

Project Name: Nutsedge and Sedge Efficacy

Dates Active: 2005-2007; 2016; 2018-2022

Project Description:

During the 2006 IR-4 Environmental Horticulture Workshop, a project was prioritized to screen for efficacious products to manage sedge and nutsedge in container or field grown environmental horticulture crops. Between 2007 and 2023, IR-4 evaluated a diverse group of products for pre- and post-emergent control of several sedges and nutsedges.

Research Project Abstract:

Abstract from 2023 Nutsedge and Sedge Efficacy Summary

Nutsedges and sedges (*Cyperus sp.*) are difficult to manage during the production of perennial environmental horticulture crops grown in containers or in the field. During the 2006 IR-4 Environmental Horticulture Workshop, a project was prioritized to screen for efficacious products to manage sedge and nutsedge in container or field grown environmental horticulture crops. Between 2007 and 2023, IR-4 evaluated a diverse group of products for pre- and post-emergent control of several sedges and nutsedges. During this time, IR-4 sponsored 84 research trials on 28 products or product formulations with 20 actives to manage sedges and nutsedge. Most research was conducted with pre-emergent herbicides.

The most effective options across these studies where IR-4 has at least 3 experiments include Pennant Magnum, SedgeHammer, Tower, and V-10142 for yellow nutsedge management. However, the IR-4 dataset is limited, and several products tested show promise for managing annual sedges, rice flatsedge, purple nutsedge or compressed sedge.

Target Species (Phytotoxicity, or common and Latin name of arthropod, pathogen, weed):
Flatsedge, Rice (<i>Cyperus iria</i>)
Nutsedge, Purple (<i>Cyperus rotundus</i>)
Nutsedge, Yellow (<i>Cyperus esculentus</i>)
Sedge, Annual (<i>Cyperus sp.</i>)
Sedge, Compressed (<i>Carex acuta</i>)

Target Crops (list tested crops if ongoing or completed project)
Hydrangea, Wild (<i>Hydrangea arborescens</i>)
Oak, Pin (<i>Quercus palustris</i>)
Oak, Willow (<i>Quercus phellos</i>)

Target Product(s)(list tested products or numbered compounds if ongoing or completed project)	
Basagran Herbicide (Bentazon)	Marengo G (Indaziflam 0.0224%)
Basagran T&O Herbicide (Bentazon)	Mesotrione 4SC (Mesotrione)
BroadStar 0.25G (Flumioxazin)	Mesotrione G (Mesotrione)
BroadStar 0.25G VC1604 (Flumioxazin)	Pennant Magnum (S-Metolachlor)
Casoron 4G (Dichlobenil)	RoundUp (Glyphosate)
Dismiss 4F (Sulfentrazone)	SedgeHammer (Halosulfuron)
Eptam EC (EPTC)	Showcase (Trifluralin + Isoxaben + Oxyfluorfen)
Eptam G (EPTC)	Snapshot 2.5TG (Trifluralin + Isoxaben)
F6875 0.3G (Sulfentrazone + Prodiamine)	Sulfentrazone 0.2G (Sulfentrazone)
F6875 4SC (Sulfentrazone + Prodiamine)	SureGuard 51WDG (Flumioxazin)
Fiesta Herbicide (Iron HEDTA)	Tower (Dimethenamid-p)
Fortress (OHP1701B) (isoxaben + dithiopyr)	V-10142 0.5G (Imazasulfuron)
Freehand G (Dimethenamid-p + pendimethalin)	V-10142 75WG (Imazasulfuron)
Gemini Granular (Prodiamine + isoxaben)	V-10233 76WG (Flumioxazin + pyroxasulfone)

Product Registration and Research Status			
	Fully Screened (also includes standards)	Partially Screened through IR-4 ¹	Need Data Across Species?
Labeled Generally & Commercialized			
Labeled Generally But NOT Commercialized			
Labeled for Specific Species & Commercialized	Basagran Broadstar Dismiss Eptam Freehand Pennant Magnum Tower		
Labeled for Specific Species but NOT Commercialized			
Not yet registered or Labeled			Casoron F6875 Fiesta Fortress Gemini Marengo Sedgehammer V-10142 Sulfentrazone Sureguard V-10233
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 species screened fully			

IR-4 Efficacy Trials to Date
Average rating on a scale of 1 – 5 where 1 = <60% Control (not effective), 2 = 60-79% control, 3 = 80-89% control, 4 = 90-94% control and 5 = 95-100% control; minimum to maximum rating; number of trials (See table on next page). For product/pest combinations that are blank, IR-4 has not screened this combination. A rating of 3 or higher is considered commercially acceptable. 'Labeled' indicates that this pest species or genera is listed on the label.

Environmental Horticulture Program Research Project Sheet

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

MOA	Product (Actives)	Flatsedge, Rice (<i>Cyperus iria</i>)	Nutsedge, Purple (<i>Cyperus rotundus</i>)	Nutsedge, Yellow (<i>Cyperus esculentus</i>)	Sedge, Annual (<i>Cyperus sp.</i>)	Sedge, Compressed (<i>Carex acuta</i>)
unknown	Fiesta Herbicide (Iron HEDTA)			1.0 (1 - 1) n2		
WSSA 14	BroadStar 0.25G (Flumioxazin)			4.0 (4 - 4) n1 Labeled		
WSSA 14	BroadStar 0.25G VC1604 (Flumioxazin)				1.0 (1 - 1) n1	
WSSA 14	Dismiss 4F (Sulfentrazone)			4.0 (4 - 4) n1 Labeled		
WSSA 14	Sulfentrazone 0.2G (Sulfentrazone)	2.5 (1 - 4) n2		1.0 (1 - 1) n2		
WSSA 14	SureGuard 51WDG (Flumioxazin)				5.0 (5 - 5) n2	
WSSA 14 + WSSA 15	V-10233 76WG (Flumioxazin + pyroxasulfone)				5.0 (5 - 5) n2	
WSSA 14 + WSSA 3	F6875 0.3G (Sulfentrazone + Prodiamine)			1.0 (1 - 1) n2		
WSSA 14 + WSSA 3	F6875 4SC (Sulfentrazone + Prodiamine)			3.0 (3 - 3) n1		
WSSA 15	Pennant Magnum (S-Metolachlor)	5.0 (5 - 5) n1 Labeled		4.0 (1 - 5) n4 Labeled	5.0 (5 - 5) n1 Labeled	
WSSA 15	Tower (Dimethenamid-p)			3.0 (1 - 5) n3 Labeled		
WSSA 15 + WSSA 3	Freehand G (Dimethenamid-p + pendimethalin)	5.0 (5 - 5) n1 Labeled		5.0 (5 - 5) n2 Labeled		4.0 (4 - 4) n1 Labeled
WSSA 2	SedgeHammer (Halosulfuron)	5.0 (5 - 5) n1 Labeled	3.0 (3 - 3) n1 Labeled	4.3 (2 - 5) n6 Labeled		
WSSA 2	V-10142 0.5G (Imazasulfuron)			4.0 (3 - 5) n2		

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WSSA 2	V-10142 75WG (Imazasulfuron)	5.0 (5 - 5) n1	4.0 (4 - 4) n1	3.5 (3 - 5) n4		
WSSA 20	Casoron 4G (Dichlobenil)			3.0 (3 - 3) n2		
WSSA 21 + WSSA 3	Fortress (OHP1701B) (isoxaben + dithiopyr)	5.0 (5 - 5) n1			1.0 (1 - 1) n1	1.0 (1 - 1) n1
WSSA 29	Marengo G (Indaziflam 0.0224%)				1.0 (1 - 1) n1	
WSSA 3 + WSSA	Gemini Granular (Prodiamine + isoxaben)				2.0 (2 - 2) n1	3.0 (3 - 3) n1
WSSA 3 + WSSA 21	Snapshot 2.5TG (Trifluralin + Isoxaben)			1.0 (1 - 1) n1		2.0 (2 - 2) n1
WSSA 6	Basagran Herbicide (Bentazon)			5.0 (5 - 5) n1		
WSSA 6	Basagran T&O Herbicide (Bentazon)			5.0 (5 - 5) n2 Labeled		
WSSA 8	Eptam EC (EPTC)			3.0 (3 - 3) n1 Labeled		
WSSA 8	Eptam G (EPTC)			5.0 (5 - 5) n1 Labeled		