

Selective Torpedograss Control in Aquatic Systems

Enloe, S.F., Netherland, M.D., & Lauer, D.K.

UF IFAS
UNIVERSITY OF FLORIDA



CENTER FOR AQUATIC
AND INVASIVE PLANTS

Introduction

Invasive grasses are consistently problematic for aquatic and wetland managers. Torpedograss (*Panicum repens*) is especially problematic in Florida where it infests thousands of hectares of wetlands, reduces wildlife habitat quality, and creates poor sportfishing habitat as it grows into dense tangled mats.

Current Conditions

Current management strategies almost exclusively use glyphosate and imazapyr to control these invasive grasses. These herbicide solutions provide control of many aggressive grasses, however they are both nonselective and may injure or kill non target species.

This can result in a reset of treated areas and delay restoration of native habitats. Selective herbicide strategies to preserve native habitats and conserve nontarget species is a critical management goal.

Sethoxydim is a grass-active herbicide solution that has been used for control of many weedy grasses and its selectivity has been well established.

So What?

The UF/IFAS Center for Aquatic and Invasive Plants evaluated the selectivity and effectiveness of sethoxydim for aquatic torpedograss control in four field studies.



INVASIVE GRASSES
ARE ONE OF THE
MOST DIFFICULT
ASPECTS OF
VEGETATION MANAGEMENT
IN MANY AQUATIC
AND WETLAND SYSTEMS.

Graminicides

Chemical herbicide solutions that selectively target the cell tissues of grass leaves. Graminicides, or “grass-active herbicides” are well established in terrestrial, or ground, systems like weed control in row crops.

There is significant potential for incorporating grass-specific herbicide into aquatic management and restoration projects. Sethoxydim is a graminicide with such potential.

Native Species Examined

To evaluate the effectiveness of selectivity on native plants, researchers tested the following 7 species:

Southern bulrush

Schoenoplectus californicus

Knotted spikerush

Eleocharis interstincta

Common cattail

Typha latifolia

Gulfcoast spikebrush

Eleocharis cellulosa

Common arrowhead

Sagittaria latifolia

Pickerelweed

Pontederia cordata

Egyptian panicgrass

Paspalum geminatum

Experiment

UF/IFAS CAIP researchers investigated the performance of a selective herbicide for invasive torpedograss control.

Four field studies were conducted in South Florida from 2015 to 2017. All sites were naturally infested with torpedograss and treatments varied at each site.

3 Objectives

- Evaluate sethoxydim performance on invasive torpedograss
- Determine if sequential applications improve long-term management compared to single applications
- Determine selectivity of sethoxydim against established, native plant species

Results

The lack of effect on nongrass, native plants (Figure 1) suggests that early and multiple treatments (Table 1) for invasive grasses without harming native populations is possible. However, native grass species such as Egyptian panicgrass, are sensitive to sethoxydim.

A high level of selectivity exists for sethoxydim in selective torpedograss control.

Figure 1

Percentage of biomass reduction for one nongrass, native species: pickerelweed. Each bar represents an average from three replications. Asterisks indicate a significant difference between herbicide biomass and control. Negative values indicate a positive growth response.

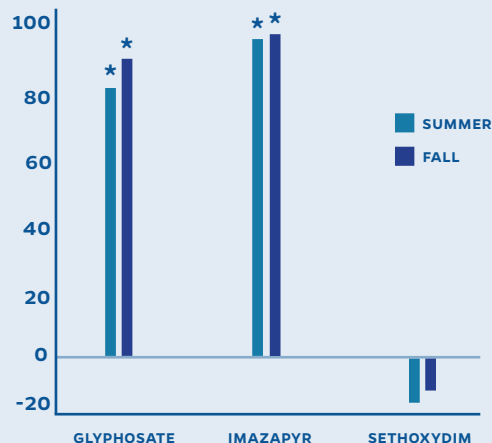


Table 1

Torpedograss control with single or sequential late spring ground-based broadcast application at Bonita Springs, FL. Sequential or repeated sequential sethoxydim applications resulted in significantly better torpedograss control than the single application at all evaluation dates, except for 30 DAIT.

HERBICIDE	NUMBER OF APPLICATIONS	% CONTROL **		
		30 DAIT*	180 DAIT	360 DAIT
GLYPHOSATE & IMAZAPYR	1	96 a	98 a	99 a
SETHOXYDIM	1	53 b	29 b	30 c
SETHOXYDIM	2	70 ab	91 a	67 b
SETHOXYDIM	3	65 ab	99 a	70 b

* DAIT = DAYS AFTER INITIAL TREATMENT

** MEAN PERCENT CONTROL WITHIN COLUMNS FOLLOWED BY THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

FOR MORE
INFORMATION
CONTACT US



352-392-9613
caip@ifas.ufl.edu
plants.ifas.ufl.edu

UF IFAS
UNIVERSITY OF FLORIDA



CENTER FOR AQUATIC
AND INVASIVE PLANTS

TURNING SCIENCE INTO SOLUTIONS

***Adapted from the following studies:**

Enloe, S.F., Netherland, M.D., & Lauer, D.K. (2018). Evaluation of sethoxydim for torpedograss control in aquatic and wetland sites. *Journal of Aquatic Plant Management*, 56, 93-100.

Enloe, S.F., Netherland, M.D. (2017). Evaluation of three grass-specific herbicides on torpedograss (*Panicum repens*) and seven nontarget, native aquatic plants. *Journal of Aquatic Plant Management*, 56, 65-70.