



Environmental Horticulture Program Research Project Sheet

<https://www.ir4project.org/ehc/ehc-registration-support-research/env-hort-extension-resources/>

Project Name: Post Emergent Herbicide Crop Safety–Bentazon

New	Ongoing	X	Completed		Duration if ongoing or completed:	2018-2021
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Project Description:

The Post-Emergent Herbicide Crop Safety Project began in 2016 and has continued through 2019. 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 one formulation containing bentazon: Basagran T/O using over the top applications

Research Project Abstract (if available):

Abstract from 2020 Bentazon Crop Safety Summary

Basagran T/O has been registered for several years as a directed application and as an over-the-top application on limited plant species. However, growers have expressed the need to have additional plants added for over-the-top applications. Data collected throughout the history of the IR-4 Environmental Horticulture Program are presented here to support specific Basagran T/O applications over the top of certain ornamental horticulture plants. The rates chosen for this research were 1.0, 2.0 and 4.0 pounds active ingredient per acre (lb ai per A) as the 1X, 2X and 4X rates. In addition, early studies compared single versus two consecutive applications of 1.0 lb ai per A or 2.0 lb ai per A followed with 1 lb ai per A. Throughout the years, 90 different crop species/genera were examined for over the top applications. Of these, 22 exhibited no or minimal transient injury after application at all three rates. Twenty-six crops require further research because of unclear results. Thirteen crops exhibited no phytotoxicity at 1.0 lb ai per acre but did have some injury at the higher rates or with repeat applications. Thirty species exhibited phytotoxicity at even the 1.0 lb ai per acre rate.

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)

Basagran T/O

Product Registration and Research Status

	Registration Status
Labeled & Commercialized Wide range of ornamental horticulture crops listed	Basagran T/O *
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	

Area	Characteristic	Pro	Con
Availability & effectiveness of alternative management tools	Additional research could yield data favorable for further label expansion	x	
Damage potential of target			
Performance and crop safety of proposed products (from other systems)			
Compatibility with IPM, resistance management programs			
Economics			
Geographic distribution			
Manufacturer interest in labeling products			
Other			
Comments:			

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.

Data on crops studied from 2020 through 2021

Plant Group	Crop	Basagran T&O Herbicide (Bentazon)
Broadleaf Evergreen Tree/Shrub	Shoebblackplant; Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>)	4.0 (4 - 4) n1
Bulbs & Corms	Elephant's-Ear, Angel-Wings (<i>Caladium</i> sp.)	3.0 (3 - 3) n1
	Canna Lily Hybrids (<i>Canna x generalis</i>)	4.0 (4 - 4) n1
	Gladiolus (<i>Gladiolus</i> sp.)	4.0 (4 - 4) n3
	Lily (<i>Lilium</i> sp.)	3.0 (2 - 4) n3
	Daffodil (<i>Narcissus</i> sp.)	1.3 (1 - 2) n3
	Tulip (<i>Tulipa</i> sp.)	2.3 (1 - 3) n3
Cactus & Succulents	Stonecrop, Moss (<i>Sedum acre</i>)	3.7 (3 - 4) n3
	Stonecrop, White (<i>Sedum album</i>)	4.0 (4 - 4) n2
	Stonecrop, Kamchatka (<i>Sedum kamtschaticus</i>)	3.5 (3 - 4) n2
	Stonecrop, Jenny's (<i>Sedum rupestre</i>)	4.0 (4 - 4) n4
	Stonecrop, Tasteless (<i>Sedum sexangulare</i>)	4.0 (4 - 4) n1
	Stonecrop, Two-Row/Caucasian (<i>Sedum spurium</i>)	2.8 (1 - 4) n4
Deciduous Tree/Shrub/Vine	Hydrangea (<i>Hydrangea</i> sp.)	3.8 (2 - 5) n4
	Bridal-Wreath (<i>Spiraea</i> sp.)	3.5 (3 - 4) n2
Hardy Ground Cover Foliage	Mondo Grass; Lilyturf; Ker-Gawl (<i>Ophiopogon</i> sp.)	4.0 (4 - 4) n1
Herbaceous Flowering Plant - Perennial	False Goat's Beard (<i>Astilbe</i> sp.)	4.3 (4 - 5) n3
	Maiden Pink (<i>Dianthus deltoides</i>)	4.0 (4 - 4) n2
	Eastern Purple Coneflower (<i>Echinacea purpurea</i>)	2.7 (0 - 4) n3
	Plantain Lily (<i>Hosta</i> sp.)	3.0 (3 - 3) n1 Labeled
	Stonecrop, October Daphne (<i>Hylotelephium sieboldii</i>)	4.0 (4 - 4) n1
	Witch's Moneybags (<i>Hylotelephium telephium</i>)	4.0 (4 - 4) n1
	Black-Eyed Susan (<i>Rudbeckia hirta</i>)	4.7 (4 - 5) n3
Ornamental Grass	Pampas Grass, Uruguayan (<i>Cortaderia selloana</i>)	3.0 (3 - 3) n1



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Plant Group	Crop	Basagran T&O Herbicide (Bentazon)
Ornamental Grass	Field Fescue (<i>Festuca glauca</i>)	1.7 (1 - 3) n3
	Silvergrass, Japanese (<i>Miscanthus sinensis</i>)	3.0 (3 - 3) n1
	Switch Grass (<i>Panicum virgatum</i>)	3.0 (3 - 3) n1
	Crimson Fountain Grass (<i>Pennisetum setaceum</i>)	3.5 (3 - 4) n2
	Silver Grass (<i>Miscanthus</i> sp.)	1.0 (1 - 1) n1 Labeled
Narrowleaf Evergreen Tree/Shrub	Fir, Fraser (<i>Abies fraseri</i>)	3.5 (3 - 4) n2