

## Herbicide Safety on Zoysiagrass Seedlings - 2003

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### Objective

The objective of this research was to evaluate the safety of various herbicides for weed control in seedling zoysiagrass.

### Rationale

With the increased availability of seeded zoysiagrass, questions arise concerning best establishment practices. Previous studies at Purdue have established optimum seeding dates, rates and conversion practices. Earlier research concluded that since zoysiagrass is slow to germinate and fill-in reducing weed control is crucial for establishment. Weeds that commonly reduce zoysiagrass establishment include perennial ryegrass and bermudagrass which are often not completely controlled before renovation, annual bluegrass which can germinate in early summer, and annual grassy weeds such as crabgrass and goosegrass which germinate during establishment. We previously evaluated herbicides such as quinclorac (Drive 75DF), siduron (Tupersan) and dithiopyr (Dimension 1EC) for the control of crabgrass. However, additional screening was necessary to determine which herbicides would provide safe postemergence or preemergence control of perennial ryegrass, bermudagrass, annual bluegrass and goosegrass.

### How It Was Done

The experiment was initiated in 2003 at the W.H. Daniel Turfgrass Research and Diagnostic Center, West Lafayette, IN. The experimental area was tilled and fumigated prior to establishment to minimize competition from annual grasses and broadleaf weeds so that effects could be determined on only zoysiagrass seedlings. The area was smoothed and leveled to prepare the seedbed. 'Zenith' zoysiagrass was seeded at 1.0 lbs PLS/1000 ft<sup>2</sup> on 19 May. Areas were covered with an AgroFabric germination blanket to prevent seed movement. The experimental area was irrigated as needed to encourage germination and establishment. Emergence was defined as an uniform stand of 0.5 inch tall seedlings and this was determined to occur on 18 June. The area was mown at 0.5 inch with a reel-type mower as needed with clippings collected. Experimental design was a randomized complete block design with three replications and 5 ft by 5 ft plots. Treatments included an untreated check and six herbicides [Kerb WSP (pronamide) at 2.0 lbs/A, Target 6.6E (MSMA) at 40 fl oz/A, Acclaim Extra (fenoxaprop-ethyl) at 28 fl oz/A, Fusilade II (fluazifop) at 4 fl oz/A, Ronstar 50WP (oxidiazon) at 6 lbs/A and Revolver 2.25SC (foramsulfuron) at 0.4 oz/1000 ft<sup>2</sup>] applied at 0, 7, 14, 21 and 28 days after emergence (DAE). Applications were made in the equivalent of 2 gals H<sub>2</sub>O/1000 ft<sup>2</sup> at 35 PSI with flat fan nozzles. Data was collected weekly as percent coverage in 2003. This was the second year of a three year study.

### Results - 2003

- Kerb, Revolver, Fusilade and MSMA did not reduce zoysiagrass seedling coverage at any time during establishment in 2003 regardless of application timing. (Figs. 1 and 2)
- Ronstar applied 0 DAE (18 June) reduced zoysiagrass coverage compared to the check (Figure 1). However, by 8 July zoysiagrass had recovered and coverage was equal to the check (data not shown).

- Acclaim Extra reduced cover as compared to the check following applications at 0 and 7 DAE . When data was collected on 22 July, Acclaim Extra treatments applied at 0 and 7 DAE still showed a reduction in cover (Figure 2).

### **Summary of 2002 and 2003 data**

- Kerb and MSMA did not reduce cover at any time during 2002 or 2003 regardless of application timing.
- Revolver did not reduce cover at any time during 2003 regardless of application timing.
- Fusilade did not reduce cover in 2003 from any application timing, but did reduce cover when applied 0 and 7 DAE in 2002.
- Ronstar reduced zoysiagrass coverage compared to the check when applied 0 DAE in 2003.
- Acclaim Extra reduced cover of zoysiagrass when applied 0 and 7 DAE in 2002 and 2003. In both years full recovery did not occur by the end of the growing season.

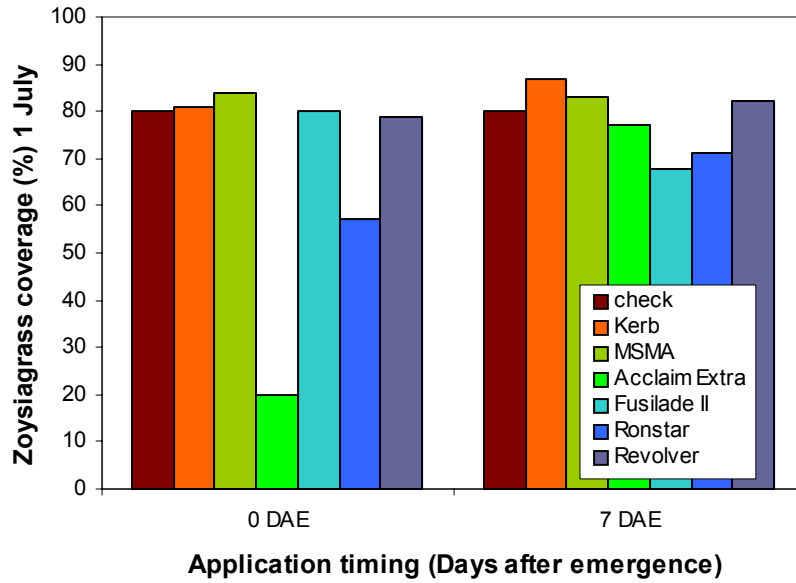


Figure 1. Effect of herbicides applied 0 and 7 DAE on zoysiagrass coverage rated 1 July, which was 13 days after seedling emergence.

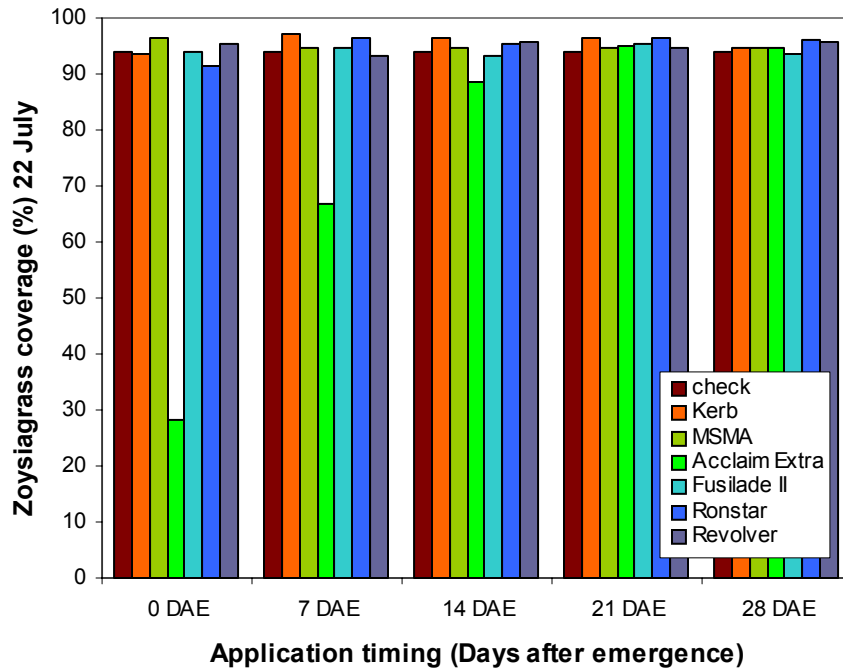


Figure 2. Effect of herbicides applied 0, 7, 14, 21 and 28 DAE on zoysiagrass coverage rated 22 July, which was 34 days after seedling emergence.