

Selective Preemergence and Postemergence Control of Panic Liverseedgrass (*Urochloa panicoides*) in Desert Turf



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Introduction

Panic liverseedgrass is a relatively new problem weed occurring in turfgrass in the low desert region of Arizona, U.S.A. The USDA Plants Database shows it as an introduced annual grass in Texas, New Mexico, and Arizona. It is invasive and federally listed as a noxious weed. Liverseedgrass is native to eastern and southern Africa, the Arabian Peninsula and into India. Its range expanded into Asia, Australia, Europe, North and South America. Herbicide use and efficacy information is limited to row crops or noncrop areas. Some personal communications have indicated variable efficacy for many classes of herbicides, selective and non-selective products. Resistance to atrazine and glyphosate has been documented in Australia. In Arizona and Australia, there have been anecdotal evidence that 2,4-D was effective against seedling liverseedgrass. Additional personal communications in Arizona describe ineffective control with quinclorac and quinclorac plus MSMA and the pre-mix product foramsulfuron plus halosulfuron plus thiencazone. This project explores potential preemergence and postemergence herbicides

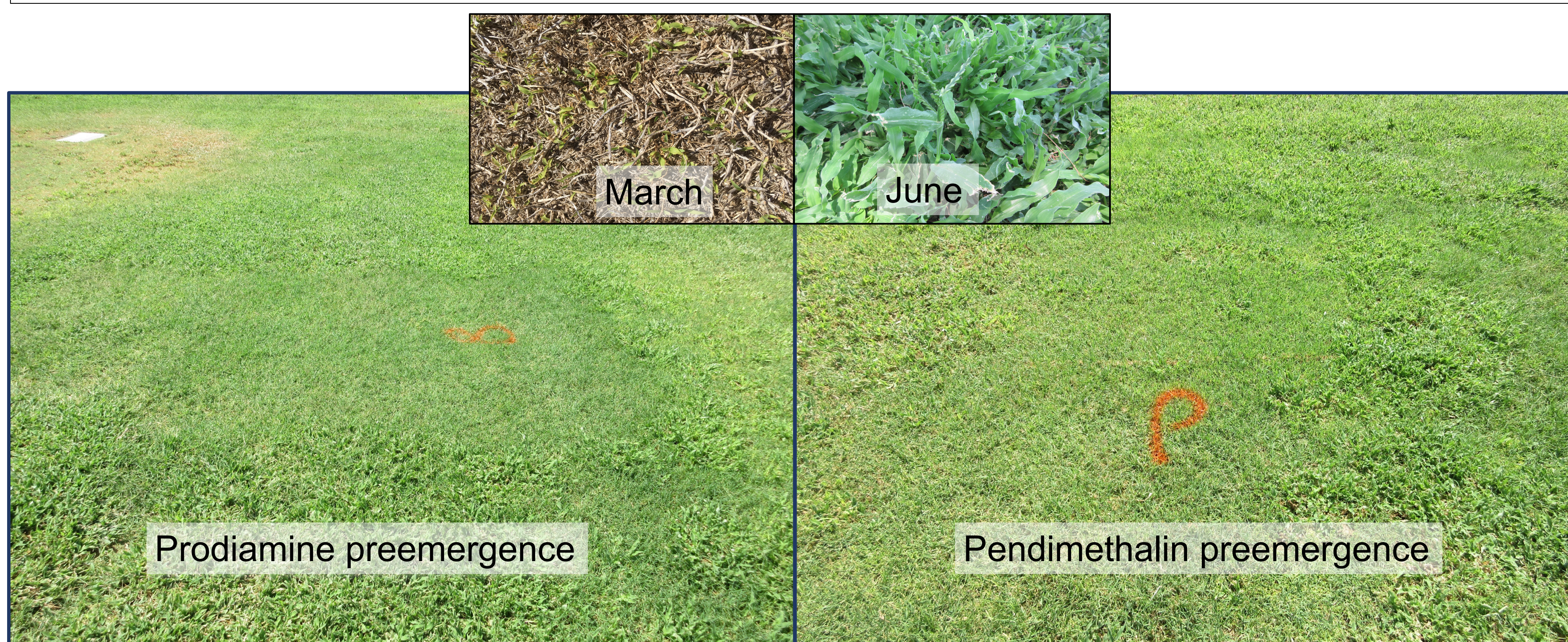
Materials and Methods

Small plot field experiments were conducted during the summer of 2016 to evaluate postemergence herbicides and winter 2016-17 for preemergence herbicides at a cemetery with common bermudagrass infested with liverseedgrass in Phoenix, AZ. Treatment plots measured 5 ft x 10 ft and were replicated 3 times in a randomized complete block design. Herbicide sprays were applied using a backpack CO₂ sprayer equipped with a hand-held boom with three 8003LP flat fan nozzles. Sprays were applied in 50 or 58 gpa water pressurized to 30 or 40 psi. A methylated seed oil surfactant was added to all postemergence sprays. Granular preemergence products were applied using a shaker jar with holes in the lid for the granules to pass through.

Results and Discussion

Postemergence herbicides were not effective on liverseedgrass when applied to mature weeds during June to August. Quinclorac and combination pre-mix herbicides; metsulfuron; and sulfosulfuron were not effective against liverseedgrass (Table 1). Mesotrione and topramezone alone or in combinations exhibited short term control of 2-3 weeks following sequential applications (Table 2).

Preemergence applications of prodiamine on fertilizer granules and granular pendimethalin controlled liverseedgrass into July following December applications (Table 3). Prodiamine was equally effective with a preemergence application in February (Table 4). Pendimethalin and pendimethalin plus dimethenamid controlled liverseedgrass from February to June. Preemergence herbicides were effective when applied prior to liverseedgrass emergence before 10 March.



References

Pesticide Training Resources. 2013. www.ptrpest.com
 United States Department of Agriculture, Natural Resources Conservation Service.
<https://plants.usda.gov/core/profile?symbol=URPA>

Table 1. Comparison of postemergence herbicides for liverseedgrass (UROPA) control.

Treatment	Rate (lb a.i./A)	UROPA control (%)				
		15 Jun	23 Jun	30 Jun	12 Jul	04 Aug
Untreated check		0 b	0 b	0 b	0 a	0 a
Quinclorac	0.75	3 b	15 b	15 ab	23 a	20 a
Quinclorac + Sulfentrazone + 2,4-D + Dicamba	1.54	8 b	17 b	27 ab	30 a	25 a
Metsulfuron	0.038	7 b	10 b	30 ab	17 a	17 a
Sulfosulfuron	0.094	8 b	8 b	20 ab	17 a	10 a
Topramezone	0.022	63 a	68 a	68 a	55 a	32 a

Treatments applied on 02 June and 15 June 2016.
 Means followed by the same letter within a column are not significantly different by Tukey's HSD.

Table 2. Evaluation of combinations of postemergence herbicides for liverseedgrass (UROPA)

Treatment	Rate (lb a.i./A)	UROPA control (%)					
		23 Jun	30 Jun	18 Jul	04 Aug	10 Aug	29 Aug
Untreated check		0 c	0 b	0 c	0 d	0 c	0 b
Mesotrione + Metribuzin*	0.16 + 0.188	47 b	50 a	82 a	10 cd	20 bc	8 b
Mesotrione + Simazine	0.16 + 0.25	43 b	60 a	82 a	22 b	83 a	68 a
Mesotrione + Sulfentrazone	0.16 + 0.25	53 ab	57 a	77 ab	22 b	63 ab	28 ab
Mesotrione	0.16	63 a	57 a	65 b	18 bc	72 a	10 b
Topramezone	0.022	47 b	57 a	78 ab	50 a	57 ab	43 ab
Topramezone + Quinclorac	0.022 + 0.75	47 b	77 a	72 ab	53 a	72 a	73 a

Treatments applied on 16 June, 12 July, and 04 August 2016.
 *Metribuzin not applied on 04 August.
 Means followed by the same letter within a column are not significantly different by Tukey's HSD.

Table 3. Early winter preemergence herbicide application for liverseedgrass (UROPA) control.

Treatment	Rate (lb a.i./A)	UROPA control (%)					
		28 Mar	18 Apr	04 May	22 May	08 Jun	12 Jul
Untreated check		0 b	0 b	0 c	0 b	0 c	0 b
Indaziflam ¹	0.05	96 a	90 a	85 a	87 a	50 abc	8 b
Flumioxazin ¹	0.38	88 a	85 a	82 ab	77 a	50 abc	48 ab
Dithiopyr ¹	0.5	93 a	90 a	73 ab	75 a	20 bc	27 ab
Dimethenamid ¹	1.5	81 a	57 a	63 ab	68 a	23 bc	20 ab
Pendimethalin ²	3.0	99 a	95 a	95 a	90 a	85 ab	83 a
Prodiamine ³	3.0	99 a	95 a	95 a	90 a	90 a	88 a
Oxadiazon ²	4.0	96 a	78 a	40 bc	17 b	0 c	0 b
Dimethenamid + Pendimethalin ²	1.5 + 2.0	98 a	93 a	90 a	87 a	77 ab	33 ab

Early winter applications on 19 December 2016.
 Liverseedgrass control rated during spring 2017.
¹Treatments sprayed in 50 gpa water.
²Treatments spread as granules.
³Treatment spread as granule coated fertilizer.
 Means followed by the same are not significantly different by Tukey-Kramer HSD.

Table 4. Late winter preemergence herbicide application for liverseedgrass (UROPA) control.

Treatment	Rate (lb a.i./A)	UROPA control (%)					
		28 Mar	18 Apr	04 May	22 May	08 Jun	12 Jul
Untreated check		0 c	0 c	0 c	0 d	0 b	0 b
Indaziflam ¹	0.05	82 ab	73 ab	65 ab	65 ab	20 b	0 b
Flumioxazin ¹	0.38	90 ab	77 ab	75 a	17 cd	13 b	0 b
Dithiopyr ¹	0.5	75 b	80 ab	75 a	50 bc	30 b	5 b
Dimethenamid ¹	1.5	85 ab	82 ab	73 a	65 ab	30 b	17 b
Pendimethalin ²	3.0	85 ab	77 ab	88 a	85 a	80 a	73 a
Prodiamine ³	3.0	97 a	92 a	92 a	90 a	85 a	85 a
Oxadiazon ²	4.0	82 ab	57 b	33 bc	0 d	0 b	0 b
Dimethenamid + Pendimethalin ²	1.5 + 2.0	96 ab	93 a	93 a	92 a	87 a	75 a

Late winter applications on 24 February 2017.
 Liverseedgrass control rated during spring 2017.
¹Treatments sprayed in 50 gpa water.
²Treatments spread as granules.
³Treatment spread as granule coated fertilizer.
 Means followed by the same are not significantly different by Tukey-Kramer HSD.