Shrub	Japanese Cedar (Cryptomeria japonica)	Labeled
	Juniper (Juniperus sp.)	Labeled
	Rosemary (Rosmarinus officinalis)	1.0 (1 - 1) n5
	Yew (Taxus sp.)	Labeled
Ornamental Grass	Northern Sea Oats, Wild Oats (Chasmanthium latifolium)	2.0 (2 - 2) n1