

Screening Herbicides for Phytotoxicity on Saltgrass (*Distichlis spicata*) Turf

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Objectives:

To evaluate commonly used postemergence herbicides for tolerance and phytotoxicity on saltgrass maintained as a turf.

Start Date: 2008

Project Duration: two years

Total Funding: \$6,000

Inland saltgrass, a native warm-season grass, has demonstrated excellent potential for turf use where adverse growing conditions make the use of traditional turf species difficult or impossible. This species possesses excellent salinity, heat, submersion, and traffic tolerance. Selections from more northern latitudes and higher elevations also display excellent cold tolerance.

Before cultivars of a new turf species are released for public use, it is essential that the cultural and management requirements of the new grass be studied. This includes an understanding of its response to applications of the most commonly used turf management herbicides. This study screened 20 herbicides commonly used for weed control in warm-season turf. The response of saltgrass to the herbicides (1X and 2X rates) was evaluated by rating for typical phytotoxic responses to herbicides, including discoloration (bronzing, yellowing, browning, burning) and/or loss of density.

A 4-year-old saltgrass stand (accession A138, established from plugs)

was used for this test. The turf was mowed at 2.5 inches once or twice weekly, and irrigated to prevent drought stress. Twenty different compounds were selected representing different chemical families which are typically used for postemergence grass, sedge, and broadleaf control in warm season turfgrasses. These products were applied at their 1X maximum single application label rate. They were also applied at a 2X rate, to simulate what occurs in overlaps during field application. Methylated seed oil (MSO) or a non-ionic surfactant (NIS) were used when recommended by the product label.

Plots were rated weekly for color, quality, density using the NTEP rating visual assessment scoring system (1 = dead, 6 = acceptable, 9 = best possible). Treatments were applied on August 22, with turf ratings conducted weekly from August 29 until September 25. Very cold temperatures during the week of September 20, including a light frost on September 21, caused the saltgrass in this study to become partially dormant.

With the exception of Monument, Katana, and Tranxit, which caused a substantial and prolonged decrease in turf quality and color for more than half of the rating period at their respective 1X application rates, all other herbicides applied at the 1X rate in this trial in Fort Collins CO appeared to be moderately or totally safe for use on saltgrass. The 2X rates of Plateau, Drive XLR8, 2,4-D, Spotlight, Banvel, Revolver, and Illoxan did cause unacceptable injury lasting two weeks or more in this study, suggesting that these products be used with caution (and perhaps at lower than maximum label rates) to avoid the potential for turf injury in overlap areas.

The saltgrass plots used in this study had consider-

able natural browning evident prior to the application of the herbicides. Saltgrass shoots tend to retain lower leaves that are in the process of senescing, often giving the turf a somewhat brownish cast. This characteristic is less evident when turf is mowed at lower heights, perhaps because the lower (and more frequent) mowing increases turf density which essentially hides the dead leaves.

Summary Points

- Twenty commonly used postemergence herbicides were applied to established saltgrass turf in Fort Collins CO in late August, at 1X and 2X maximum allowable label rates for warm-season turf (bermudagrass or zoysiagrass). Their relative safety, as determined by visual rating of turf color, quality and density are:

- Safe (no injury or minor phytotoxicity lasting less than one week) at 1X or 2X label rates:

Corsair 75 WDG	chlorsulfuron
Manor 60 WDG	metsulfuron
Image 70 DG	imazaquin
Sedgehammer 75 WDG	halosulfuron
Buctril	bromoxynil
MSMA	
Certainty 75 WDG	sulfosulfuron
Velocity 17.6 SG	bispyribac-sodium
Quicksilver T&O	carfentrazone
Dismiss	sulfentrazone

- Safe at 1X maximum label rate; injury at 2X maximum label rate lasting more than two weeks:

2,4-D amine	2,4-D
Plateau	imazapic
Illoxan	diclofop-methyl
Drive XLR8	quinclorac
Revolver	foramsulfuron
Banvel	dicamba
Spotlight	fluroxypyr

- Not Safe (significant injury lasting more than two weeks) at either 1X and 2X maximum label rates:

Katana 75 WDG	flazasulfuron
TranXit 25 DF	rimsulfuron
Monument 75WG	trifloxysulfuron



Saltgrass plots at Colorado State University, Fort Collins, CO.